

## Faculty of Applied Sciences & Biotechnology

### B. Tech Food Technology

#### Vision

- To create Food Technologist with a strong practical and theoretical exposure in the field of Food Processing and Quality, who are capable to cater the need of society.
- To make students knowledgeable, innovative for offering solution to Food Industry.
- To enable students to analyze and solve Food Industries problem by applying basic principles of Food Science, Engineering and Technology and also able to use current techniques and tools to fulfil need of Industry.
- To provide excellence in the area of food technology, entrepreneurship and offer short term training programmes to local people to make them self-sustained.
- To develop technically qualified, skilled, competent human resource through excellent teaching and knowledge to cater the needs of Food Industries and Research.

#### Outcome

- Tackling the technical manpower requirements at various levels by adopting a new concept of modular system in technical education with emphasis on practical training.
- Produces globally competitive professionals, through excellence in inter-disciplinary education, research and innovation to meet the future challenges in agriculture and ensure global food and nutritional security in industry.
- Provides the self - employment opportunities to the students being trained professionals in manufacture of various new food products
- Reduction and utilisation of the agriculture waste with the aim of New-Product development.
- To carry out R&D activities related to Food Technology.
- To carry out the food testing activity to support the Food safety and to support the export of processed foods.

### BSc Agriculture

B.Sc.(Hons.)Agriculture degree programme is aimed at developing a specialized trained and skilled human resource in the dynamic field of agriculture through quality education. The students would be ready with updated knowledge on crop production and management systems

to face the growing challenges of feeding the billions, malnutrition, global competitiveness, climate change and high tech regime.

#### Fundamentals of Agronomy

The students will be equipped with basic knowledge on different agronomic practices for crop production as the course provides know-how on fundamental aspects of tillage, seed sowing, manures, fertilizers, irrigation, harvesting, threshing, weed management, etc.

#### Fundamentals of Plant Pathology

This course would expose the students to various living, non-living and environmental causes of plant diseases. The students would get a thorough knowledge of importance of plant diseases, how the pathogens survive and spread and cause diseases in plants along with favourable weather conditions. Students will also learn about the principles of plant disease management like avoidance, exclusion, eradication, host resistance and chemotherapy.

#### Fundamentals of Entomology

Through this course the students would be exposed to basics of insect science followed by comprehensive knowledge on nomenclature, classification, morphology, ecology, physiology and their management to minimize losses through various techniques such as IPM, etc.

#### Fundamentals of Horticulture

This course is designed to impart comprehensive knowledge to the students on basic aspects of horticulture with general emphasis on economic importance, current scenario, cultural and management practices of commercial horticultural crops – fruits, flowers, vegetables, medicinal and aromatic plants.

#### Fundamentals of Plant Breeding

This course is designed to provide updated knowledge to students on historical and fundamental aspects of plant breeding to have requisite know-how on various conventional and non-conventional approaches including biotechnological methods to develop high yielding and stress tolerant varieties and achievements thereof leading to enhanced food production.

#### Fundamentals of Genetics

Outcome of the course would be to acquaint the students on basic principles of cytology and genetics by imparting comprehensive knowledge on pre-mendelian and post-mendelian concepts of inheritance, mendelian genetics, cell structure and division, chromosome and DNA structure, structural and numerical chromosomal variations, mutations and polyploidy, modes of inheritance, gene structure, function and regulation.

#### Soil and Water Conservation Engineering

Students are expected to have acquired thorough knowledge on the conservation of soil and water erosion through know-how on various principles, measurement and engineering techniques on causes and losses and prevention of soil and water loss and their erosion.

### Production Technology of Fruits and Plantation Crops

This course would expose the students to major commercially important fruit (mango, citrus, banana, guava, grapes, temperate fruits) and plantation crops (tea, coffee, coconut, arecanut, oilpalm, cashew). The students would be imparted comprehensive knowledge on production technologies – origin, spread, varieties, rootstocks, planting systems, methods of propagation, growth and development, disease and insect-pest management, harvesting and utilization.

### Production Technology for Vegetable and Spices

This course would expose the students to various economically important vegetable and spice crops. The students would get a thorough knowledge of importance of vegetables and spices in human nutrition, national economy, kitchen gardening and brief about the origin, area, climate, soil, improved varieties and cultivation practices.

### Crop Production Technology –I (Kharif Crops)

This course is formulated with a view to provide basic information on various kharif crops (rice, maize, sorghum, pearl millet and finger millet ; pulses ; oilseeds – groundnut, soybean ; fibre crops - cotton & jute. The course outline emphasize on detailed production technologies highlighting their origin, geographical distribution, economic importance, soil and climatic requirements, varieties and cultural practices and production systems.

### Livestock and Poultry Management

The course is intended to acquaint the students with the basics of livestock rearing and management as an extra source of income by introducing them to fundamental aspects like breeds of cattle, buffaloes, sheep, goats, poultry etc., housing, management practices, nutrition, diseases etc.

### Fundamental of Agricultural Extension Education

The course outline emphasize on fundamentals of extension education, its principles, KVKs, programme planning process, teaching-learning process and diffusion of innovation. The students are expected to learn different extension strategies and uses of the media-mix strategies for disseminating the information to the farming community.

### Communication Skills and Personality Development

The course is designed to enhance the communication skills and development of the personality of the students by adopting different communication strategies, communication at different levels, understanding of verbal, non-verbal, intra and inter-personal communication, gestures and model of communications. This course will further help the students to motivate the clients to bring a desirable change.

### Agricultural Finance and Co-operation

The basic aim of the course is to generate know-how amongst the students on micro- and macro financing, credit systems and history of financing agriculture in India. Besides the above, the students would acquire knowledge on GOI crop insurance schemes, role of banks and farming co-operation.

### Introduction to Forestry

The students will have comprehensive knowledge on current scenario, policy and status of forestry in India besides learning fundamental aspects of silvicultural practices, regeneration methods, tending operations, crown classifications, choices of species, agroforestry systems, raising of forest nurseries and measurement of trees/forest crops.

### Agricultural Economics

This course provide students an exposure to the field of agricultural economics. The course is expected to infuse requisite confidence amongst the students for valid use of economic tools and their utility in the field of agriculture and agribusiness.

### B.Sc. Food Technology

#### About the Programme

- B.Sc. Food Technology is a three-year undergraduate programme streamlined with an aim to help students to understand the procedures of food production and how these can be improved to produce healthier products.
- The coursework focuses on imparting in-depth knowledge of both scientific and technical methodologies which help in understanding the nature of raw food materials. While studying B.Sc. Food Technology the students attain knowledge exuding the methods of maintaining and regulating hygiene and preservation to make food worthy of consumption.
- Students are trained to conduct experiments and detect the nutritional proportion of elements. They are also taught the fundamentals of food intake helping them gain knowledge about diet and fitness.

#### Outcome

- Prepare Graduates for evaluative thinking and analytical skills to broaden their knowledge of Food and its preservation.
- Develop effective communication and higher cognitive skills.
- Cultivate the virtues as outlined in the Shoolini University Principles of Community such as Value diversity of backgrounds and opinions. Understand the importance of responsibility, dependability, punctuality, courtesy, sensitivity, respect for others, and effort in the work place. Commit to the highest standards of professional integrity and ethical values.

- Develop focus and depth in the food science discipline through competency in the core knowledge area.
- Provides rewarding career in food manufacturing sector. The knowledge of various processes involved in food production, human physiology, economics, marketing and financial management makes this as an ideal choice for a successful career.
- Recognize the main world food problems and their root causes
- Recognize and describe various food groups, including meats, dairy, eggs, grains, legumes, fruits, vegetables and discuss their nutritional contribution as food Recognize some compositional and quality changes due to processing
- Define the role of the FDA and USDA in overseeing the U.S. food supply

## M.Sc. Food Technology

### Vision

- To produce skilled technical and managerial manpower for operation management in agro-allied industries
- To produce postgraduates with entrepreneurial capabilities
- To produce postgraduates who will be involved in consultancy services in food product development, research and development, processing and preservation
- To cater the need of modern food industry by developing innovative food processing and preservation technologies
- To accentuate nutrition education based on recent developments in science and technology to improve the awareness and the quality of life
- To train the best talents of the nation in order to provide a support base for the country's food security
- To enable the students to comprehend the whole gamut of the fast changing food science scenario of the world.

### Outcomes:

- Understand fundamental concepts and knowledge related to foods and identifying strengths, limitations and future directions.
- Critically analyze food with regard to materials, preservation of food quality and safety, costs and benefits.
- Better utilization of agricultural products into food products with minimum wastage.

- Low cost food products will be available in market to fulfill the satiety of millions of poor people.
- New training programs will be carried out in rural areas to enlighten the importance of food hygiene and sanitation.
- Design solutions for problem associated with processing of foods.
- Marketing of nutraceutical and functional foods.

## M. Tech. Food Technology

### Vision

- To produce competent and skilled manpower to growing food sector by imparting the in depth knowledge of food processing, preservation, storage and transportation.
- To instill interest of young learners in various aspects of food sectors and related areas.
- To produce postgraduates capable of entrepreneurial activities and giving boost to the food sector.
- To enable the young mind for carrying out research and bring innovative solutions to the current and possible future problems of food stakeholders.
- To cater the need of modern food industry by developing innovative food processing and preservation technologies
- To train the young minds for social activities and knowledge transfer for the betterment of living of rural population.
- To bring out the innovative solutions for resolving the problems of import and export sectors.
- To train the students for self sustainability in the field of food processing.

### Outcomes:

- The fully trained people who will pass out the institutions will be capable of dealing the problems related to food security in India.
- Better utilization, transport and processing of agricultural crops for feeding the increasing population of India and world.
- Promote the students for setting up their own food business and encouraging them to export the food commodities.

- Young minds with in depth knowledge of food will be able to work with government and preparing the policies related to the food sector.

## Ph.D. Food Technology

### Vision

- To produce young trained food scientists to enhance food production, processing and value addition to food industry in India.
- Utilization of new techniques in food technology and evaluation of their effects on food quality
- Application of novel food preservation techniques to enhance the storage life of food products with superior quality.
- Use of processing techniques having minimum losses of nutrients.
- Use food as a source of fortification to eradicate micronutrient malnutrition in India and abroad.
- To develop new technology for new product development and patenting of new technologies and technology transfer to industries
- Effective utilization of food waste by reducing waste, utilization and conversion of food waste into value added products
- To serve India and World with superior quality of nutritious food.

### Outcomes

- To produce fully trained food scientists to serve India and Abroad with their expert skills and knowledge
- Better utilization of agricultural products into food products with minimum wastage.
- Low cost food products will be available in market to fulfill the satiety of millions of poor people.
- New training programs will be carried out in rural areas to enlighten the importance of food hygiene and sanitation.
- The dragon of food adulteration will be controlled by utilization of new and novel techniques
- Transfer the knowledge of food science and technology for fulfillment of changing needs of children, adults and old age people.
- Establishment of new food industries for new and quality food products.

- Entrepreneur development in food technology & sciences.

## School of Biotech

### UNDERGRADUATE COURSES:

#### VISION

Our microbiology and biotechnology courses contain topics covering all aspects of the applied biochemistry and the biotechnology industry, such as intellectual property and patents, commercializing technology, and entrepreneurship, with lectures and case studies from biotechnology business leaders and academics.

#### OUTCOME

Intellectual Skills (thinking) skills - able to: • Analyse and solve biochemistry-based problems; • Integrate and evaluate information; • Formulate and test hypotheses using appropriate experimental design and statistical analysis of data; • Plan, conduct and write-up a programme of original research Practical skills – able to: • Plan and execute safely a series of experiments; • Use laboratory methods to generate data; • Analyse experimental results and determine their strength and validity; • Prepare technical reports; • Give technical presentations; • Use the scientific literature effectively; • Use computational tools and packages. Transferable skills – able to: • Communicate effectively through oral presentations, computer processing and presentations, and written reports; • Work independently and as part of a team • Integrate and evaluate information from a variety of sources; • Use Information and Communications Technology; • Manage resources and time; • Learn independently with open-mindedness and critical enquiry; • Learn effectively for the purpose of continuing professional development.

### POST GRADUATE COURSES:

#### VISION:

Programme outcome of M.Sc courses is to produce competent biotechnologist's and microbiologist's who can employ and implement their knowledge base in premium processes and applications which will profoundly influence or utilized for existing paradigm of agriculture, industry, healthcare and restoration of degraded environment to provide sustainable competitive edge to present society. Students will exhibit contemporary knowledge in Biotechnology and students will be eligible for doing jobs in various sectors of pharmaceutical and biotechnological industry.

#### PROGRAMME OUTCOMES:

- Students will be able design, conduct experiments, analyze and interpret data for investigating problems in Biotechnology and allied fields.



- Higher studies (M.Phil, Ph.D) can be pursued in order to attain research positions. Various examinations such as CSIR-NET, ARS-NET GATE, ICMR, DBT and many other opens channels for promising career in research.
- Students can become Junior Production Officer and Technical Assistant in biotechnology, pharmaceutical Companies, bio fertilizer industry, aquaculture industries, environmental units, crop production units, food processing industries, national bio-resource development firms, banking and KPO.
- Entrepreneurship ventures such as consultancy and training centres can be opened.
- Some of the major pharmaceutical and drug companies' highering biotechnological professionals include Dabur, Ranbaxy, Hindustan Lever and Dr Reddy's Labs, food processing industries, chemical industry and textile industry as well. Beside this industries also employ biotechnological professionals in their marketing divisions to boostup business in sectors where their products would be required.
- Beside industrial sector there are ample opportunities in academics as well.
- Students will be able to understand the potentials, and impact of biotechnological innovations on environment and their implementation for finding sustainable solution to issues pertaining to environment, health sector, agriculture, etc.
- Several career opportunities are available for students with biotechnology background abroad especially in countries like Germany, Australia, Canada, USA and many more where biotechnology is a rapidly developing field.

## B.Tech. Biotechnology

### Vision

- This programme will enable students to acquire knowledge on the fundamentals of Biochemistry, Cell biology, Microbiology and Molecular biology to enable them to understand emerging and advanced concept in modern biology and help them to pursue successful career in this field.
- This programme will facilitate the students to acquire knowledge in fields such as genetic engineering, protein engineering, and Bioprocess engineering and associated downstream processing enabling their application through Bioprocess technology
- This programme will aid the students to learn the recent developments in the field of Genomics, Proteomics, Cancer Biology and immunology. It will also empower the students to have advanced focus on the molecular basis of life sciences and development of advanced technologies.
- This programme will teach students the importance of Bioethics, entrepreneurship and good laboratory practices.

## Outcome

- Graduates of the program will be having strong background at interface of modern biology and advanced biotechnology and be able to use these tools in industry and/or institutes where ever necessary.
- The students will acquire the necessary skills to make them more employable in life sciences based industries.
- A comprehensive curriculum will provide them hands on experience to understand the dynamics of biotechnology research.
- The students will be equipped to pursue diverse careers ranging from life sciences to management sciences.

## M. Tech Biotechnology

### Vision

- To impart core knowledge in Biotechnology with particular emphasis on ability to integrate knowledge across disciplinary boundaries.
- The department has a vision to impart international standard quality education in the field of Biotechnology.
- To impart intensive knowledge relevant to the present industrial needs to bridge the gap between the industry and academia.
- To nurture world class bioengineers with a potential to innovate, invent and disseminate knowledge for the benefit of society and environment.
- To excel in academics and research in frontier areas of modern biotechnology by providing personal mentoring, hands on training and industrial exposure to the students.
- To produce professionals with leadership quality in technology, innovation, and entrepreneurship.

### Outcome:

- Students will gain and apply knowledge of Biotechnology, Science and Engineering concepts to solve problems related to field of Biotechnology.
- Students will be able to design and develop solution to Biotechnology Engineering problems by applying appropriate tools while keeping in mind safety factor for environmental and society.

- Students will be able to design, perform experiments, analyze and interpret data for investigating complex problems in Biotechnology.
- Student will learn oral and written communication skills.
- Students will be able to undertake any responsibility as an individual and as a team in a multidisciplinary environment.

## Faculty of Basic Sciences

### B.Sc. (H) PHYSICS

Program outcomes: Understand foundation of Physics course at Bachelor level.

Course Name : Advanced Mathematics-II

Course Outcome:

#### I. Knowledge Outcome:

At the end the student will gain understanding of:

- Ordinary and partial differential equation and study different methods to solve them.
- Laplace transforms, its importance as well as to find the Laplace Transforms of some elementary functions.
- Solving simple linear and simultaneous linear differential equations by using Laplace Transform.
- Fourier series, its importance as well as to find Fourier series expansion of different types of function.
- Applications of partial differential equations in solving initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

#### II. Skill Outcome:

At the end the student will be able to:

- Solve ordinary and partial differential equations.
- Use Laplace Transform in solving simple linear and simultaneous linear differential equations.

Solve initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

Course Name : Advanced Remedial Mathematics

Course outcome:

1. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

2. Skill outcome:

At the end of the course, the student should be able to:

- Describe different methods of solving algebraic and transcendental equations.
- Describe different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name: Chemistry

Course outcomes:

1. Knowledge outcomes

At the end of course, the student should be able to

- Understand atomic structure and various principles governing it
- Explain fundamentals covalent and Valence bonding
- Comprehend laws of thermodynamics and their applicability
- Differentiate between various types of organic reactions and their mechanisms
- Understand various methods of water treatment
- Explain properties , synthesis and applications of various polymers

## 2. Skill outcomes:

At the end of course, the student should be able to:

- Utilize MO and VB theory for explaining bonding
- Predict the mechanism and products of simple organic reactions
- Solve numerical based on thermodynamics
- Analyze the methods of water purification and treatment
- Identify various natural and synthetic polymers and differentiate their properties and applications

Course Name : Computer Programming

Course Outcome:

### 1. Knowledge Outcomes:

After completing the course the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed

- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

## 2. Skills Outcomes:

After completing the course the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Understand the organization of a computer system.
- Understand the process of compiling, linking, and running a program

Course Name : Advanced Remedial Mathematics-II

Course outcome:

### 1. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.

- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

2. Skill outcome:

At the end of the course, the student should be able to:

- Understand different methods of solving algebraic and transcendental equations.
- Understand different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Elementary Biology

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic and eukaryotic cell.
- Evaluate the role of evolution in present life.
- Understand the basic properties of cell membrane, its composition and its structure.
- Differentiate the structural organization and function of intracellular organelles such as mitochondria, golgi bodies, chloroplast, endoplasmic reticulum and cytoskeleton etc.
- Analyze the different stages of cell division and cell cycle and its control

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic cells to eukaryotic cells.
- Determine the properties of cell membrane and transport across cell membrane through analysis of diffusion Pressure Deficit, Osmotic potential of cell sap by plasmolytic methods, total protein content by using Lowery's method and the leakage of electrolyte etc.
- Prepare temporary mount of different stages of mitosis (onion root tip).
- Extract total DNA from the plant sample.

- Understand the instrumentation and working of major instruments and equipment and equipped used in the laboratory.

Course Name : Engineering Physics

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the basic phenomena of optical physics involves in day to day life.
- How to get sustained interference of light?
- Determine the wavelength of any monochromatic source of light.
- Determine the refractive index of any transparent liquid.
- Determine the resolving power and dispersive power of grating.
- Polarization: a proof of transverse nature of light.
- Basic principle of LASERS.(Stimulated emission of radiations)
- Components of Laser Devices.
- Working principles of Solid state Lasers and Gas Lasers.
- Applications of Maxwell's equations.
- How to obtained  $E = Mc^2$  equation
- describe the failure of classical mechanics
- explain fundamentals of quantum mechanics
- formulate Schrödinger wave equation and apply to various systems
- Understand the important applications of Quantum Mechanics and its various operations.
- Working of most soffticated instruments: XRD, SEM and TEM in nanotechnology.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Differentiate between interference and diffraction pattern of light energy.
- Know the polarized and unpolarised light.
- Importance of Maule's Law.
- Make the He-Ne gas laser and Ruby Laser.



- Apply the Maxwell's equation in any type of dielectric media.
- Apply length contraction and time dilation concepts to daily life problems (Space problems).
- normalize the wave functions
- calculate Eigen values for various quantum mechanical systems
- Use of operators
- How to operate XRD, SEM/TEM machine for nanomaterials.

Course Name : Computer Science and Its Applications

Course Outcome:

### 3. Knowledge Outcomes:

After completing the course, the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C++ programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C++ function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.

- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

## 2. Skills Outcomes:

After completing the course, the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C++ program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Describe the organization of a computer system.
- Describe the process of compiling, linking, and running a program

Course Name : Graphics Communication and Design

Course Outcome:

### 1. Knowledge Outcome:

- At the end of the course, the students will have the knowledge of Professional drawing with its codes and rules.
- They will know the method of communicating the design from one department to other with 2D and 3D drawings.

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Plot basic professional drawing on sheet

- Sketch the drawing on Auto Cad
- Proper documentation of design sheet.
- Imagine and visualize the geometric details of engineering objects.
- Translate the geometric information of engineering objects into engineering drawings.
- Use computer aided drafting in their respective engineering field.

Course Name : Engineering Mathematics

Course outcomes:

Knowledge outcomes:

At the end of the course, the students should be able to:

- The student shall gain understanding of Matrix, different types of matrices and different methods to solve system of linear equations.
- The student shall gain understanding of partial derivatives, jacobian and its properties.
- Student shall gain knowledge of Euler's theorem and Taylor's theorem.
- Student shall gain a thorough understanding of double and triple integrals and its application to area and volume.
- Student shall gain a thorough understanding of Beta and Gamma functions.
- Student shall gain knowledge of Gradient, Divergence and Curl of a vector.
- Student shall gain a thorough understanding of Green's, Stoke's and Gauss's divergence theorem.

Skill outcomes:

At the end of the course, the students will gain the skill of:

- Different methods of solving system simultaneous linear equations.
- Use of double and triple integrals to find area and volume.
- Solving different problems of vector calculus by using Green's, Stoke's and Gauss's divergence theorem.

Course Name : Principles of Engineering

Course Outcome:

1. Knowledge outcome

- Graduates will demonstrate the ability to use basic knowledge in mathematics, science and engineering and apply them to solve problems specific to mechanical engineering.
- Graduates will demonstrate the ability to design and conduct experiments, interpret and analyze data, and report results.
- Graduates will demonstrate the ability to design any mechanical system or thermal system that meets desired specifications and requirements.
- Graduates will demonstrate the ability to function as a coherent unit in multidisciplinary design teams, and deliver results through collaborative research.
- Graduates will demonstrate the ability to identify, formulate and solve mechanical engineering problems of a complex kind.
- Graduates will demonstrate an understanding of their professional and ethical responsibilities, and use technology for the benefit of mankind.
- Graduates will be able to communicate effectively in both verbal and written forms.
- Graduates will have the confidence to apply engineering solutions in global and societal contexts.
- Graduates should be capable of self-education and clearly understand the value of life-long learning.

## 2. Skill outcome

- Graduates will develop an open mind and have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues.
- Graduates will be familiar with applying software methods and modern computer tools to analyze mechanical engineering problems.
- Graduates will have the ability to recognize the importance of professional development by pursuing post graduate studies or face competitive examinations that offer challenging and rewarding careers in Mechanical Engineering.
- Graduate will be able to design a system to meet desired needs within environmental, economic, political, ethical health and safety, manufacturability and management knowledge and techniques to estimate time, resources to complete project.

Course Name: Workshop

Course Content:

Instructions for paper setter / candidates

Laboratory examination will consist of two parts:

- (i) Performing a practical exercises assigned by the examiner
- (ii) Viva-voice examination

Viva-voce examination will be related to the practicals performed / project executed by the candidate related to the paper during the course of the semester.

List of Practicals: -

Fitting Shop: Introduction to the tools used in Fitting Shop and various processes in Fitting shop.

1. To make a square piece of mild steel.
2. To make corner angle and radius corner of mild steel piece.
3. Drilling and Tapping in a M.S. piece.

Machine Shop: Introduction to various machine tools and machine parts, such as Lathes, drilling machine, grinders etc. Cutting tools and operations.

1. Cutting a piece of mild steel round bar on Hydraulic hacksaw machine
2. Perform facing, turning and step turning of mild steel rod on Lathe Machine.
3. To perform knurling and threading operation on lathe machine.

Carpentry and Pattern making Shop: Carpentry and Pattern Making Various types of timber and practice boards, defects in timber, seasoning of wood, tools, operations and joints. Introduction to the tools used in carpentry shop.

1. To make the 'T' lap joint.

2. To make Mortise & Tennon joint.
3. To make a Solid and split pattern

Welding Shop: Introduction to different welding methods, welding equipment, electrodes, welding joints, and awareness of welding defects.

1. To make a lap joint.
2. To make a V butt joint in horizontal position.
3. To make a V butt joint in vertical position

Books:

1. Workshop Technology by Chapman.
2. Workshop Practice manual by V. Kapoor.
3. Manufacturing Materials and processes by JS Campbell.

Course Name: Advanced Mathematics

Course outcome

Knowledge outcomes:

At the end of the course, the students should be able to:

- The student shall gain understanding of Matrix, different types of matrices and different methods to solve system of linear equations.
- The student shall gain understanding of partial derivatives, jacobian and its properties.
- Student shall gain knowledge of Euler's theorem and Taylor's theorem.
- Student shall gain a thorough understanding of double and triple integrals and its application to area and volume.
- Student shall gain a thorough understanding of Beta and Gamma functions.
- Student shall gain knowledge of Gradient, Divergence and Curl of a vector.

- Student shall gain a thorough understanding of Green's, Stoke's and Gauss's divergence theorem.

Skill outcomes:

At the end of the course, the students will gain the skill of:

- Different methods of solving system simultaneous linear equations.
- Use of double and triple integrals to find area and volume.
- Solving different problems of vector calculus by using Green's, Stoke's and Gauss's divergence theorem.

Course Name: Electronics

Course outcome

1. Knowledge Outcome:

At the end of the course, the students will be able to:

- Understand the formation of energy bands in semiconductors
- Clearly understand the concept of current density
- Understand the principle and working operation of Metal-semiconductor contact
- Understand the MOS structure and its energy band diagram

2. Skill Outcome:

At the end of the course, the student should be able to:

- Clearly write the equilibrium distribution of electrons and holes in intrinsic, extrinsic semiconductors
- Derive the expressions for continuity equations
- Understand the Device structure and Working principle of LEDs, semiconductor diodes and tunnel diodes
- Understand the Device structure and Working principle of Laser diodes
- Clearly describe the current-voltage relationship in a Metal-semiconductor contact

Course Name: Atomic And Molecular Physics

Course outcome:

## 1. Knowledge Outcome:

At the end of the course, the students will be able to:

- Explain the importance of atomic and molecular physics in the physics education
- Clearly understand the concept of Schrodinger equation in modern physics
- Understand the principle of quantum theory of hydrogen atoms
- Understand the electronic property of many electrons atom

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Clearly solve Schrodinger equation
- Vector Model of Atom to derive different expressions
- Understand the Device structure and Working principle of LEDs, semiconductor diodes and tunnel diodes
- Understand the application of Quantum mechanics for the Hydrogen atom and many electrons atoms
- Clearly describe different types of diodes working principle and their application

Course Name: Electrodynamics

Course outcome:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the scalar and vector fields.
- Describe divergence and curl of vector fields
- Explain Coulomb's Law and Gauss's Law with their applications. • Explain electric potentials with various examples.
- Describe the Laplace equations and Poisson's equations
- Explain the Biot Savart's Law and its applications.

### 2. Skill Outcomes:

At the end of the course, the student should be able to:



- Identify the Electrostatic and Magnetic field.
- Calculate gradient, divergence and curl of any field at any point. • Find the solenoidal or irrotational vector fields.
- Analyze the Biot Savart's Law.
- Work on various applications of Electric Potential.

Course Name: Particle Physics

Course outcome:

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the concept of elementary particles
- Understand the conceptual idea of Standard Model
- Describe the Quantum Electrodynamics (QED)
- Describe the Quantum Chromo Dynamics (QCD)
- Explain the concept of weak interactions and various conservation laws
- Understand the concept of angular momenta
- Explain conceptual idea of CPT Theorem
- Describe Particle accelerator
- Understand the conceptual idea of construction and working
- Describe the modern detector and its parts

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the various elementary particles
- Understand about the difference between various particle accelerator
- Able to explain the Standard Model
- Able to explain about QED and QCD

Course Name: Vibration and waves

Course outcome:

At the end of the course, the student should be able to:

- Understand and describe simple harmonic motion (SHM), derive the equations of motions for physical systems that undergo SHM and solve them.
- Be able to use the complex notation for analysing vibrations and waves and adapt the general SHM solution for specific initial conditions.
- Understand the general consequences of a non-linear restoring force to derive the velocity and acceleration of SHM and the kinetic, potential and total energy of a mechanical system undergoing SHM.
- Understand and solve the equations for the damped oscillator in the over damped, critically damped and under damped regimes and solve the equations for a forced oscillator; understand the concept of resonance and the response of a system (amplitude and phase, power dissipation) as a function of driving frequency and the effects of transients.
- Understand to calculate the quality factor  $Q$  for damped and driven oscillators, the principle of linear superposition and the phenomenon of beating.
- Understand the concept of coupled oscillators, derive and solve the equations of motion for simple systems and describe motion of coupled oscillators in terms of normal mode solutions.
- Understand a wave as a travelling oscillation; understand the concepts and the differences between transverse and longitudinal waves; know the non-dispersive wave equation and be able to derive it for transverse waves on a string; understand superposition of waves, wave groups and harmonic waves.
- Understand to calculate reflection, transmission and absorption of travelling waves, refraction and know Snells law, understand the concept and consequences of wave dispersion and be able to identify normal and anomalous dispersion.

Course Name: Quantum Mechanics

Course outcome:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the concepts of Linear Vector Spaces.

- Understand of Dirac's Bra and ket Notations.
- Understand the concept of Angular Momentum
- Understand the need of the Perturbation Theory.
- Understand the scattering theory.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- To Calculate the eigen values for different operators.
- To Express the different operators in the matrix form.

Course Name: Condensed Matter Physics

Course outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the classical mechanics of physics.
- Explain the effect quantum physic.
- Explain the effect Theory of relativity
- Explain the bio physics terminology in respect of physics phenomenon.
- Explain the different model for transition

2. Skill Outcome:

At the end of the course, the student should be able to understand the basic physics related to the higher level physics courses.

## BSc (HONS) BOTANY

B.Sc. (Hons) Botany Programme imparts knowledge on various fields of plant biology through teaching, interactions and practical classes. Students would be trained in all areas of plant biology to widen their knowledge. They would learn various aspects of plants including their diversity and habitat; morphology and reproduction; Genetics and molecular biology of plants; Fungi and disease causing microbes; fungi; Use of plants in Biotechnology; Developmental biology of plants. Students would also become aware of the social and environmental significance of plants and their relevance to the national economy. It enables the graduate to prepare for national and International competitive examinations for employment.

Course Name : Advanced Mathematics-II

Hours: 3+1+0

Credits: 4

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Ordinary and partial differential equation and study different methods to solve them.
- Laplace transforms, its importance as well as to find the Laplace Transforms of some elementary functions.
- Solving simple linear and simultaneous linear differential equations by using Laplace Transform.
- Fourier series, its importance as well as to find Fourier series expansion of different types of function.
- Applications of partial differential equations in solving initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

II. Skill Outcome:

At the end the student will be able to:

- Solve ordinary and partial differential equations.
- Use Laplace Transform in solving simple linear and simultaneous linear differential equations.

Solve initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

Course Name : Advanced Remedial Mathematics

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Hours: 3+1+0

Credits-4

Course outcome:

1. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.

- Student shall gain a thorough understanding of numerical differentiation and integration.

## 2. Skill outcome:

At the end of the course, the student should be able to:

- Describe different methods of solving algebraic and transcendental equations.
- Describe different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Chemistry

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Hours: 3+0+0

Credits: 3

Course outcomes:

### 1. Knowledge outcomes

At the end of course, the student should be able to

- Understand atomic structure and various principles governing it
- Explain fundamentals covalent and Valence bonding
- Comprehend laws of thermodynamics and their applicability
- Differentiate between various types of organic reactions and their mechanisms
- Understand various methods of water treatment
- Explain properties , synthesis and applications of various polymers

### 2. Skill outcomes:

At the end of course, the student should be able to:

- Utilize MO and VB theory for explaining bonding
- Predict the mechanism and products of simple organic reactions
- Solve numerical based on thermodynamics
- Analyze the methods of water purification and treatment

- Identify various natural and synthetic polymers and differentiate their properties and applications

Course Name : Computer Programming

Hours: 3+0+2

Credits: 4

Course Outcome:

4. Knowledge Outcomes:

After completing the course the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language

- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

5. Skills Outcomes:

After completing the course the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Understand the organization of a computer system.
- Understand the process of compiling, linking, and running a program

Course Name : Advanced Remedial Mathematics-II

Hours: 3+1+0

Credits-4

Course outcome:

3. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.

- Student shall gain a thorough understanding of numerical differentiation and integration.

4. Skill outcome:

At the end of the course, the student should be able to:

- Understand different methods of solving algebraic and transcendental equations.
- Understand different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Elementary Biology

Hours: 3+0+0

Credits: 3

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic and eukaryotic cell.
- Evaluate the role of evolution in present life.
- Understand the basic properties of cell membrane, its composition and its structure.
- Differentiate the structural organization and function of intracellular organelles such as mitochondria, golgi bodies, chloroplast, endoplasmic reticulum and cytoskeleton etc.
- Analyze the different stages of cell division and cell cycle and its control

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic cells to eukaryotic cells.
- Determine the properties of cell membrane and transport across cell membrane through analysis of diffusion Pressure Deficit, Osmotic potential of cell sap by plasmolytic methods, total protein content by using Lowery's method and the leakage of electrolyte etc.
- Prepare temporary mount of different stages of mitosis (onion root tip).
- Extract total DNA from the plant sample.



- Understand the instrumentation and working of major instruments and equipment and equipped used in the laboratory.

Course Name : Engineering Physics

Hours: 3+0+0

Credits: 3

Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the basic phenomena of optical physics involves in day to day life.
- How to get sustained interference of light?
- Determine the wavelength of any monochromatic source of light.
- Determine the refractive index of any transparent liquid.
- Determine the resolving power and dispersive power of grating.
- Polarization: a proof of transverse nature of light.
- Basic principle of LASERS.(Stimulated emission of radiations)
- Components of Laser Devices.
- Working principles of Solid state Lasers and Gas Lasers.
- Applications of Maxwell's equations.
- How to obtained  $E = Mc^2$  equation
- describe the failure of classical mechanics
- explain fundamentals of quantum mechanics
- formulate Schrödinger wave equation and apply to various systems
- Understand the important applications of Quantum Mechanics and its various operations.
- Working of most soffticated instruments: XRD, SEM and TEM in nanotechnology.

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Differentiate between interference and diffraction pattern of light energy.
- Know the polarized and unpolarised light.
- Importance of Maule's Law.

- Make the He-Ne gas laser and Ruby Laser.
- Apply the Maxwell's equation in any type of dielectric media.
- Apply length contraction and time dilation concepts to daily life problems (Space problems).
- normalize the wave functions
- calculate Eigen values for various quantum mechanical systems
- Use of operators
- How to operate XRD, SEM/TEM machine for nanomaterials.

Course Name : Computer Science and Its Applications

Hours: 3+0+2

Credits: 4

Course Outcome:

6. Knowledge Outcomes:

After completing the course, the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C++ programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C++ function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code

- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

## 2. Skills Outcomes:

After completing the course, the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C++ program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Describe the organization of a computer system.
- Describe the process of compiling, linking, and running a program

Course Name : Graphics Communication and Design

Hours: 2+0+2

Credits:3.

Course Outcome:

### 1. Knowledge Outcome:

- At the end of the course, the students will have the knowledge of Professional drawing with its codes and rules.

- They will know the method of communicating the design from one department to other with 2D and 3D drawings.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Plot basic professional drawing on sheet
- Sketch the drawing on Auto Cad
- Proper documentation of design sheet.
- Imagine and visualize the geometric details of engineering objects.
- Translate the geometric information of engineering objects into engineering drawings.
- Use computer aided drafting in their respective engineering field.

Course Name : Engineering Mathematics

Hours: 3+1+0

Credits-4

Course outcomes:

Knowledge outcomes:

At the end of the course, the students should be able to:

- The student shall gain understanding of Matrix, different types of matrices and different methods to solve system of linear equations.
- The student shall gain understanding of partial derivatives, jacobian and its properties.
- Student shall gain knowledge of Euler's theorem and Taylor's theorem.
- Student shall gain a thorough understanding of double and triple integrals and its application to area and volume.
- Student shall gain a thorough understanding of Beta and Gamma functions.
- Student shall gain knowledge of Gradient, Divergence and Curl of a vector.
- Student shall gain a thorough understanding of Green's, Stoke's and Gauss's divergence theorem.

Skill outcomes:

At the end of the course, the students will gain the skill of:

- Different methods of solving system simultaneous linear equations.
- Use of double and triple integrals to find area and volume.
- Solving different problems of vector calculus by using Green's, Stoke's and Gauss's divergence theorem.

Course Name : Principles of Engineering

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Hours: 3+0+0

Credits: 3

Course Outcome:

#### 1. Knowledge outcome

- Graduates will demonstrate the ability to use basic knowledge in mathematics, science and engineering and apply them to solve problems specific to mechanical engineering.
- Graduates will demonstrate the ability to design and conduct experiments, interpret and analyze data, and report results.
- Graduates will demonstrate the ability to design any mechanical system or thermal system that meets desired specifications and requirements.
- Graduates will demonstrate the ability to function as a coherent unit in multidisciplinary design teams, and deliver results through collaborative research.
- Graduates will demonstrate the ability to identify, formulate and solve mechanical engineering problems of a complex kind.
- Graduates will demonstrate an understanding of their professional and ethical responsibilities, and use technology for the benefit of mankind.
- Graduates will be able to communicate effectively in both verbal and written forms.
- Graduates will have the confidence to apply engineering solutions in global and societal contexts.
- Graduates should be capable of self-education and clearly understand the value of life-long learning.

#### 2. Skill outcome

- Graduates will develop an open mind and have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues.
- Graduates will be familiar with applying software methods and modern computer tools to analyze mechanical engineering problems.

- Graduates will have the ability to recognize the importance of professional development by pursuing post graduate studies or face competitive examinations that offer challenging and rewarding careers in Mechanical Engineering.
- Graduate will be able to design a system to meet desired needs within environmental, economic, political, ethical health and safety, manufacturability and management knowledge and techniques to estimate time, resources to complete project.

Course Name : Workshop

Hours: 0+0+4

Credits: 2

Course Content:

Instructions for paper setter / candidates

Laboratory examination will consist of two parts:

- (iii) Performing a practical exercises assigned by the examiner
- (iv) Viva-voice examination

Viva-voce examination will be related to the practicals performed / project executed by the candidate related to the paper during the course of the semester.

List of Practicals: -

Fitting Shop: Introduction to the tools used in Fitting Shop and various processes in Fitting shop.

4. To make a square piece of mild steel.
5. To make corner angle and radius corner of mild steel piece.
6. Drilling and Tapping in a M.S. piece.

Machine Shop: Introduction to various machine tools and machine parts, such as Lathes, drilling machine, grinders etc. Cutting tools and operations.

4. Cutting a piece of mild steel round bar on Hydraulic hacksaw machine
5. Perform facing, turning and step turning of mild steel rod on Lathe Machine.
6. To perform knurling and threading operation on lathe machine.

Carpentry and Pattern making Shop: Carpentry and Pattern Making Various types of timber and practice boards, defects in timber, seasoning of wood, tools, operations and joints. Introduction to the tools used in carpentry shop.

4. To make the 'T' lap joint.
5. To make Mortise & Tennon joint.
6. To make a Solid and split pattern

Welding Shop: Introduction to different welding methods, welding equipment, electrodes, welding joints, and awareness of welding defects.

4. To make a lap joint.
5. To make a V butt joint in horizontal position.
6. To make a V butt joint in vertical position

Books:

1. Workshop Technology by Chapman.
2. Workshop Practice manual by V. Kapoor.
3. Manufacturing Materials and processes by JS Campbell.

## THIRD SEMESTER

Course Code: BOT 202

Credits: 3+0+1

### DIVERSITY OF NON-VASCULAR PLANTS

Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course students will be able to

- Identify basic concepts of fungi and algae.
- Understand the importance of fungi and algae and its effects on our world.
- Analyse general characteristics features & ultrastructure of fungi and algae
- Identify advantages and disadvantages of these organisms.
- Determine the benefit of fungi and algae and how to use them in everyday life.

#### 2. Skill Outcomes:

At the end of the course students will be able to

- Identify and differentiate the lower plants (algae and fungi) in field.
- Understand the economic importance and pathogenicity of these organisms.
- Understand the evolutionary relationship between these lower plants.

Course Code: CSU 003

Credits: 3+0+1

### CELL BIOLOGY

Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of cell biology.
- Know the structure and function of cellular components.
- Know the function of different cells.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.



## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Achieve skills in laboratory cell biology work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in laboratory work.
- Have hands on knowledge about various tools and techniques used to study biology at the cellular level.

Course Code: BOT 203

Credits: 3+0+0

## GENETICS

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Concept of Mendel's experiments and laws of inheritance
- Understand the Monohybrid and Dihybrid cross, Linkage, Mechanism of crossing over,
- Understand the Sex chromosome and Sex determination, Population genetics, Chromosomes

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand genetics of Bacteria and viruses
- Understand conjugation mapping
- Understand Hardy Weinberg Law- Genetic equilibrium

Course Code: FSU 012

Credits: 3+0+0

## BASIC STATISTICS

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Realize the importance of data presentation
- Describe various types of graphical presentations like Pie chart, Bar graph etc.
- Define averages and dispersion for ungrouped and grouped data.
- Applications of probability in real life problem.
- Importance of the expectations and their operations.
- Define generating function
- Application and importance of inequalities and weak law of large numbers.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Making of charts and graphs on MS Excel & SPSS.
- Computation of means and deviation manually and through MS Excel formulae.
- Statistical analysis on SPSS.
- Embedding table and charts from SPSS.

## FOURTH SEMESTER

Course Code: BOT 202

Credits: 3+0+1

### DIVERSITY OF VASCULAR PLANTS

#### Course Outcomes

#### 1. Knowledge Outcome:

At the end of the course, the students will be able to:

- Describe the similarities and differences between the fern, gymnosperms and angiosperms life cycle.
- Have an introductory knowledge of plant identification, terminology, and be able to recognize several of the most common plant families in Himalaya.
- They would be familiar with the vocabulary of plant identification, collection, history of taxonomy and rules of nomenclature.

- Develop some experience with looking for and identifying plants in the field.
- Have an introductory to intermediate level of knowledge of the morphology and anatomy of plant leaves, stems, roots and flowers of pteridophytes, gymnosperms and angiosperms.
- Know internal structure and morphology of studied plants.

## 2. Skill Outcomes

At the end of the course, the students will be able to

- Describe the internal and external anatomy of vascular seedless plants, gymnosperms, and angiosperms
- Describe the life cycles of non-vascular plants, vascular seedless plants, gymnosperms, and angiosperms.
- Identify the plants by studying the morphology and natural habitat.

Course Code: noc20-cy10

Credits: 3+0+0

## MOOCS (BIOCHEMISTRY)

### 1. Knowledge Outcome:

At the end of the course, the students will be able to:

- Know the basic structures, functions and properties of biomolecules.
- Know the enzymes catalytic reactions and analysis.
- Recall the main macromolecule classes (carbohydrates, proteins & lipids)

### 2. Skill Outcomes

At the end of the course, the students will be able to

- Recall the basic principles of cellular energy (i.e. ATP, NAD<sup>+</sup>) and metabolic pathways
- Understand structural properties of macromolecules, including the four levels of protein structural organization
- Can calculate energy consumption in terms of ATP in different cycles (e.g. glycolysis, TCA cycle, fatty acid metabolism etc).
- Able to analyse presence of different macromolecules in samples

- Able to analyse the presence of vitamins and secondary metabolites in samples.
- Do blood testing, antigen antibody interaction.

Course Code: BOT 204

Credits: 3+0+1

### PLANT PHYSIOLOGY

Course Outcomes:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define and describe basic terms in plant physiology.
- Explain correlations between structure and function at the cell, tissue and whole plant level.
- Describe and explain metabolism of plant cell and basic physiological processes in plants.
- Conclude about the role of physiological and metabolic processes and correlations between them.
- Understand the influence of endogenous and environmental signals on plant.

#### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in plant physiology.
- Calculate and predict the changes in physiological processes of plants under biotic and abiotic stress conditions.
- Understand and analyze various plant growth hormones in maintaining growth and development in plants.

### FIFTH SEMESTER

Course Code: BOT 301

Credits: 3+0+1

## PLANT TAXONOMY

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the lectures the student will be able to-

- Understand the basic concepts of plant taxonomy
- Know the various applications of plant taxonomy and the role of plant taxonomy in plant study
- Develop an understanding of ICBN
- Understand the Role of herbaria, botanic gardens and literature in taxonomic studies
- Understand the role of taxonomic characters other than morphology and numerical methods in taxonomy
- Know various important angiospermic plants and their uses

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Know the morphology of leaves belonging to different families
- Know the different types of inflorescences and would be able to differentiate them
- Know different morphologies of stamens and carpels
- Name different types of fruits on the basis of their morphology
- Able to identify some important medicinal plants

Course Code: BOT 302

Credits: 3+0+1

## MODERN TECHNIQUES & INSTRUMENTATION

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand working principals of various types of techniques
- Students will understand in vitro operation and applications of techniques.
- Students will learn various experimental method of designing an experiment.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Analyze different techniques with emphasis on sensitivity and selectivity.
- Analyze scientific work and experimental results involving tools and techniques.

Course Code: BOT 302

Credits: 3+0+1

### INTRODUCTORY BIOTECHNOLOGY

Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course student will be able to:

- Understand the basic concepts of biotechnology
- Understand the classification and important functions of macromolecules
- Develop an understanding of the markers and their use in plant improvement
- Understand the techniques of electrophoresis
- Understanding the role of biotechnology in agriculture, medicine and environment
- Know the advantages of phytoremediation
- Able to know the concept of genome sequencing

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Perform electrophoresis for nucleotides
- Prepare artificial seeds
- Screen microorganism for amylase production
- Screen microorganism for protease production
- Perform Polymerase Chain Reaction
- Know the principle and working of various instruments used in the biotechnology lab

Course Code: BBO301

Credits: 3+0+1

### FUNDAMENTAL OF MOLECULAR BIOLOGY

Course Outcomes:

1. Knowledge Outcome:

At the end of the course, the student will gain the knowledge of the following:

1. The concepts of flow of genetic information and the historical timeline of discovery of “DNA, the molecule of life”.
2. The decoding of genetic information from DNA to RNA to protein
3. Describe the molecular mechanisms by which protein complexes repair different forms of DNA damage and the associated human diseases
4. Compare and contrast the mechanisms of bacterial and eukaryotic DNA replication, DNA repair, transcription, and translation.
5. How is gene expression regulated at multiple levels?

2. Skill Outcomes:

At the end of the course:

1. The student well-versed with the contents of this course will be prepared for competitive exams in life sciences for pursuing research and teaching careers.
2. The course is blended with a practical module for on-hand training in basic techniques of molecular biology like genomic DNA and RNA isolation, visualizing DNA by agarose gel electrophoresis, PCR amplification, and RAPD analysis.
3. The practical module will provide the basic skill expertise in molecular biology to the student, which is required for almost every area of modern biology in research and industry.

Course Code: BBO301

Credits: 2

PROJECT

Course Outcome:

At the end of the course, the student would be able to:

- Develop hypothesis
- Develop experimental skills
- Learn how to plan, organize, and control every step of a given project
- Makes them understand how different tools can be used for meeting goals while maintaining protocols and procedures.

## SIXTH SEMESTER

Course Code: BBO302

Credits: 6

### RESEARCH THESIS

At the end of the course, the student should be able to:

- Statistically analyse the data and make interpretations
- Deduce theory behind experimental research
- It trains students to encourage the growth of scientific/technological research in the country.

Course Code: CSU 097

Credits: 3+0+1

### ECOLOGY

Course Outcomes:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Communicate clearly about ecological systems and processes by applying appropriate ecological terminology.
- Appreciate the contributions of important ecologists and the historical development of the discipline in order to understand contemporary ecological issues in a modern context, through clicker questions, class discussion and exam questions.
- Find electronically, read for comprehension and critically analyze primary scientific papers on a specific ecological topic through in-tutorial group discussion and an independent written assignment.
- Understand about a research proposal (including a review of literature, statement of hypothesis and predictions, appropriate research methodology, and anticipated results) on an ecological topic.

#### 2. Skill Outcomes

At the end of the lecture students will be able to

- Study population, community and biodiversity of nearby area.
- Know interrelationship among biotic and abiotic factors.



- Know overview of current environmental issues.
- Understand internet connectivity and e-mail roundtable discussions
- Perform hands-on activities (site visits, problem-solving, meeting policy makers, GIS demonstration, computer models, etc.)
- Develop potential for conducting joint research & publishing a paper in a technical journal

Course Code: ESU 016

Credits: 3+0+1

### EVOLUTION AND PALEONTOLOGY

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of evolution.
- Know about the morphological, population genetic and molecular approaches towards understanding evolution.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in developing evolutionary thinking.
- Analyze, compare and explain evolutionary trends.
- Apply intelligence in understanding evolutionary changes in a population genetics framework.
- Have hands on knowledge about various tools and techniques used to study evolution at the species, population and molecular levels.

Course Code: ESU 017

Credits: 3+0+1

### DEVELOPMENTAL BIOLOGY

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in developmental biology.
- Master basic concepts of developmental biology
- Understand the process of gametogenesis, fertilization, cleavage, and consequence of gastrulation.
- Describe various processes which play role in embryonic and post embryonic developments.
- Understand the influence and role of maternal and zygotic genes in development process.
- Describe and explain basic concepts of growth, regeneration and aging.
- Understand basic concepts of gene expression and regulation.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in developmental biology.
- Identify different developmental stages embryo.
- Identify the homologies, similarities and differences between structures and processes in the developmental models studied.

## BSC Chem

Course Name : Advanced Mathematics-II

Hours: 3+1+0

Credits: 4

Course Outcome:

### I. Knowledge Outcome:

At the end the student will gain understanding of:

- Ordinary and partial differential equation and study different methods to solve them.
- Laplace transforms, its importance as well as to find the Laplace Transforms of some elementary functions.
- Solving simple linear and simultaneous linear differential equations by using Laplace Transform.

- Fourier series, its importance as well as to find Fourier series expansion of different types of function.
- Applications of partial differential equations in solving initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

## II. Skill Outcome:

At the end the student will be able to:

- Solve ordinary and partial differential equations.
- Use Laplace Transform in solving simple linear and simultaneous linear differential equations.

Solve initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

Course Name : Advanced Remedial Mathematics

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Hours: 3+1+0

Credits-4

Course outcome:

### 1. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

### 2. Skill outcome:

At the end of the course, the student should be able to:

- Describe different methods of solving algebraic and transcendental equations.
- Describe different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Chemistry

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Hours: 3+0+0

Credits: 3

Course outcomes:

1. Knowledge outcomes

At the end of course, the student should be able to

- Understand atomic structure and various principles governing it
- Explain fundamentals covalent and Valence bonding
- Comprehend laws of thermodynamics and their applicability
- Differentiate between various types of organic reactions and their mechanisms
- Understand various methods of water treatment
- Explain properties , synthesis and applications of various polymers

2. Skill outcomes:

At the end of course, the student should be able to:

- Utilize MO and VB theory for explaining bonding
- Predict the mechanism and products of simple organic reactions
- Solve numerical based on thermodynamics
- Analyze the methods of water purification and treatment
- Identify various natural and synthetic polymers and differentiate their properties and applications

Course Name : Computer Programming

Hours: 3+0+2

Credits: 4

Course Outcome:

7. Knowledge Outcomes:

After completing the course the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

#### 8. Skills Outcomes:

After completing the course the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Understand the organization of a computer system.
- Understand the process of compiling, linking, and running a program

Course Name : Advanced Remedial Mathematics-II

Hours: 3+1+0

Credits-4

Course outcome:

Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

Skill outcome:

At the end of the course, the student should be able to:

- Understand different methods of solving algebraic and transcendental equations.
- Understand different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Elementary Biology

Hours: 3+0+0

Credits: 3

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic and eukaryotic cell.
- Evaluate the role of evolution in present life.
- Understand the basic properties of cell membrane, its composition and its structure.
- Differentiate the structural organization and function of intracellular organelles such as mitochondria, golgi bodies, chloroplast, endoplasmic reticulum and cytoskeleton etc.
- Analyze the different stages of cell division and cell cycle and its control

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic cells to eukaryotic cells.
- Determine the properties of cell membrane and transport across cell membrane through analysis of diffusion Pressure Deficit, Osmotic potential of cell sap by plasmolytic methods, total protein content by using Lowery's method and the leakage of electrolyte etc.
- Prepare temporary mount of different stages of mitosis (onion root tip).
- Extract total DNA from the plant sample.
- Understand the instrumentation and working of major instruments and equipment and equipped used in the laboratory.

Course Name : Engineering Physics

Hours: 3+0+0

Credits: 3

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the basic phenomena of optical physics involves in day to day life.
- How to get sustained interference of light?

- Determine the wavelength of any monochromatic source of light.
- Determine the refractive index of any transparent liquid.
- Determine the resolving power and dispersive power of grating.
- Polarization: a proof of transverse nature of light.
- Basic principle of LASERS.(Stimulated emission of radiations)
- Components of Laser Devices.
- Working principles of Solid state Lasers and Gas Lasers.
- Applications of Maxwell's equations.
- How to obtained  $E = Mc^2$  equation
- describe the failure of classical mechanics
- explain fundamentals of quantum mechanics
- formulate Schrödinger wave equation and apply to various systems
- Understand the important applications of Quantum Mechanics and its various operations.
- Working of most sophisticated instruments: XRD, SEM and TEM in nanotechnology.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Differentiate between interference and diffraction pattern of light energy.
- Know the polarized and unpolarised light.
- Importance of Maule's Law.
- Make the He-Ne gas laser and Ruby Laser.
- Apply the Maxwell's equation in any type of dielectric media.
- Apply length contraction and time dilation concepts to daily life problems (Space problems).
- normalize the wave functions
- calculate Eigen values for various quantum mechanical systems
- Use of operators
- How to operate XRD, SEM/TEM machine for nanomaterials.



Course Name : Computer Science and Its Applications

Hours: 3+0+2

Credits: 4

Course Outcome:

9. Knowledge Outcomes:

After completing the course, the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C++ programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C++ function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

## 2. Skills Outcomes:

After completing the course, the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C++ program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Describe the organization of a computer system.
- Describe the process of compiling, linking, and running a program

Course Name : Graphics Communication and Design

Hours: 2+0+2

Credits:3.

Course Outcome:

### 1. Knowledge Outcome:

- At the end of the course, the students will have the knowledge of Professional drawing with its codes and rules.
- They will know the method of communicating the design from one department to other with 2D and 3D drawings.

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Plot basic professional drawing on sheet
- Sketch the drawing on Auto Cad
- Proper documentation of design sheet.
- Imagine and visualize the geometric details of engineering objects.
- Translate the geometric information of engineering objects into engineering drawings.

- Use computer aided drafting in their respective engineering field.

Course Name : Engineering Mathematics

Hours: 3+1+0

Credits-4

Course outcomes:

Knowledge outcomes:

At the end of the course, the students should be able to:

- The student shall gain understanding of Matrix, different types of matrices and different methods to solve system of linear equations.
- The student shall gain understanding of partial derivatives, jacobian and its properties.
- Student shall gain knowledge of Euler's theorem and Taylor's theorem.
- Student shall gain a thorough understanding of double and triple integrals and its application to area and volume.
- Student shall gain a thorough understanding of Beta and Gamma functions.
- Student shall gain knowledge of Gradient, Divergence and Curl of a vector.
- Student shall gain a thorough understanding of Green's, Stoke's and Gauss's divergence theorem.

Skill outcomes:

At the end of the course, the students will gain the skill of:

- Different methods of solving system simultaneous linear equations.
- Use of double and triple integrals to find area and volume.
- Solving different problems of vector calculus by using Green's, Stoke's and Gauss's divergence theorem.

Course Name : Principles of Engineering

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Hours: 3+0+0

Credits: 3

Course Outcome:

1. Knowledge outcome

- Graduates will demonstrate the ability to use basic knowledge in mathematics, science and engineering and apply them to solve problems specific to mechanical engineering.
- Graduates will demonstrate the ability to design and conduct experiments, interpret and analyze data, and report results.
- Graduates will demonstrate the ability to design any mechanical system or thermal system that meets desired specifications and requirements.
- Graduates will demonstrate the ability to function as a coherent unit in multidisciplinary design teams, and deliver results through collaborative research.
- Graduates will demonstrate the ability to identify, formulate and solve mechanical engineering problems of a complex kind.
- Graduates will demonstrate an understanding of their professional and ethical responsibilities, and use technology for the benefit of mankind.
- Graduates will be able to communicate effectively in both verbal and written forms.
- Graduates will have the confidence to apply engineering solutions in global and societal contexts.
- Graduates should be capable of self-education and clearly understand the value of life-long learning.

## 2. Skill outcome

- Graduates will develop an open mind and have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues.
- Graduates will be familiar with applying software methods and modern computer tools to analyze mechanical engineering problems.
- Graduates will have the ability to recognize the importance of professional development by pursuing post graduate studies or face competitive examinations that offer challenging and rewarding careers in Mechanical Engineering.
- Graduate will be able to design a system to meet desired needs within environmental, economic, political, ethical health and safety, manufacturability and management knowledge and techniques to estimate time, resources to complete project.

Course Name : Workshop

Hours: 0+0+4

Credits: 2

Course Content:

Instructions for paper setter / candidates

Laboratory examination will consist of two parts:

- (v) Performing a practical exercises assigned by the examiner
- (vi) Viva-voice examination

Viva-voce examination will be related to the practicals performed / project executed by the candidate related to the paper during the course of the semester.

List of Practicals: -

Fitting Shop: Introduction to the tools used in Fitting Shop and various processes in Fitting shop.

- 7. To make a square piece of mild steel.
- 8. To make corner angle and radius corner of mild steel piece.
- 9. Drilling and Tapping in a M.S. piece.

Machine Shop: Introduction to various machine tools and machine parts, such as Lathes, drilling machine, grinders etc. Cutting tools and operations.

- 7. Cutting a piece of mild steel round bar on Hydraulic hacksaw machine
- 8. Perform facing, turning and step turning of mild steel rod on Lathe Machine.
- 9. To perform knurling and threading operation on lathe machine.

Carpentry and Pattern making Shop: Carpentry and Pattern Making Various types of timber and practice boards, defects in timber, seasoning of wood, tools, operations and joints. Introduction to the tools used in carpentry shop.

- 7. To make the 'T' lap joint.
- 8. To make Mortise & Tennon joint.

9. To make a Solid and split pattern

Welding Shop: Introduction to different welding methods, welding equipment, electrodes, welding joints, and awareness of welding defects.

7. To make a lap joint.

8. To make a V butt joint in horizontal position.

9. To make a V butt joint in vertical position

Books:

1. Workshop Technology by Chapman.

2. Workshop Practice manual by V. Kapoor.

3. Manufacturing Materials and processes by JS Campbell.

#### B.Sc. I SEM

Course name : Remedial mathematics

Course Code : FSU001

Course name : Chemistry

Course Code : FSU002

Course name : Graphics Communication & Design

Course Code : FSU004

Course name : Open Elective

Course Code : OE

Course name : SPRINT-1

Course Code : SP001

Course name : Writing Seminar  
Course Code : FSU036/FSU037/FSU038

B.Sc. II SEM.

Course name : Remedial mathematics- II  
Course Code : FSU006

Course name : Physics  
Course Code : FSU007

Course name : Computer Programming  
Course Code : FSU031

Course name : Open Elective- II  
Course Code : OE

Course name : SPRINT-II  
Course Code : SP002

Course name : Writing Seminar  
Course Code : FSU037/FSU038

B. Sc. Sem. III

Course name : Thermodynamics and Equilibrium

Course Code : CHM-231

1. Knowledge Outcome

At the end of the course, the students should be able to:

1. Knowledge outcomes

At the end of course, the student should be able to

- Understand the concept of enthalpy, work and entropy.
- Understanding of free energy, Molal partition functions,
- Describe the chemical potential concept in chemistry
- Interpret data of quantum chemistry calculations to deduce physical and chemical properties
- Explain chemistry beyond surface reaction and activated complex theory.

Course Name : Chemical Bonding and Main Group Chemistry

Course Code : CHM-232

1. Knowledge outcomes



At the end of course, the student should be able to

- Grasp knowledge of ionic bond, covalent bond
- Understanding Chemical bonding
- Detail study of Understanding the role of S and P block elements
- Detail study of Hydrogen and Hydrides
- Basic study of Boron, Carbon and Nitrogen family.

Course Name :Hydrocarbons, Reaction Mechanism and Stereochemistry

Course Code : CHM-233

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the basic principles of organic chemistry.
- Understand the reactive intermediates and reagents in organic chemistry.
- Differentiate among alkane, alkene & alkyne chemistry.
- Understand the reactions of alkane, alkene & alkynes.
- Define aromaticity and aromatic electrophilic substitution.
- Understand stereoisomerism and their effects in organic reactions.

#### B.Sc. IV SEM.

Course Name : Solution Chemistry and Statistical Thermodynamics

Course Code : CHM-241

Course outcomes:

#### 1. Knowledge outcomes

At the end of course, the student should be able to

At the end of the course, the students should be able to:

## 2. Knowledge outcomes

At the end of course, the student should be able to

- Understand the concept of enthalpy, work and entropy.
- Understanding of free energy, Molal partition functions,
- Describe the chemical potential concept in chemistry
- Interpret data of quantum chemistry calculations to deduce physical and chemical properties
- Explain chemistry beyond surface reaction and activated complex theory.

Course Name : Acid bases and chemistry of p, d, f- Block Elements

Course Code : CHM-242

Course outcomes:

### 1. Knowledge outcomes

At the end of course, the student should be able to

. Chemistry of Noble gases and their properties.

Chemistry of Periodic Table.

Acid Base Interaction.

Chromatographic methods.

Course Name : Synthetic and Natural Polymer Chemistry

Course Code : CHM- 244

Course outcomes:

### 1. Knowledge outcomes

At the end of course, the student should be able to

Polymers and their chemical bonding.

Properties of Carbohydrates & and their uses.

Amino acid , Peptides , Proteins and Nucleic Acid.

B.Sc. Sem. V

Course Name : Colloid Surface and Electrochemistry

Course Code : CHM-351

Hours: 3 Credits: 3

Course outcomes:

1. Knowledge outcomes

At the end of course, the student should be able to

- Grasp importance of Organometallics and Coordination compounds
- Understanding the role of Organometallics and Coordination compounds in understanding Chelate and Macrocyclic effects, Multidentate ligands, conformation of Chelate rings, stereochemistry and various coordination numbers, isomerism
- Consequences and applications of orbital splitting, Crystal field stabilization energy, Magnetic properties, Factors affecting extent of splitting and spectrochemical series, colour of transition metal complexes.
- Importance of organometallic chemistry in modern times
- Chemical reactions, Structures and Fluxionality of metal carbonyls

Course Name : Organic Spectroscopy & Heterocycles

Course Code : Chem-353

Hours: 3

Credits: 3

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the importance of modern analytical techniques
- Differentiate between conjugated and non-conjugated system with the help of UV-visible electronic spectra
- Explore IR spectroscopy for functional group characterization

- Apply NMR spectroscopy to obtain structural framework information of un-known compounds
- Design the synthesis for complex heterocyclic molecule
- Understanding the chemical reactions of heterocyclic compounds

Course Name : Organometallics and coordination compounds

Course Code : CHM-352

#### 1. Knowledge outcomes

At the end of course, the student should be able to

- Grasp importance of Organometallics and Coordination compounds
- Understanding the role of Organometallics and Coordination compounds in understanding Chelate and Macrocyclic effects, Multidentate ligands, conformation of Chelate rings, stereochemistry and various coordination numbers, isomerism
- Consequences and applications of orbital splitting, Crystal field stabilization energy, Magnetic properties, Factors affecting extent of splitting and spectrochemical series, colour of transition metal complexes.
- Importance of organometallic chemistry in modern times
- Chemical reactions, Structures and Fluxionality of metal carbonyl

### B.Sc. VI. SEM

Course Name : Physical Spectroscopy and Quantum Chemistry.

Course Code : CHM-361

#### 1. Knowledge outcomes

At the end of course, the student should be able to

- Explain the importance of modern analytical techniques
- Differentiate between conjugated and non-conjugated system with the help of UV-visible electronic spectra
- Explore IR spectroscopy for functional group characterization
- Apply NMR spectroscopy to obtain structural framework information of un-known compounds

- Design the synthesis for complex heterocyclic molecule
- Understanding the chemical reactions of heterocyclic compounds

Course Name : Advanced Inorganic Chemistry

Course Code : CHM-362

1. Knowledge outcomes

At the end of course, the student should be able to

Understand the representations for C<sub>2v</sub> and C<sub>3v</sub> point .

Understand the Bioinorganic Chemistry.

Electron Paramagnetic Resonance Spectroscopy.

Photoelectron Spectroscopy.

Course Name : Photochemistry & pericyclic Reactions

Course Code : CHM-363

1. Knowledge outcomes

At the end of course, the student should be able to

Understand the Electronic Spectra.

Stern- volmer mechanism

Isomerisations, dimerizations of alkenes.

Molecular orbital symmetry and Frontier orbitals of ethylene

Claisen cope and aza – cope rearrangements

B. Sc. Zoology

B.Sc. (Hons) Zoology 3 years Programme imparts knowledge on various fields of animal biology through teaching, interactions and practical classes. Students would be trained in all areas of zoology to widen their knowledge. They would learn various aspects of animals including their diversity and habitat; morphology and reproduction; genetics and molecular biology; developmental biology of animal. Students would also become aware of the social and

environmental significance of animals and their relevance to the national economy. It enables the graduate to prepare for national and International competitive examinations for employment.

Course Name : Advanced Mathematics-II

Hours: 3+1+0

Credits: 4

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Ordinary and partial differential equation and study different methods to solve them.
- Laplace transforms, its importance as well as to find the Laplace Transforms of some elementary functions.
- Solving simple linear and simultaneous linear differential equations by using Laplace Transform.
- Fourier series, its importance as well as to find Fourier series expansion of different types of function.
- Applications of partial differential equations in solving initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

II. Skill Outcome:

At the end the student will be able to:

- Solve ordinary and partial differential equations.
- Use Laplace Transform in solving simple linear and simultaneous linear differential equations.

Solve initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

Course Name : Advanced Remedial Mathematics

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Hours: 3+1+0

Credits-4

Course outcome:

1. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

2. Skill outcome:

At the end of the course, the student should be able to:

- Describe different methods of solving algebraic and transcendental equations.
- Describe different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Chemistry

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Hours: 3+0+0

Credits: 3

Course outcomes:

1. Knowledge outcomes

At the end of course, the student should be able to

- Understand atomic structure and various principles governing it
- Explain fundamentals covalent and Valence bonding
- Comprehend laws of thermodynamics and their applicability
- Differentiate between various types of organic reactions and their mechanisms
- Understand various methods of water treatment
- Explain properties , synthesis and applications of various polymers

2. Skill outcomes:

At the end of course, the student should be able to:

- Utilize MO and VB theory for explaining bonding
- Predict the mechanism and products of simple organic reactions
- Solve numerical based on thermodynamics
- Analyze the methods of water purification and treatment
- Identify various natural and synthetic polymers and differentiate their properties and applications



Course Name : Computer Programming

Hours: 3+0+2

Credits: 4

Course Outcome:

10. Knowledge Outcomes:

After completing the course the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code

- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives
- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

#### 11. Skills Outcomes:

After completing the course the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Understand the organization of a computer system.
- Understand the process of compiling, linking, and running a program

Course Name : Advanced Remedial Mathematics-II

Hours: 3+1+0

Credits-4

Course outcome:

7. Knowledge outcome:

- Student shall gain a thorough understanding of the concepts of sequence and Series and Differential Equations.
- The student shall gain understanding of algebraic and transcendental equations.
- Student shall gain understanding of solution of simultaneous algebraic equations.
- Student shall gain a thorough understanding of numerical differentiation and integration.

8. Skill outcome:

At the end of the course, the student should be able to:

- Understand different methods of solving algebraic and transcendental equations.
- Understand different methods of solving simultaneous algebraic equations.
- Know numerical differentiation and integration.
- Realize that differentiation and integration can help us to solve many types of real world problems.
- Realize that Differential equations are met in many engineering and science problems.

Course Name : Elementary Biology

Hours: 3+0+0

Credits: 3

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic and eukaryotic cell.
- Evaluate the role of evolution in present life.
- Understand the basic properties of cell membrane, its composition and its structure.
- Differentiate the structural organization and function of intracellular organelles such as mitochondria, golgi bodies, chloroplast, endoplasmic reticulum and cytoskeleton etc.
- Analyze the different stages of cell division and cell cycle and its control

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Differentiate between prokaryotic cells to eukaryotic cells.
- Determine the properties of cell membrane and transport across cell membrane through analysis of diffusion Pressure Deficit, Osmotic potential of cell sap by plasmolytic methods, total protein content by using Lowery's method and the leakage of electrolyte etc.
- Prepare temporary mount of different stages of mitosis (onion root tip).
- Extract total DNA from the plant sample.
- Understand the instrumentation and working of major instruments and equipment and equipped used in the laboratory.

Course Name : Engineering Physics

Hours: 3+0+0

Credits: 3

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the basic phenomena of optical physics involves in day to day life.
- How to get sustained interference of light?
- Determine the wavelength of any monochromatic source of light.
- Determine the refractive index of any transparent liquid.
- Determine the resolving power and dispersive power of grating.
- Polarization: a proof of transverse nature of light.
- Basic principle of LASERS.(Stimulated emission of radiations)
- Components of Laser Devices.
- Working principles of Solid state Lasers and Gas Lasers.
- Applications of Maxwell's equations.
- How to obtained  $E = Mc^2$  equation
- describe the failure of classical mechanics
- explain fundamentals of quantum mechanics
- formulate Schrödinger wave equation and apply to various systems
- Understand the important applications of Quantum Mechanics and its various operations.
- Working of most soffticated instruments: XRD, SEM and TEM in nanotechnology.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Differentiate between interference and diffraction pattern of light energy.
- Know the polarized and unpolarised light.
- Importance of Maule's Law.
- Make the He-Ne gas laser and Ruby Laser.
- Apply the Maxwell's equation in any type of dielectric media.
- Apply length contraction and time dilation concepts to daily life problems (Space problems).
- normalize the wave functions
- calculate Eigen values for various quantum mechanical systems
- Use of operators
- How to operate XRD, SEM/TEM machine for nanomaterials.

Course Name : Computer Science and Its Applications

Hours: 3+0+2

Credits: 4

Course Outcome:

12. Knowledge Outcomes:

After completing the course, the student is expected to be able to:

- Explore the parts of a computer system and how they interact
- Be familiar with the use of computers as a prime tool in solving of common problems within various facets of our society.
- Apply the generic principles of computer programming as applied directly to common situations.
- Comprehend the procedures, algorithms, functions and processes of an appropriate computer language.
- analyze small problems, and design and create C++ programs to solve them, which lend themselves to a programming solution using any of the following techniques/technologies: robust user input validation, formatted program output, single-dimensional arrays and sequential files;
- analyze a written specification for a programming module, and design and create both an algorithm and C++ function which fulfills that specification
- Implement the concept of a program in a high-level language being translated by a compiler into machine language program and then executed
- adhere to structured programming principles, including single-entry/single-exit logic, modularity and localization of variables, when writing program code
- Make use of the concept of a variable holding a value, how a variable is declared and how it can change
- Be able to work with both character and numerical data.
- Use the concept of a loop – that is, a series of statements which is written once but executed repeatedly- and how to use it in a programming language
- Be able to use a conditional statement to select a choice from two or more alternatives

- Be able to break a large problem into smaller parts, writing each part as a module or function
- Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data methodically test and debug C programs

## 2. Skills Outcomes:

After completing the course, the student is expected to be able to:

- Clearly formulate a program's requirements
- Develop an algorithm for solving a problem
- Identify functions for solution of a problem, and identify and classify the parameters
- Write a C++ program
- Build sets of test data in order to evaluate computer programs
- Thoroughly test a program.
- Debug a program.
- Describe the organization of a computer system.
- Describe the process of compiling, linking, and running a program



Course Name : Graphics Communication and Design

Hours: 2+0+2

Credits:3.

Course Outcome:

1. Knowledge Outcome:

- At the end of the course, the students will have the knowledge of Professional drawing with its codes and rules.
- They will know the method of communicating the design from one department to other with 2D and 3D drawings.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Plot basic professional drawing on sheet
- Sketch the drawing on Auto Cad
- Proper documentation of design sheet.
- Imagine and visualize the geometric details of engineering objects.
- Translate the geometric information of engineering objects into engineering drawings.
- Use computer aided drafting in their respective engineering field.

Course Name : Engineering Mathematics

Hours: 3+1+0

Credits-4

Course outcomes:

Knowledge outcomes:

At the end of the course, the students should be able to:

- The student shall gain understanding of Matrix, different types of matrices and different methods to solve system of linear equations.
- The student shall gain understanding of partial derivatives, jacobian and its properties.
- Student shall gain knowledge of Euler's theorem and Taylor's theorem.
- Student shall gain a thorough understanding of double and triple integrals and its application to area and volume.
- Student shall gain a thorough understanding of Beta and Gamma functions.
- Student shall gain knowledge of Gradient, Divergence and Curl of a vector.
- Student shall gain a thorough understanding of Green's, Stoke's and Gauss's divergence theorem.

Skill outcomes:

At the end of the course, the students will gain the skill of:

- Different methods of solving system simultaneous linear equations.
- Use of double and triple integrals to find area and volume.
- Solving different problems of vector calculus by using Green's, Stoke's and Gauss's divergence theorem.

Course Name : Principles of Engineering

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Hours: 3+0+0

Credits: 3

Course Outcome:

1. Knowledge outcome

- Graduates will demonstrate the ability to use basic knowledge in mathematics, science and engineering and apply them to solve problems specific to mechanical engineering.
- Graduates will demonstrate the ability to design and conduct experiments, interpret and analyze data, and report results.
- Graduates will demonstrate the ability to design any mechanical system or thermal system that meets desired specifications and requirements.
- Graduates will demonstrate the ability to function as a coherent unit in multidisciplinary design teams, and deliver results through collaborative research.
- Graduates will demonstrate the ability to identify, formulate and solve mechanical engineering problems of a complex kind.
- Graduates will demonstrate an understanding of their professional and ethical responsibilities, and use technology for the benefit of mankind.
- Graduates will be able to communicate effectively in both verbal and written forms.
- Graduates will have the confidence to apply engineering solutions in global and societal contexts.

- Graduates should be capable of self-education and clearly understand the value of life-long learning.

## 2. Skill outcome

- Graduates will develop an open mind and have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues.
- Graduates will be familiar with applying software methods and modern computer tools to analyze mechanical engineering problems.
- Graduates will have the ability to recognize the importance of professional development by pursuing post graduate studies or face competitive examinations that offer challenging and rewarding careers in Mechanical Engineering.
- Graduate will be able to design a system to meet desired needs within environmental, economic, political, ethical health and safety, manufacturability and management knowledge and techniques to estimate time, resources to complete project.

Course Name : Workshop

Hours: 0+0+4

Credits: 2

Course Content:

Instructions for paper setter / candidates

Laboratory examination will consist of two parts:

- (vii) Performing a practical exercises assigned by the examiner
- (viii) Viva-voice examination

Viva-voce examination will be related to the practicals performed / project executed by the candidate related to the paper during the course of the semester.

List of Practicals: -

Fitting Shop: Introduction to the tools used in Fitting Shop and various processes in Fitting shop.

10. To make a square piece of mild steel.
11. To make corner angle and radius corner of mild steel piece.
12. Drilling and Tapping in a M.S. piece.

Machine Shop: Introduction to various machine tools and machine parts, such as Lathes, drilling machine, grinders etc. Cutting tools and operations.

10. Cutting a piece of mild steel round bar on Hydraulic hacksaw machine
11. Perform facing, turning and step turning of mild steel rod on Lathe Machine.
12. To perform knurling and threading operation on lathe machine.

Carpentry and Pattern making Shop: Carpentry and Pattern Making Various types of timber and practice boards, defects in timber, seasoning of wood, tools, operations and joints. Introduction to the tools used in carpentry shop.

10. To make the 'T' lap joint.
11. To make Mortise & Tennon joint.
12. To make a Solid and split pattern

Welding Shop: Introduction to different welding methods, welding equipment, electrodes, welding joints, and awareness of welding defects.

10. To make a lap joint.
11. To make a V butt joint in horizontal position.

12. To make a V butt joint in vertical position

Books:

1. Workshop Technology by Chapman.
2. Workshop Practice manual by V. Kapoor.
3. Manufacturing Materials and processes by JS Campbell.

Third Semester

Basics of Management

CSU101

Credits-3+0+0

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the concepts related to basic terms of Economics and Business
- Realize the importance of various processes that drive the economy
- Recognize the changes that are taking place in the global business environment and strategies to manage it
- Comprehend the importance of MS office tools and e- mails which are crucial for their success in the professional world.

2. Skill Outcomes:

At the end of the course:

- The student should be able to analyze the importance of Economics and other related concepts.
- The course will help students to gain a hands on experience on working with MS office tools.
- The students will be able to understand and relate to those terms which are very commonly used in every organization.
- The course will equip students with skills that will help them in working more professionally.

## Cell Biology

CSU 003

Credits-3+0+0

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of cell biology.
- Know the structure and function of cellular components.
- Know the function of different cells.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

#### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Achieve skills in laboratory cell biology work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in laboratory work.
- Have hands on knowledge about various tools and techniques used to study biology at the cellular level.

## Diversity of Vertebrates

CSU054

Credits-3+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Define and describe chordates
- Explain the points of differences between various chordate classes
- Understand general characters of amphibians, reptiles, birds and mammals

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Achieve skills in dissection fishes.
- Learn identification of various animals

## GENETICS

ZOO 304

Credits-3+0+1

Course Outcomes:

### 3. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Concept of Mendel's experiments and laws of inheritance
- Understand the Monohybrid and Dihybrid cross, Linkage, Mechanism of crossing over,
- Understand the Sex chromosome and Sex determination, Population genetics, Chromosomes

### 4. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand genetics of Bacteria and viruses
- Understand conjugation mapping
- Understand Hardy Weinberg Law- Genetic equilibrium



Fourth Semester

Diversity of Invertebrates

CSU055

Credits-3+0+0

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in Invertebrate Biology.
- Understanding of the important characteristics of different phylum.
- Students should classify the different phylum upto order level.
- Describe the morphology and physiology of different systems in model organisms.
- Understand the economic importance of various invertebrates.
- Describe the various control measures for economically disadvantageous organisms.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in genetics.
- Able to identify and classify given specimens.
- Prepare well stained slides.
- Perform dissections and demonstrate the morphology various systems.

Animal Physiology

CSU056

Credits-3+0+1

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Knowledge of cell structure and function
- Describe and understand the metabolic processes of cells in terms of cellular organelles, membranes, and biological molecules
- Knowledge of the nature and function of genes and processes of cell division
- Describe and understand the processes like apoptosis, cell signalling
- Knowledge of cellular and molecular processes involved to cause cancer

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Ability to use specific laboratory tools and techniques (e.g. effective use of microscopes and lab instruments, handling of microorganisms, making up solutions)
- Analyze, compare and explain results of experiments
- Prepare well stained slides.
- Ability to design experiments with appropriate controls and to conduct original research.

## MOOCs (Biochemistry)

noc20-cy10

Credits-3+0+0

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in biochemistry.
- Understanding of the key principles of biochemistry at an advanced level.
- Students should recognize how common foodstuffs are turned into metabolic energy and will be able to predict the energy content and value of different classes of chemical compounds.
- Describe the steps in glycolysis, the citric acid cycle and oxidative phosphorylation, and explain the principles governing their regulation.
- Students should be able to calculate the energy yield from the catabolism of any compound.
- Explain the principles of enzyme catalysis, inhibition and regulation.

- Students should be able to reconstruct the anabolism of the essential building blocks of life.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in genetics.
- Able to estimate the carbohydrates and protein content by using analytical experiments.
- Demonstrate the action of salivary amylase at given set of conditions.
- Perform paper chromatography, TLC and electrophoresis.

Fifth Semester

Applied Zoology

ZOO305

Credits-3+0+1

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define and describe basic terms in applied zoology.
- Explain causes and classification of diseases

2. Skill Outcome:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in applied zoology.
- Prepare and study various slides

Modern Techniques and Instrumentation

CSU029

Credits-3+0+0

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Use colorimeter and other related instruments

- Understand the requirement of various chemicals and instruments for their isolation and separation
- Determine total protein content, chlorophyll content by spectrophotometer and Na<sup>+</sup> and K<sup>+</sup> content with flame photometer
- Understand the difference between basic analytical methods
- Understand the specificity of instruments and equipments used in the laboratory

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Learn various techniques of isolation, purification and separation of RNA, DNA and proteins
- Understand the various kinds of methods for sequencing of proteins
- Analyze various histochemical and immunotechniques such as ELISA, RIA, immunoprecipitation and immunodiffusion etc
- Understand the role of electrophysiological methods like in modern medical sciences
- Analyze the uses of computers in assessment of biochemical studies
- Demonstrate the methods used in the fields for assessment of population density and species richness

## Fundamentals of Molecular Biology

CSU030

Credits-3+0+1

Course Outcomes:

### 1. Knowledge Outcome:

At the end of the course, the student will gain the knowledge of the following:

- The concepts of flow of genetic information and the historical timeline of discovery of “DNA, the molecule of life”.
- The decoding of genetic information from DNA to RNA to protein
- Describe the molecular mechanisms by which protein complexes repair different forms of DNA damage and the associated human diseases
- Compare and contrast the mechanisms of bacterial and eukaryotic DNA replication, DNA repair, transcription, and translation.

- How is gene expression regulated at multiple levels?

## 2. Skill Outcomes:

At the end of the course:

- The student well-versed with the contents of this course will be prepared for competitive exams in life sciences for pursuing research and teaching careers.
- The course is blended with a practical module for on-hand training in basic techniques of molecular biology like genomic DNA and RNA isolation, visualizing DNA by agarose gel electrophoresis, PCR amplification, and RAPD analysis.
- The practical module will provide the basic skill expertise in molecular biology to the student, which is required for almost every area of modern biology in research and industry.

## Introductory Biotechnology

ESU 025

Credits-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course student will be able to:

- Understand the basic concepts of biotechnology
- Understand the classification and important functions of macromolecules
- Develop an understanding of the markers and their use in plant improvement
- Understand the techniques of electrophoresis
- Understanding the role of biotechnology in agriculture, medicine and environment
- Know the advantages of phytoremediation
- Able to know the concept of genome sequencing

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Perform electrophoresis for nucleotides
- Prepare artificial seeds
- Screen microorganism for amylase production
- Screen microorganism for protease production
- Perform Polymerase Chain Reaction
- Know the principle and working of various instruments used in the biotechnology lab

## PROJECT

ZOO 300

Credits: 2

At the end of the course, the student would be able to:

- Develop hypothesis
- Develop experimental skills
- Learn how to plan, organize, and control every step of a given project
- Makes them understand how different tools can be used for meeting goals while maintaining protocols and procedures.

## Sixth Semester

Animal Behavior

CSU 058

Credits-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of animal behavior.
- Know how to study animal behavior.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in animal behavior work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in field and laboratory work.
- Have hands on knowledge about various techniques used to study animal behavior.

Evolution and Paleontology

ESU 016

Credits-3+0+1

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of evolution.
- Know about the morphological, population genetic and molecular approaches towards understanding evolution.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in developing evolutionary thinking.
- Analyze, compare and explain evolutionary trends.
- Apply intelligence in understanding evolutionary changes in a population genetics framework.
- Have hands on knowledge about various tools and techniques used to study evolution at the species, population and molecular levels.

Developmental Biology

ESU 017

Credits-3+0+1

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in developmental biology.
- Master basic concepts of developmental biology
- Understand the process of gametogenesis, fertilization, cleavage, and consequence of gastrulation.
- Describe various processes which play role in embryonic and post embryonic developments.



- Understand the influence and role of maternal and zygotic genes in development process.
- Describe and explain basic concepts of growth, regeneration and aging.
- Understand basic concepts of gene expression and regulation.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in developmental biology.
- Identify different developmental stages embryo.
- Identify the homologies, similarities and differences between structures and processes in the developmental models studied.

## Research Thesis

BZO302

Credits:6

At the end of the course, the student should be able to:

- Statistically analyse the data and make interpretations
- Deduce theory behind experimental research
- It trains students to encourage the growth of scientific/technological research in the country.

M. Sc. I

Course Name : Inorganic Chemistry & Group Theory Course Code: CHM-511

### 1. Knowledge outcomes

At the end of course, the student should be able to

- Explain fundamentals of electronic structure of solids-band theory of metals and photoelectric effects
- Understand the basic difference in metals, insulators and semiconductors
- Differentiate between boranes, carboranes and metalloboranes
- Understand Chelation and factors that effects stability of chelates
- Understand the principles of group theory and able to assign the point groups to inorganic molecules.

Course name :Organic Reactions and Reagents

Course Code :Chem-512

### 2. Knowledge Outcome

At the end of the course, the students should be able to:

- Explain Types of reaction in organic chemistry.
- Understand reactivity of the particular functionality for type of reaction.
- Define reactivity of aromatic and heterocyclic system.
- Define class of reaction in heterocyclic system.
- Recognize substrate and reagents for a particular type of reaction.

Course Name : Molecular Spectroscopy

Course Code : CHM-513

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the basic concept of Spectroscopy
- Differentiate between NMR and ESR.
- Know the structure elucidation of organic and inorganic compound.
- Assimilate the basics behind the various spectroscopic technique.
- Make out the advantages and disadvantages of various spectroscopic technique.
- To understand the lasers and applications in chemistry.

Course Name : CHEMISTRY OF MATERIALS

Course Code : CHM-514

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1. Knowledge Outcome:

At the end of the course, the student should be able to:

- The students will be able to understand concept of nanochemistry

History of nano-chemistry

identify and understand different synthesis methods for Nanoparticles

- To understand the concept of chemical reduction

Knowing the topic of Micelles and micellization

- Comparison of Spectral Techniques Used for Elemental Analysis  
Size Effects in Nanochemistry

- Understanding various Spectral Techniques in Nanochemistry

Course Name: Bio -Organic Chemistry

Code:CHMFC-01

1. Knowledge Outcome:

At the end of course, the students should be able to:

- Know about various macromolecules of biological origin.
- Classify the different biological molecules.
- Learn about structure and role of biological molecules.
- Understand the structure and physiological action of enzymes.
- Learn the importance of coenzyme chemistry.

SEM. II.

Course Name : Metal Ligand Bonding & Magnetochemistry

Course Code : CHM-521

1. Knowledge Outcome:

At the end of course, the students should be able to:

Thermodynamic effect of crystal

Origin of Magnetochemistry

Energy level in atoms & Atomic Microstates

Spectroscopy & Electronic Spectra

Course name :Organic Reactions and Reagents

Course Code :Chem-522

3. Knowledge Outcome

At the end of the course, the students should be able to:

- Explain Types of reaction in organic chemistry.
- Understand reactivity of the particular functionality for type of reaction.
- Define reactivity of aromatic and heterocyclic system.

- Define class of reaction in heterocyclic system.
- Recognize substrate and reagents for a particular type of reaction.

Course name : Thermodynamics and Kinetics

Course Code : CHM-523

#### 4. Knowledge Outcome

At the end of the course, the students should be able to:

#### 3. Knowledge outcomes

At the end of course, the student should be able to

- Understand the concept of enthalpy, work and entropy.
- Understanding of free energy, Molal partition functions,
- Describe the chemical potential concept in chemistry
- Interpret data of quantum chemistry calculations to deduce physical and chemical properties
- Explain chemistry beyond surface reaction and activated complex theory.

M.Sc. SEM. III

Course Name : Analytical & Nuclear Chemistry

Course Code : CHEM-531

Knowledge outcomes

At the end of course, the student should be able to:

- Describe the types of errors.
- Detect and minimize the types of errors.
- Explain the test of significance.
- Predict the criteria for rejection of analytical data.
- Define nuclear energy and derive nuclear reactions

Course Name : Spectroscopy & Synthetic Strategies

Course Code : Chem-532

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the importance of modern analytical techniques
- Differentiate between conjugated and non-conjugated system with the help of UV-visible electronic spectra
- Explore IR spectroscopy for functional group characterization
- Apply NMR spectroscopy to obtain structural framework information of unknown compounds
- Integrate the knowledge of all above mentioned spectroscopies with mass spectrometry for final confirmation of unknown structure of molecule
- Design the synthesis for complex molecule by disconnection approach target molecule into simpler precursor structures
- Identifying different synthetic routes for a particular chemical reaction

Course Name : Statistical Thermodynamics & Basic Quantum Chemistry

Course Code : CHM-533

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1. Knowledge outcomes

At the end of course, the student should be able to

- describe the failure of classical mechanics
- explain fundamentals of quantum mechanics
- formulate Schrodinger wave equation and apply to various systems
- predict how changes in molecular properties influence macroscopic behavior
- differentiate between classical & quantum statistical thermodynamics
- derive most probable distribution for particles following MB, BE & FD statistics

Course Name : Biophysical & Polymer Chemistry

Course Code : CHMFC-03

1. Knowledge outcomes:

At the end of course, the student should be able to

- Differentiate between cell membrane and plasma membrane.
- Able to explain Biomolecular Interactions
- Describe in detailed the transport process
- Interpret Properties, requirement and utilization of polymer

Course Name : Modern Techniques of Chemical Instrumentation

Course Code : CHM-534

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1. Knowledge outcomes

At the end of course, the student should be able to

- describe the principles of various analytical instruments
- explain importance of analytical methods in laboratory and industry
- account for quantitative and qualitative analysis of solutions
- describe working of spectrophotometer, polarimeter, chromatographs etc
- solve numerical problems on laboratory analysis

Course Name : Solid State Chemistry

Course Code : CHEM-536

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#### Knowledge outcomes

At the end of course, the student should be able to

- describe the principles for the structure of solids
- describe specific crystal structures by applying crystallographic basic concepts
- account for the generation and effects of X-ray radiation on matter
- describe the experimental use of the diffraction phenomenon
- explain electronic and magnetic properties of semiconductors

Course name :HETEROCYCLIC CHEMISTRY

Course Code :CHM-538

#### 5. Knowledge Outcome

At the end of the course, the students should be able to:

- Understanding the nomenclature of Heterocyclic chemistry with examples.
- Understanding the synthesis of different types of heteroatoms.
- Explain Types of reaction in Heterocyclic chemistry.
- Understand reactivity of the particular functionality for type of reaction.
- Define reactivity of aromatic and heterocyclic system.
- Define class of reaction in heterocyclic system.
- Recognize substrate and reagents for a particular type of reaction.



M.Sc. IV SEM

Course name :Environmental & Analytical Chemistry

Course Code :CHM-541

6. Knowledge Outcome

At the end of the course, the students should be able to:

Origin of earth and its structure.

Biodistribution of Elements.

Environmental Toxicology & biodegradability.

Industrial Pollution.

Course name :Inorganic Spectroscopy

Course Code :CHM-542

7. Knowledge Outcome

At the end of the course, the students should be able to:

IR spectroscopy & its applications

NMR spectra.

Mossbauer Spectroscopy

Electron Spin Resonance Spectroscopy

Course name :Inorganic Chemistry Advanced Organometallics

Course Code :CHM-543

8. Knowledge Outcome

At the end of the course, the students should be able to:

- Grasp importance of Organometallics and Coordination compounds
- Understanding the role of Organometallics and Coordination compounds in understanding Chelate and Macrocyclic effects, Multidentate ligands, conformation of Chelate rings, stereochemistry and various coordination numbers, isomerism
- Consequences and applications of orbital splitting, Crystal field stabilization energy, Magnetic properties, Factors affecting extent of splitting and spectrochemical series, colour of transition metal complexes.
- Importance of organometallic chemistry in modern times
- Chemical reactions, Structures and Fluxionality of metal carbonyl

Course name :Chemistry of transition and inner transition elements

Course Code :CHM-544

Knowledge Outcome

At the end of the course, the students should be able to:

Stereochemistry of coordinational compounds.

Role of metal ion in biological processes.

Chemistry of Lanthanides & Actinides

Course name :Advanced Quantum Chemistry

Course Code :CHM-545

Knowledge Outcome

At the end of the course, the students should be able to:

Energy and wave functions

Basic idea of Density functional theory.

Hybridization from a quantum mechanical view point

calculation of electron density

SCHOOL OF PHYSICS AND MATERIALS SCIENCE

M.Sc. PHYSICS

Course Name: Mathematical Physics

Course outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- The student shall gain understanding of set theory and complex numbers.
- The student shall gain a thorough understanding of the different concepts of Trigonometry.
- The student shall gain understanding to evaluate the nature of sequences – arithmetic progression and geometric progression.
- The student shall gain appreciation and understanding of Matrices and determinants.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Understand the basic concepts of matrices, various types of matrices, properties of matrices, complex matrices, Eigen values and Eigen vectors, diagonalisation of matrices.
- Describe the curl of a field, divergence of a field, solenoid and irrotational vector fields and their uses in physics.
- Understand & apply the Stokes and Gauss divergence theorms in physical problems.
- Describe the functions of a complex variables, series expansions, singularities of functions, the evaluation of residues and techniques for the evaluation of curtained kinds of definite integrals which occurs in various branches of physics.
- 3Have an understanding of the special functions of mathematical physics and their wide application areas.
- .Describe the Laplace transforms, properties of LT and able to solve related problems.

Will able to understand the essentials of tensor algebra and tensor calculus that are needed for understanding of a tonsorial presentation of mechanics, electromagnetic theory and special and general relativity.

Will be able to analyze problems in various branches of Physics using relevant mathematical tools.

Course Name: Classical Mechanics

Course outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the theories of classical mechanics.
- Understand the Hamilton-Jacobi Theory.
- Have a concise knowledge about Special Theory of relativity and its use.
- Explain the concept of Microscopic Vs. Macroscopic states

2. Skill Outcome:

At the end of the course, the student should be able to understand the basic physics related to the higher level physics courses.

Course Name: Quantum Mechanics

Course outcome:

3. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the concepts of Linear Vector Spaces.
- Understand of Dirac's Bra and ket Notations.
- Understand the concept of Angular Momentum
- Understand the need of the Perturbation Theory.
- Understand the scattering theory.

4. Skill Outcomes:

At the end of the course, the student should be able to:

- To Calculate the eigen values for different operators.
- To Express the different operators in the matrix form.

Course Name: Condensed Matter Physics

Course outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- At the end of the course, the students should be able to:
- Explain the classical mechanics of physics.
- Explain the effect quantum physic.
- Explain the effect Theory of relativity
- Explain the bio physics terminology in respect of physics phenomenon.
- Explain the different model for transition

### 2. Skill Outcome:

At the end of the course, the student should be able to understand the basic physics related to the higher level physics courses.

Course Name: Particle Physics

Course outcome:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the concepts of nuclear and particle physics
- Describe Shell and Liquid drop model
- Describe the evidence of shell structure
- Describe nature of Nuclear force
- Explain the concept of Binding energy and semi empirical mass formula
- Understand the concept of rotational spectra
- Explain different techniques for elementary particle detection
- Describe conservation and symmetry laws
- Understand the working of general purpose detectors

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the various elementary particles
- Understand about the shape of nucleus of atom
- Able to explain the Standard Model
- Able to explain various nuclear instruments and detectors

Course Name: Advanced Nanotechnology

Course outcome:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the physics behind the nanostructures
- Differentiate between synthesis approaches
- Define the various applications of nanostructured material
- Knowledge of ferrites and their properties
- Describe sintering, growth and nucleation

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Synthesize nanomaterials by different techniques
- Analyze crystal structure
- Recognize morphological and topographical features

Identify various properties of various materials

MSC BOTANY

M.Sc. Botany is a 2 year postgraduate degree program. It is a multi-disciplinary subject that broadens student's knowledge about plant biodiversity, community structure, metabolism, plant physiology, plant biotechnology, anatomy, immunology, cell biology, its organization at molecular, biochemical level and develops student's scope in various fields. It equip students for future challenges. It develops skill in practical work, experiments and in use of biological tools and techniques. The program is divided in four semesters, of six months each and in the last year student are assigned with a project that develops scientific temperament in students and help them to tackle research problems in future.

## SEMESTER I

BOT 501

CREDITS-3+0+1

### DIVERSITY OF NON-VASCULAR PLANTS

Course outcome:

At the end of the course, the student would be able to:

- The diversity of "non-vascular plants" (algae, fungi, bryophytes) and their importance to ecosystems and human welfare.
- Understand details of algae regarding its characteristic features, classification, economic factors and others.
- To understand fungi with emphasis on characteristics, study on different individual members, sub-divisions, concepts like sex-hormones in fungi, heterothallism, parasexuality, life cycle pattern and phylogeny of the various groups of fungi.
- To easily identify and differentiate the lower plants (algae and fungi) in field.
- Understand the economic importance and pathogenicity of these organisms.
- Understand the evolutionary relationship between these lower plants.
- Understand the study of Bryophytes, their anatomical and morphological features of vegetative and reproductive structures of different orders

BOT 502

CREDITS-3+0+1

### ECOLOGY AND BIOPHYSICAL ENVIRONMENT

Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain patterns observed in nature by applying fundamental ecological theories, through in-class discussions, clicker questions, electronic simulations and exam questions.

- Communicate clearly about ecological systems and processes by applying appropriate ecological terminology.
- Appreciate the contributions of important ecologists and the historical development of the discipline in order to understand contemporary ecological issues in a modern context, through clicker questions, class discussion and exam questions.
- Critically evaluate primary ecological literature and interpret case studies in the context of ecological theory.
- Study population, community and biodiversity of nearby area.
- Know interrelationship among biotic and abiotic factors.
- Know overview of current environmental issues.
- Perform hands-on activities (site visits, problem-solving, meeting policy makers, GIS demonstration, computer models, etc.)

BOT 504

CREDITS-3+0+1

## PLANT PATHOLOGY AND MICROBIOLOGY

Course outcome:

At the end of the course, the student would be able to:

- Develop suitable biological and chemical management strategies for the management of plant diseases.
- Understand the reasons for disease epidemics
- Develop an understanding for the genetic and biochemical defense mechanism of plants
- Understand the importance of mycorrhizae in agriculture and forestry and their possible use as biofertilizers
- Prepare inoculum and do its mass multiplication
- Able to isolate fungi and assess plant disease infection in plant
- Know the symptomatology and histopathology and identification of some plant diseases
- Perform differential staining of host and fungal pathogens in diseased tissues.
- Isolate, identify and characterize causal agents from disease samples
- Know different spore forms in fungi.
- Know some important rusts showing different spore forms.
- Know different types of symptoms of plant diseases.



DSE 514

CREDITS-2+0+1

## RECOMBINANT DNA TECHNOLOGY AND BIOINFORMATICS

Course Outcome:

At the end of the course student will be able to

- Define recombinant DNA technology and explain how it is used to clone genes.
- Compare and contrast different types of vectors and describe practical features of vectors and their applications in molecular biology.
- Understand how DNA libraries are created and screened to clone a gene of interest.
- Describe how agarose gel electrophoresis, restriction enzyme mapping, and DNA sequencing can be used to study gene structure.
- Explain common techniques used to study gene expression.
- Understand the basic concepts of biotechnology.
- Understand the nomenclature of restriction modification enzymes and their uses.
- Develop an understanding of the markers and their use in plant improvement.
- Understand the concept of transgenic, methods of their development and applications.
- Various in-vitro techniques of plant propagation.
- Understand the basic concepts of transgenic plants
- Able to know the concept of gene cloning.
- Perform the electrophoresis.
- Perform Polymerase Chain Reaction
- Understand the importance of transgenic plants.
- Understand various molecular markers, vectors and their uses.

BOT 523

CREDITS-1

## HERBARIUM

Course Outcome:

At the end of the course student will be able to

- Understand how to identify plants
- Know chemical drying which involves the use of borax, silica gel, detergents, alum or other compositions
- Know the biodiversity in the surroundings
- Know how to prepare a herbarium and also what information is required to write in the herbarium sheet
- Easily identify families on the basis of taxonomic features

## SEMESTER II

BOT-507

CREDITS-3+1

### CELL BIOLOGY AND GEMETICS

At the end of the lecture the student will be able to

- Understand the basic properties of cell membrane, its composition and its structure.
- Differentiate the structural organization and function of intracellular organelles such as mitochondria, golgi bodies, chloroplast, endoplasmic reticulum and cytoskeleton etc.
- Understand the mechanism of signal transduction pathway
- Analyze the different stages of cell division, cell cycle and its control.

- Understand the genetic arrangement of the progenitor cells of cancer, oncogenes, role of tumour suppressor genes and basics of cancer.
- Analyse diffusion pressure deficit, osmotic potential of cell sap by plasmolytic method, total protein content by using Lowery's method and the leakage of electrolyte etc.
- Prepare temporary mount of different stages of mitosis (onion root tip).
- Extract total DNA from the plant sample.

BOT 508

CREDITS-3+0+1

### PLANT BIOTECHNOLOGY AND PLANT TISSUE CULTURE

At the end of the course student will be able to

- Understand the basic concepts of Plant biotechnology and Plant tissue culture
- Understand the recombinant DNA technology, enzymes and vectors used in cloning process
- Develop an understanding of the markers and their use in plant improvement
- Understand the concept of transgenics, method of their development and applications
- Know various in-vitro techniques of plant propagation
- Develop an understanding of fermentation technology and applications
- Know the advantages of phytoremediation

BOT 509

CREDITS-3+0+1

### DIVERSITY OF VASCULAR PLANTS

At the end of the course, the students will be able to:

- Describe the similarities and differences between the fern, gymnosperms and angiosperms life cycle.
- Have an introductory knowledge of plant identification, terminology, and be able to recognize several of the most common plant families in Himalaya.
- They would be familiar with the vocabulary of plant identification, collection, history of taxonomy and rules of nomenclature.
- Develop some experience with looking for and identifying plants in the field.

- Describe the internal and external anatomy of non-vascular plants, vascular seedless plants, gymnosperms, and angiosperms
- Describe the life cycles of non-vascular plants, vascular seedless plants, gymnosperms, and angiosperms.
- Identify the plants by studying the morphology and natural habitat.

BOT 510

CREDITS-3+0+1

### PLANT ANATOMY AND HISTOCHEMISTRY

At the end of the course, the students will be able to:

- Know tissue organization in root, stems and leaves.
- Describe the morphological and anatomical advances in photosynthetic organisms.
- Prepare plant tissue slides to understand basics of plant morphology and anatomy.
- Understand plant morphological and anatomical defense mechanisms.
- Identify the microscope slides and specimens (living and preserved) presented in lab.
- Demonstrate competency in using histological techniques on organic tissues.
- Use different staining techniques used for plant tissue staining
- Know different types of macro and micro-molecules existing in cells

DSE 513

CREDITS-2+0+1

### BIOSTATISTICS

At the end of the course, the student should be able to:

- Realize the importance of data presentation
- Describe various types of graphical presentations like Pie chart, Bar graph etc.
- Define averages and dispersion for ungrouped and grouped data.
- Applications of probability in real life problem.
- Importance of the expectations and their operations.
- Define generating function
- Application and importance of inequalities and weak law of large numbers.

- Making of charts and graphs on MS Excel & SPSS.
- Computation of means and deviation manually and through MS Excel formulae.
- Statistical analysis on SPSS.
- Embedding table and charts from SPSS.

BOT 523

CREDITS-1

## HERBARIUM

Course Outcome:

At the end of the course student will be able to

- Understand how to identify plants
- Know chemical drying which involves the use of borax, silica gel, detergents, alum or other compositions
- Know the biodiversity in the surroundings
- Know how to prepare a herbarium and also what information is required to write in the herbarium sheet
- Easily identify families on the basis of taxonomic features

## SEMESTER III

BOT 513

CREDITS-3+0+1

### METABOLISM OF BIOMOLECULES AND IMMUNOLOGY

At the end of the course, the students will be able to

- Know the basic structures, functions and properties of biomolecules.
- Know the enzymes catalytic reactions and analysis.
- Able to analyse presence of different macromolecules in samples
- Able to analyse the presence of vitamins and secondary metabolites in samples.
- Do blood testing, antigen antibody interaction.
- Recall the of the main macromolecule classes (carbohydrates, proteins & lipids)
- Recall the basic principles of cellular energy (i.e. ATP, NAD<sup>+</sup>) and metabolic pathways
- Discuss the structural properties of macromolecules, including the four levels of protein structural organization
- Discuss macromolecule function and regulation within the context of human health and disease (e.g. hemoglobin versus myoglobin)
- Describe in detail a number of pivotal catabolic and anabolic pathways (e.g. glycolysis, TCA cycle, fatty acid metabolism etc.

BOT 514

CREDITS-3+0+1

### PLANT PHYSIOLOGY

At the end of the course, the student should be able to:

- Apply practical skills in solving problems in plant physiology.
- Calculate and predict the changes in physiological processes of plants under biotic and abiotic stress conditions.
- Understand and analyze various plant growth hormones in maintaining growth and development in plants.
- Define and describe basic terms in plant physiology.

- Explain correlations between structure and function at the cell, tissue and whole plant level.
- Describe and explain metabolism of plant cell and basic physiological processes in plants.
- Conclude about the role of physiological and metabolic processes and correlations between them.
- Understand the influence of endogenous and environmental signals on plant.

BOT 514

CREDITS-3+0+1

### EVOLUTIONARY BIOLOGY AND POPULATION GENETICS

At the end of the course, the student should be able to:

- Solve problems related to population genetics.
- Understand and analyse pedigree.
- Understand the cause and effect of genetic disorders.
- Understand the theory of evolution and origin of eukaryotic and prokaryotic cells.
- Understand the instrumentation and working of major instruments and equipment and equipment used in the laboratory.
- Understand evolution and various evolutionary forces, how they change the gene frequency in a population.
- Understand the basic concept of molecular evolution.
- Understand the arrangement of genes on chromosomes and control of gene expression.
- Understand the effect of change in allelic frequencies on population.
- Understand the methods to study pedigree analysis and its importance.

BOT- 500

Credits: 2

### PROJECT

At the end of the course, the student would be able to:

- Develop hypothesis
- Develop experimental skills

- Learn how to plan, organize, and control every step of a given project
- Makes them understand how different tools can be used for meeting goals while maintaining protocols and procedures.

#### SEMESTER IV

BOT 518

CREDITS-3+0+1

#### ADVANCED PLANT SYSTEMATICS

At the end of the course the student will be able to

- Know the different types of inflorescences and would be able to differentiate them
- Know about different morphologies of stamens and carpels
- Know the various applications of plant taxonomy and the role of plant taxonomy in plant study
- Understanding all the rules of ICBN
- Understand the role of herbaria, botanic gardens and literature in taxonomic studies
- Understand the role of taxonomic characters other than morphology and numerical methods in taxonomy
- Know various important angiospermic plants and their uses
- Develop an understanding of cladograms and phylogenetic trees
- Know the morphology of plants belonging to different families
- Name different types of fruits on the basis of their morphology
- Able to identify some important medicinal plants

BOT 518

CREDITS-3+0+1

#### ADVANCES IN MOLECULAR BIOLOGY

At the end of the course, the student should be able to:

- Understand the arrangement of genes on chromosomes and control of gene expression at molecular level.



- Explain the process and mechanism of DNA replication and enzymes involved in this process.
- Understand the mechanism RNA synthesis and role of different RNA in protein synthesis.
- Learn the concept of translation (protein synthesis) and explain the need of protein synthesis and its further modification before transport.
- Understand the concept of different transposable elements present on prokaryotes and eukaryotes.
- Understand the instrumentation and working of major instruments and equipment and equipped used in the laboratory.
- Perform the experiments on gene regulation in prokaryotes.
- Differentiate the process of replication, transcription, translation and gene regulation in prokaryotes and eukaryotes.
- Explain the role on enzymes involved in gene regulation and expression.

DSE 515

CREDITS-2+0+1

## DEVELOPMENTAL BIOLOGY

### Course Outcome:

At the end of the course, the student should be able to:

- Explain basic terms in developmental biology.
- Master basic concepts of developmental biology
- Understand Morphogenesis and Organogenesis
- Understand the influence and role of maternal and zygotic genes in development process.
- Describe and explain basic concepts of growth, regeneration and aging.
- Understand basic concepts of gene expression and regulation.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in developmental biology.
- Identify different developmental stages of plant embryo.
- Identify the homologies, similarities and differences between structures and processes in the developmental models studied.

DSE 515

CREDITS-2+0+1

## INSTRUMENTATION METHODS AND ANALYSIS

At the end of the course student will be able to

- Perform titrimetric, gravimetric and colorimetric experiments
- Use colorimeter and other related instruments
- Determine total protein content, chlorophyll content by spectrophotometer and Na<sup>+</sup> and K<sup>+</sup> content with flame photometer
- Understand the difference between basic analytical methods
- Understand the specificity of instruments and equipments used in the laboratory
- Learn various techniques of isolation, purification and separation of RNA, DNA and proteins
- Understand the various kinds of methods for sequencing of proteins
- Analyze various histochemical and immune techniques such as ELISA, RIA, immune precipitaton and immunodiffusion etc
- Understand  how microscopic techniques can be used to study living cells
- Understand the role of electrophysiological methods like in modern medical sciences
- Analyze the uses of computers in assessment of biochemical studies
- Demonstrate the methods used in the fields for assessment of population density and species richness

BOT- 500

Credits: 3

## PROJECT

At the end of the course, the student should be able to:

- Statistically analyse the data and make interpretations
- Deduce theory behind experimental research
- It trains students to encourage the growth of scientific/technological research in the country.

MSc Environmental Science

S/N Course Course code Course Outcome

### Semester 1

- |   |                                     |         |   |  |
|---|-------------------------------------|---------|---|--|
| 1 | Environmental Biology               | Env-501 | • | Introduce the concepts of living organisms and their environment.                            |
|   |                                     |         | • | Generate understanding as to how environmental pollution can affect the biological spectrum. |
| 2 | Ecology and Biophysical Environment | Env-502 | • | Introduction to basic concepts of Ecology and Biogeochemical processes.                      |
|   |                                     |         | • | Develop holistic understanding of the biophysical environment.                               |
| 3 | Biodiversity and Natural Resources  | Env-503 | • | Introduce the concept of Biodiversity.   |
|   |                                     |         | • | Impart training in methods of natural resource management.                                   |
| 4 | Forestry                            | Env-505 | • | Introduce the concept of scientific management of forests.                                   |
|   |                                     |         | • | Stress the importance of ecological considerations in forest management and inventorying.    |
| 5 | Environmental Engineering           | Env-506 | • | Introduce the basics concepts of engineering by explaining mathematical models.              |
|   |                                     |         | • | Develop thorough understanding of engineering concepts in wastewater treatment processes.    |

### Semester 2

- |   |   |         |   |  |
|---|---|---------|---|--|
| 6 | Concept of Physical Environment and Environmental Geology | Env-511 | • | Introduce the principles of geology and meteorology.                 |
|   |   |         | • | Develop understanding of Earth Sciences as a system.                 |
| 7 | Biostatistics   | DSE-512 | • | Introduction and practice of descriptive and inferential statistics. |
|   |   |         | • | Hands-on training of SPSS software.                                  |

8 Environmental Planning and Management Env-513 • Develop understanding of the concepts of Sustainable development, Triple Bottomline and Cost-Benefit Analysis

- Focus on the environmental planning system of India.

9 Environmental Protection and Laws Env-514 • Thorough understanding of the Environmental legislations in India.

- Develop understanding of Corporate Social Responsibility.

10 Bioenergetics of Life Processes Env-514 • Revision of the concepts of thermodynamics.

- Appreciation of the bioenergetics of different living systems.

11 Seminar Env-591 • Weekly practice of delivering seminar presentation

- Critical analysis of presentations to improve and develop better presentation skills.

### Semester 3

12 Global Climate Change -I Env-521 • Introduction to the concepts of climate change

- Develop understanding of the different scenarios of climate change and the expected effects

13 Instrumentation for Environmental Analysis Env-522 • Thorough understanding of the principles of the different instrumentation techniques used in environmental analyses.

- Hands-on practical experimentation on some of the important techniques.

14 Environmental Toxicology Env-523 • Introduction of the concepts of environmental Toxicology and toxicological analysis

- Develop understanding of the toxic response of human organ systems.

15 Remote Sensing and Geographical Information Env-524 • Introduction to the basic concepts of Remote Sensing and image Processing and Interpretation of satellite data .

- Hands-on training of PrimeWin and QGIS software platforms for Image classification and calculation of raster indices and usage of the Bhuvan Portal.

16 Plant Tissue Culture DSE-504 • Develop thorough understanding of the processes of mass propagation through tissue culture

- Hands-on training of culturing methodology.

### Semester 4

- 17 Global Climate Change-II (Preventive measures) Env-531 • Role of International Organizations in actions towards mitigation of climatic change.
- Descriptive analysis of Kyoto Protocol and Paris Agreement and role of India.
- 18 Impact of Climate Change on Environment Env-532 • Introduction to Environmental Impact Assessment system in India with demonstration of impact prediction techniques.
- Introduction to ISO 14000 family and environmental auditing.
- 19 Agriculture and Environment Env-534 • Develop understanding of agricultural cropping systems.
- Develop appreciation of sustainable farming techniques.
- 20 Project Env-600 • Develop skills of dissertation writing.
- Develop specialization in a particular field of Environmental Sciences.

## M. Sc. Zoology

M.Sc. Zoology is a 2 year postgraduate degree program. It is a multi-disciplinary subject that broadens student's knowledge about animal biodiversity, community structure, metabolism, animal physiology, animal biotechnology, immunology, cell biology, its organization at molecular, biochemical level and develops student's scope in various fields. It equips students for future challenges. It develops skill in practical work, experiments and in use of biological tools and techniques. The program is divided in to four semesters, of six months each and in the last year students are assigned with a project that develops scientific temperament in students and help them to tackle research problems in future.

### First Semester

Advances in biology of Invertebrates

ZOO-501

CREDITS-3+0+1

Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in Invertebrate Biology.
- Understanding of the important characteristics of different phylum.
- Students should classify the different phylum upto order level.

- Describe the morphology and physiology of different systems in model organisms.
- Understand the economic importance of various invertebrates.
- Describe the various control measures for economically disadvantageous organisms.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in genetics.
- Able to identify and classify given specimens.
- Prepare well stained slides.
- Perform dissections and demonstrate the morphology various systems.

## Comparative Anatomy of Vertebrates

ZOO-502

CREDITS-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Provide broad knowledge and base for understanding vertebrate evolution.
- Relate and compare the data on comparative vertebrate morphological as well as anatomical.
- Able to know the different structure, organization and function of vertebrates.
- Able to differentiate anatomical structures of vertebrates easily.

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in the field as well as in the laboratory.

- Compare and explain their different structures and functions.
- Develop skills of integrative and synthetic thinking.
- Have hands on knowledge about various tools and techniques used in laboratory specially dissection.

### Biosystematics and Taxonomy

ZOO-503

CREDITS-3+0+1

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Define and describe basic terms in animal taxonomy.
- Explain taxonomic categories, nomenclature and type concept
- Explain principles and theories of taxonomy and biosystematics

##### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in taxonomy.

Collect and preserve various faunal groups

### Endocrinology

ZOO-506

CREDITS-3+0+1

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe and understand the anatomy and histology of the endocrine system
- Outline the regulation of hormone secretion and the mechanisms of hormone action
- Explain the function of the hypothalamus, pituitary, adrenal, thyroid, parathyroid, endocrine pancreas, ovary, testis, and their hormones

- Discuss some examples of disorders of the endocrine glands named above and their treatment

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Recognize the major hormones released from different glands that are clinically important in regard to thyroid, adrenal, and reproductive function
- Achieve skills in laboratory work
- Analyze, compare and explain results of experiments
- Perform microtomy and study the histology of endocrine tissue
- Prepare well stained slides.

## RECOMBINANT DNA TECHNOLOGY AND BIOINFORMATICS

DSE-514

CREDITS-2+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Define recombinant DNA technology and explain how it is used to clone genes.
- Compare and contrast different types of vectors and describe practical features of vectors and their applications in molecular biology.
- Understand how DNA libraries are created and screened to clone a gene of interest.
- Describe how agarose gel electrophoresis, restriction enzyme mapping, and DNA sequencing can be used to study gene structure.
- Explain common techniques used to study gene expression.
- Understand the basic concepts of biotechnology.
- Understand the nomenclature of restriction modification enzymes and their uses.
- Develop an understanding of the markers and their use in plant improvement.
- Understand the concept of transgenic, methods of their development and applications.
- Various in-vitro techniques of plant propagation.



- Understand the basic concepts of transgenic plants
- Able to know the concept of gene cloning.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Perform the electrophoresis.
- Perform Polymerase Chain Reaction
- Understand the importance of transgenic plants.
- Understand various molecular markers, vectors and their uses.

Second Semester

CELL BIOLOGY AND GENETICS

ZOO-507

CREDITS-3+0+1

Course Outcomes:

## 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of cell biology.
- Know the structure and function of cellular components.
- Possess broad knowledge about various aspects of genetics.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory cell biology and genetics work.
- Analyze, compare and explain results of experiments.

- Apply practical intelligence in solving problems in laboratory work.
- Have hands on knowledge about various tools and techniques used to study biology at the cellular and molecular level

## ADVANCES IN ANIMAL PHYSIOLOGY

ZOO-508

CREDITS-3+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Knowledge of cell structure and function
- Describe and understand the metabolic processes of cells in terms of cellular organelles, membranes, and biological molecules
- Knowledge of the nature and function of genes and processes of cell division
- Describe and understand the processes like apoptosis, cell signalling
- Knowledge of cellular and molecular processes involved to cause cancer

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Ability to use specific laboratory tools and techniques (e.g. effective use of microscopes and lab instruments, handling of microorganisms, making up solutions)
- Analyze, compare and explain results of experiments
- Prepare well stained slides.
- Ability to design experiments with appropriate controls and to conduct original research.

## ADVANCES IN DEVELOPMENTAL BIOLOGY

ZOO-509

CREDITS-3+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in developmental biology.
- Master basic concepts of developmental biology
- Understand the process of gametogenesis, fertilization, cleavage, and consequence of gastrulation.
- Describe various processes which play role in embryonic and post embryonic developments.
- Understand the influence and role of maternal and zygotic genes in development process.
- Describe and explain basic concepts of growth, regeneration and aging.
- Understand basic concepts of gene expression and regulation.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in developmental biology.
- Identify different developmental stages embryo.
- Identify the homologies, similarities and differences between structures and processes in the developmental models studied.

## ECOLOGY AND ANIMAL BEHAVIOUR

ZOO-521

CREDITS-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of ecology and animal behavior.

- Know how to study ecology and animal behavior.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in ecology and animal behavior work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in field and laboratory work.

Have hands on knowledge about various techniques used to study ecology and animal behavior.

## BIOSTATISTICS

DSE 512

CREDITS-2+0+1

### Course Outcomes:

#### 2. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Realize the importance of data presentation
- Describe various types of graphical presentations like Pie chart, Bar graph etc.
- Define averages and dispersion for ungrouped and grouped data.
- Applications of probability in real life problem.
- Importance of the expectations and their operations.
- Define generating function
- Application and importance of inequalities and weak law of large numbers.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Making of charts and graphs on MS Excel & SPSS.

- Computation of means and deviation manually and through MS Excel formulae.
- Statistical analysis on SPSS.
- Embedding table and charts from SPSS.

### Third Semester

#### Environmental Biology

ZOO-513

CREDITS-3+0+1

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain relationship between various ecosystems
- Explain habitat, niche and various ecological factors
- Explain various toxic materials, pollutants, pollution and their impact on human

##### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work
- Analyze, compare and explain results of experiments
- Identify various ecosystems, pollutants and pollution

#### Cell Biology and Immunology

ZOO-517

CREDITS-3+0+1

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of cell biology.

- Know the structure and function of cellular components.
- Possess broad knowledge about various aspects of immunology.
- Know the function of different immune cells.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory cell biology and immunology work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in laboratory work.
- Have hands on knowledge about various tools and techniques used to study biology at the cellular and molecular level.

## Biochemistry

ZOO-520

CREDITS-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain basic terms in biochemistry.
- Understanding of the key principles of biochemistry at an advanced level.
- Students should recognize how common foodstuffs are turned into metabolic energy and will be able to predict the energy content and value of different classes of chemical compounds.
- Describe the steps in glycolysis, the citric acid cycle and oxidative phosphorylation, and explain the principles governing their regulation.
- Students should be able to calculate the energy yield from the catabolism of any compound.
- Explain the principles of enzyme catalysis, inhibition and regulation.

- Students should be able to reconstruct the anabolism of the essential building blocks of life.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in genetics.
- Able to estimate the carbohydrates and protein content by using analytical experiments.
- Demonstrate the action of salivary amylase at given set of conditions.
- Perform paper chromatography, TLC and electrophoresis.

## Molecular Biology

DSE-504

CREDITS-2+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student will able to:

- Describe how gene expression is regulated at different levels
- Account for the molecular mechanisms regulating and controlling DNA replication
- Describe the molecular mechanisms behind DNA transcription in prokaryotes and eukaryotes
- Describe molecular mechanisms to transpositions.
- Explain how to use transposons as genetic markers for gene isolation

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in laboratory work.
- Analyze, compare and explain results of experiments.
- Apply practical skills in solving problems in molecular biology

## PROJECT

BOT- 500

CREDITS: 2

At the end of the course, the student would be able to:

- Develop hypothesis
- Develop experimental skills
- Learn how to plan, organize, and control every step of a given project
- Makes them understand how different tools can be used for meeting goals while maintaining protocols and procedures.

Fourth Semester

## ENTOMOLOGY

ZOO-518

CREDITS-3+0+1

Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of entomology.
- Know about the morphology and physiology of insects.
- Understand the importance of studying entomology for solving human problems.

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in basic laboratory entomology work.
- Analyze, compare and explain results of experiments.
- Apply practical intelligence in solving problems in laboratory work.
- Have hands on knowledge about various tools and techniques used to study insects at the organismal level.



## EVOLUTIONARY BIOLOGY

ZOO-519

CREDITS: 3+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Possess broad knowledge about various aspects of evolution.
- Know about the morphological, population genetic and molecular approaches towards understanding evolution.
- Understand the importance of the reductionist approach in generating a holistic knowledge of the biology of organisms.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Achieve skills in developing evolutionary thinking.
- Analyze, compare and explain evolutionary trends.
- Apply intelligence in understanding evolutionary changes in a population genetics framework.
- Have hands on knowledge about various tools and techniques used to study evolution at the species, population and molecular levels.

## BIODIVERSITY AND ITS CONSERVATION

ZOO-516

CREDITS-3+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the biodiversity concept
- Demonstrate about protected area of wildlife conservation
- Describe the wetland and wetland convention
- Describe wildlife habitat of India and Himachal Pradesh

- Competent in wildlife conservation and management Strategies
- Describe different types of environmental pollution
- Competent in Biodiversity preservation.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the habitat requirements of wildlife species
- Effectively analysis diverse conservation challenges ranging from biodiversity
- Work in the areas of preservation and conservation wildlife species
- Work in the area of management of wildlife species
- Work in the area of management of Environmental pollution
- Make EIA reports

## INSTRUMENTATION METHODS AND ANALYSIS

DSE-514

CREDITS-2+0+1

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Use colorimeter and other related instruments
- Understand the requirement of various chemicals and instruments for their isolation and separation
- Determine total protein content, chlorophyll content by spectrophotometer and Na<sup>+</sup> and K<sup>+</sup> content with flame photometer
- Understand the difference between basic analytical methods
- Understand the specificity of instruments and equipments used in the laboratory

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Learn various techniques of isolation, purification and separation of RNA, DNA and proteins

- Understand the various kinds of methods for sequencing of proteins
- Analyze various histochemical and immunotechniques such as ELISA, RIA, immunoprecipitation and immunodiffusion etc
- □□□□□□□□□□ how microscopic techniques can be used to study living cells
- Understand the role of electrophysiological methods like in modern medical sciences
- Analyze the uses of computers in assessment of biochemical studies
- Demonstrate the methods used in the fields for assessment of population density and species richness

## PROJECT

Hours: Whole semester

Credits: 10

At the end of the course, the student should be able to:

- Statistically analyse the data and make interpretations
- Deduce theory behind experimental research
- It trains students to encourage the growth of scientific/technological research in the country.

### Faculty of Engineering & Technology

#### School of Mechanical & Civil Engineering

School of Mechanical & Civil Engineering Program Outcomes: School of Mechanical & Civil Engineering is committed to excellence in qualitative teaching, robust learning, and proactive research. Our aim is to create pioneers of Mechanical and Civil engineering who can make a difference in the different cross section of the society with a high impact research, involve in innovative interventions and get lucrative jobs. The Faculty of Engineering & Technology at Shoolini University offers graduate, post-graduate and doctoral programs for deserving students who also have a passion for learning and transforming into a statute of morality. The School of Mechanical & Civil Engineering has high quality teachers and facilities which have resulted in good matrix of international and national students from all over the country. Many Mechanical and Civil Engineering students have gone to foreign country during their B.Tech. Programme for one semester, studying in foreign environment for a transformation into a complete professional under students exchange programme of the Shoolini University.

Outcomes of the Mechanical Engineering includes:-

- Vigorously engage in post-baccalaureate endeavors, whether in engineering graduate study, in engineering practice, or in the pursuit of other fields, such as science, law, medicine, business or public policy.
- Actively seek out positions of leadership within their profession and their community.
- Serve as ambassadors for engineering by exhibiting the highest ethical and professional standards, and by communicating the importance and excitement of this dynamic field.
- Retain the intellectual curiosity that motivates lifelong learning and allows for a flexible response to the rapidly evolving challenges of the 21st century.
- Apply basic knowledge of mathematics, science and engineering principles to solve technical problems.
- Design and analyze a system component, or process to meet desired needs in Mechanical Engineering.
- Design a system and conduct experiments to find suitable solution in the field of mechanical engineering.
- Identify, visualize, formulate and solve engineering problems in the field of mechanical Engineering.
- Use the techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for societal, and environmental constraints.
- Apply their fundamental field skills towards the understanding of the impact of engineering solutions on the society in a global and social context.
- Impart knowledge of contemporary issues about society and environment.
- Apply ethical principles and responsibilities during professional practice.
- Function on multi disciplinary teams as a team member/leader and create user friendly environment.
- Communicate effectively in oral, written, visual and graphic modes within interpersonal, team, and group environments.
- Apply the techniques, skills and modern engineering tools necessary for engineering projects.
- Recognize the need for professional advancement by engaging in lifelong learning.

Outcomes of the Civil Engineering Includes:-

- To develop the technical knowledge and exercise a command in the field of Civil Engineering in plan, analysis, design and execution perspective.

- To develop analytical skills in the fields of Structural, Transportation, Geotechnical, Water Resource and Environmental Engineering
- To enhance soft computing techniques in design related projects.
- To strengthen the estimating and evaluating skills for the various CE projects.
- To fulfil the research and project oriented needs or requirements in the field of CE.
- The CE degree course enhances the overall potential of the CE graduating students to excel in their future in various specialized fields having learnt computer related applications of the softwares including computer programming.
- The CE students of this University have been made to be developing and filing patents to become future entrepreneurs. Students are also encouraged during the course of studies to work on practical projects and undertaking various practical trainings in the field.
- The industrial visits are arranged time to time during the course of their studies i.e. atleast one visit in each semester.

Course outcome of B.Tech Civil Engineering Shoolini University.

Course outcome of Semester- (III)

Course Name: Structural Analysis I

Course Code: CSU121

Course Outcome: After completion of the course students will be able to understand the fundamentals of Structural systems. Understand force Response in Statically Determinate Structures. Understand about Influence line diagrams for beams. The student will understand the statically determinate structure. Understand deflection in beams using the Moment area method, Conjugate method, and Energy Method.

Course Name: Computer Aided Engineering Drawing

Course Code: CSU102

Course Outcome: After completion of the course students will be able to inculcate the imagination and mental visualization capabilities for interpreting the geometrical details of common engineering objects. To impart knowledge about principles/methods related to projections of one, two and three-dimensional objects. Sketch orthographic projections into isometric projections and vice versa. Apply modern CAD software (Auto CAD).

Course Name: Building Materials, Construction and Drawing

Course Code: CSU120

Course Outcome: After completion of the course students will enable to select and specify appropriate materials for use in building construction. Know the principles of building methods and construction technology; describe a range of different types of building structures, describe why it is important to set out foundations and walls accurately, describe the different types of floor construction and their flooring component parts, describe the purpose of loadbearing and non-load-bearing internal walling.

Course Name: Introduction to Electrical and Electronics Engineering

Course Code: CSU100

Course Outcome: After completion of the course students will be able to describe the basics of electrical and electronics Engineering. To impart knowledge about the basic laws of electric circuits to calculate the unknown quantities. Apply the basic fundamental of magnetic circuits to calculate the unknown quantities. Analyze and interpret the sinusoidal electrical quantities and parameters mathematically as well as graphically for 1- phase/3-phase AC circuits. Remember need, construction, principle, types and applications of 1 phase.

Course Name: Basics of Management

Course Code: CSU101

Course Outcome: After completion of the course students will get knowledge to analyze the fundamental terms used in modern business environment and their relevance to economy. Students will learn the concepts from micro and macroeconomics and will contain basics of financial, human resource, marketing and operations management, knowledge of economics or business.

Course Name: SPRINT-III

Course Code: SP003

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project III (A)

Course Code: CE201

Course Outcome: After completion of the course students will follow the Second year project to complete 3rd semester. They will gain practical knowledge.

Course Name: Industrial Visit-III

Course Code: CE205

Course Outcome: After completion of the course students will get knowledge of about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (IV)

Course Name: Surveying

Course Code: CSU017

Course Outcome: After studying the course student will have the knowledge of the Principle and basics of surveying, leveling using a different instrument. Learn about the Calculation of horizontal and vertical angles using the Theodolite and Total station. Understand plane table surveying and contouring. Understand about the generation of topographic maps.

Course Name: Design of Reinforced Concrete Structures-I

Course Code: CSU396

Course Outcome: After studying the course student will have the knowledge To understand the necessity of reinforced concrete structures. Knowledge To work out the RCC structures based upon its design loads. Understand the suitability and selection of various construction materials. Gain Knowledge to estimate, design, construction, and maintenance of RCC structures. Understand various types of construction tests for their quality control.

Course Name: Strength of Materials

Course Code: CSU022

Course Outcome: After completion of the course students will get knowledge of fundamental understanding of the behavior of structural components commonly used in engineered structures and machines; develop skills to help them model and analyze the behavior of structural and machine components subjected to various loading and support conditions based on principles of equilibrium and material constitutional relationships.

Course Name: Rock Mechanics and Geology

Course Code: CSU398

Course Outcome: After studying the course student will have the knowledge of the quality parameters typically used to get the knowledge of rocks and its classification. Learn the parameters that affect the mechanism of rocks. Understand the failures of rocks. Students will Be able to formulate the earth's crust, its formation, and failures due to different mechanisms. Understand different test methods to find the rock pressure. Conduct basic tests of rocks mechanism.

Course Name: Writing Seminar –III



Course Code: FSU010

Course Outcome: After completion of the course students will get the knowledge to communicate through effective writing. The course focuses on skills that are critically required to learn, carefully examine texts and current issues, basic ideas about reading and writing on topics of general importance.

Course Name: Sprint-IV

Course Code: SP004

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project III (B)

Course Code: CE202

Course Outcome: After completion of the course students will follow the 3rd semester's project to complete 4th semester. They will gain practical knowledge and basic engineering exposure.

Course Name: Industrial Visit-IV

Course Code: CE206

Course Outcome: After completion of the course students will get knowledge of about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (V)

Course Name: Structural Analysis-II

Course Code: CSU145

Course Outcome: After completion of the course students will get the knowledge of understanding of fundamentals of Structural systems. They have an understanding of force Response in Statically Determinate Structures. The student understands about of Influence line diagrams for beams. The student understands about of Statically determinate structure. They have an understanding of deflection in beams using the Moment area method, Conjugate method, and Energy Method. Students will learn design of beams, frames, and trusses using Castigliano's theorem. They have an understanding of different types of loads on frames using the portal and cantilever method.

Course Name: Soil Mechanics

Course Code: CSU122

Course Outcome: After studying the course student will have the knowledge of Soil and its basic properties. Understand the role of soil in construction, Compaction of soil, Soil Consolidation and Earth pressure. They are able to know the role of soil in civil engineering infrastructure development. Understands various soil engineering experiments for measuring various properties.

Course Name: Concrete Technology

Course Code: CSU123

Course Outcome: After studying the course student will have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Learn the parameters that characterize the constituents found in concrete. Understand the common physical, chemical and biological properties of concrete components.

Course Name: Fluid Mechanics

Course Code: CSU015

Course Outcome: After completion of the course students will get knowledge of understanding the principles of continuity, momentum, and energy as applied to fluid motions, recognize these principles written in the form of mathematical equations. Students will learn to apply these equations to analyze problems by making good assumptions and learn a systematic engineering method to solve practical fluid mechanics.

Course Name: Estimation and Costing for Civil Engineering

Course Code: CSU376

Course Outcome: After completion of the course students will get knowledge of fundamentals of mechanized construction were involved in earth work and concreting. Latest techniques to carry out various construction activities with the timeframe work. Learn Innovative techniques for speedy and durable construction. Understand lending of materials used for construction for better strength.

Course Name: MOOC course

Course Code:

Course Outcome:

Course Name: SPRINT-V

Course Code: SP005

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project-IV (A)

Course Code: CE301

Course Outcome: After completion of the course students will follow the 4th semester's project to complete 5th semester. They will gain practical knowledge.

Course Name: Industrial Visit-V

Course Code: CE303

Course Outcome: After completion of the course students will get knowledge of the practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get a good opportunity to gain full awareness of industrial practices.

Course Name: Survey Camp

Course Code: CE401

Course Outcome: After studying the course student will have the knowledge of Principle and basics of surveying. Leveling using different instrument. Calculation of horizontal and vertical angle using the Theodolite and Total station. Plane table surveying. Contouring. Understanding and Generation of topographic maps.

Course outcome of Semester- (VI)

Course Name: Design of Reinforced Concrete Structure-II

Course Code: CSU397

Course Outcome: After studying the course student will have the knowledge To understand the necessity of reinforced concrete structures. Knowledge To work out the RCC structures based upon its design loads. Understand the suitability and selection of various construction materials. Gain Knowledge to estimate, design, construction, and maintenance of RCC structures. Understand various types of construction tests for their quality control.

Course Name: Design of Steel Structures

Course Code: CSU082

Course Outcome: After studying the course student will understand the requirement, significance and purpose of structural design. Know the properties of structural steel. Learn the suitability and adoptability of connection as per design requirement. Use the IS code and steel tables to find out the sections. Assemble the various structural members to construct a structure. Understand the effects of loads and the load combinations for design. Solve the design problems based on steel structures.

Course Name: Geomatics Engineering

Course Code: CSU081

Course Outcome: After completion of the course students will get knowledge of Electromagnetic spectrum and its application. Basic laws of electromagnetic interaction. Remote sensing definition and application. Satellite and sensor platform, Resolution, Digital image initial statistics, Image interpretation and classification, Geographic information system and its application. Different type of GIS data and data models.

Course Name: Geotechnology

Course Code: CSU079

Course Outcome: At the end of the course, the student should be able to Identify and describe Geotechnical Engineering. Determine soil physical characteristics, and, classify soils. Describe the purposes and different phases of a soil investigation; soil exploration program; soil exploration methods and soil identification in the field. Learn how to apply the concept of effective stress and determine how surface stresses are distributed within a soil mass. Describe the failure loads on shallow foundations. Define & workout the allowable bearing capacity , Safe bearing capacity , safe bearing pressure , gross bearing capacity & net bearing capacity. Calculation of settlement of soil. Study and design of deep foundation such as piles, drilled caisson and well foundations.

Course Name: Transportation Engineering

Course Code: CSU136

Course Outcome: After completion of the course students will get knowledge necessity of highways. Understand estimate, design of various highways depending upon their geometric design and location. Traffic studies and their data collection. Design of pavement depending upon their suitability. Various types of pavements tests for their quality control.

Course Name: SPRINT-VI

Course Code: SP006

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project-IV (B)

Course Code: CE302

Course Outcome: After completion of the course students will follow the 5th semester's project to complete 6th semester. They will gain practical knowledge.

Course Name: Industrial Visit-VI

Course Code: CE304

Course Outcome: After completion of the course students will get knowledge of practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (VII)

Course Name: Environmental Engineering-I

Course Code: CSU399

Course Outcome: After completing the course the student is expected to be able to define the quality parameters typically used to characterize waste water and explain the different classes of treated the sewerage. Learn the parameters that characterize the constituents found in waste water. Understand the common physical, chemical and biological unit operations encountered in treatment processes. Understand the fundamentals of waste water treatment. Comprehend the sewage data. Recognize and discuss emerging technologies for advanced waste water treatment and recycling.

Course Name: Hydrology and Irrigation Engineering

Course Code: CSU135

Course Outcome: After completing the course the student is have knowledge of various components of hydrologic cycle that affect the movement of water in the earth. Various Stream flow measurements technique the concepts of movement of ground water beneath the earth the basic requirements of irrigation and various irrigation techniques, requirements of the crops. Distribution systems for canal irrigation and the basics of design of unlined and lined irrigation canals design. Basic components of river Training works. Apply math, science, and technology in the field of water resource Engineering.

Course Name: Railways Engineering and Bridges

Course Code: CSU402

Course Outcome: After completing the course the student is have knowledge of After completing the course the student is expected to be able to discuss basic definitions, types, and components of bridges. Able to discuss sub-surface investigations required for bridge construction. Understand standard specifications for bridge design. Able to discuss the concepts of the permanent way section of the Indian Railway.

Faculty Elective -I

Sr. No. Course Name

- 1 Mechatronics
- 2 Power Plant Engineering
- 3 Network Security & Cryptography
- 4 Natural Language processing
- 5 Rock Mechanics and Geology
- 6 Geographic Information System
- 7 Electrical Energy Utilization
- 8 Mobile communication

Course Name: Mechatronics

Course Code: ESU 023

Course Outcome: After completion of the course students will get knowledge of various processes in which devices integrated with mechanical, electronic and computer components those are generally used in modern practice.

Course Name: Power Plant Engineering

Course Code: ESU 024

Course Outcome: After completion of the course students will get knowledge of various types of power plants, boilers, boiler mountings and accessories, working cycles of gas turbines etc. students will also discuss different operations of combined cycle power plants, types of reactors, waste disposal issues in nuclear power plants and illustration of power plant economics.



Course Name: Network Security & Cryptography

Course Code: ESU025

Course Outcome: After completion of the course students will get knowledge of multimedia, principles and major concepts in multimedia applications.

Course Name: Natural Language Processing

Course Code: ESU026

Course Outcome: After completion of the course students will get knowledge of Language processing features, design an innovative application using NLP components, implement a rule based system to tackle morphology/syntax of a Language, design a tag set to be used for statistical processing keeping an application in mind, design a Statistical technique for a new application, Compare and contrast use of different statistical approaches for different types of applications.

Course Name: Rock Mechanics and Geology

Course Code: CSU398

Course Outcome: After completion of the course students will get knowledge of theoretical and mechanical behavior of rock and rock masses; compared to geology, they will also learn about mechanics concerned with the response of rock and rock masses to the force fields of their physical environment.

Course Name: Geographic Information System

Course Code: ESU028

Course Outcome: After completion of the course students will get knowledge of storing, checking, and displaying data related to positions on Earth's surface. By relating seemingly unrelated data, GIS can help individuals and organizations better understand spatial patterns and relationships.

Course Name: Electrical Energy Utilization

Course Code: ESU029

Course Outcome: After completion of the course students will get knowledge of traction – their comparison, types of motors for Traction, systems of track electrification, speed time curves, energy consumption, AC and DC welding, resistance arc and atomic hydrogen welding, Electron

beam welding, ultrasonic welding, laser welding, different types of control equipment used for controlling temperature and pressure in arc and resistance welding, welding transformer.

Course Name: Mobile Communication

Course Code: ESU030

Course Outcome: After completion of the course students will become familiar with various generations of mobile communications, concept of cellular communication, basics of wireless communication, GSM mobile communication standard, its architecture, logical channels, advantages and limitations, IS-95 CDMA mobile communication standard, its architecture, logical channels, advantages and limitations. Students will also get knowledge of 3G mobile standards and their comparison with 2G technologies also various Wireless LANs.

Course Name: Airport and Tunneling

Course Code: CSU167

Course Outcome: After completion of the course students will Know the importance of subject in practical life. Understand how to develop new airports. Understand the various components of railways. Solve the design problems. Understand about docks and harbours and its importance. Learn the forces acting on break waters.

Course Name: Internship

Course Code: CE405

Course Outcome: After completion of the course students will get exposure about to gain knowledge about work culture of an industry and industrial work. They will also learn about report making of assigned projects.

Course Name: Sprint-VII

Course Code: SP007

Course Outcome: After completion of the course students will be able to enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Nam: Project –IV(C)

Course Code: CE401

Course Outcome: After completion of the course students will follow the 6th semester's project to complete 7th semester. They will gain practical knowledge.

Course Name: Industrial Visit-VII

Course Code: CE403

Course Outcome: After completion of the course students will get exposure about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course Name: Cases in Engineering

Course Code: CSU131

Course Outcome: After completion of the course students will get exposure about practical problems related to industry will be discussed and solution will be done with interaction with Teaching and industry experts.

Course outcome of Semester- (VIII)

Course Name: Environmental Engineering-II

Course Code: CSU400

Course Outcome: After completion of the course students will be able to After completing the course the student is expected to be able to formulate a treatment and proper management of waste water. Describe various types of process units used for preliminary, primary and secondary treatment and explain how they achieve the target level of treatment. Propose a treatment system for a given waste to achieve a specified end use.

Course Name: Faculty Elective-II

Sr. No. Course Name

- 1 Operations Research
- 2 Production Planning and Control
- 3 Industrial Engineering and Management
- 4 Data Warehousing and data Mining
- 5 LARAVEL
- 6 Vastushastra
- 7 Hydraulic Structures
- 8 Satellite Communication
- 9 Energy Management

Course Name: Operations Research

Course Code: ESU031

Course Outcome: After completion of the course students will be able to formulate pure, mixed, and binary integer programming models, solve the integer programming models using branch-and-bound method, explain why heuristics are used to solve some large-scale integer programming problems. They will also learn to set up decision models and use of some solution methods for nonlinear optimization problems.

Course Name: Production Planning and Control

Course Code: ESU032

Course Outcome: After completion of the course students will be able to know about various components and functions of production planning and control such as work study, product planning, process planning, production scheduling, Inventory Control.

Course Name: Industrial Engineering and Management

Course Code: CSU408

Course Outcome: After completion of the course students will be able to identify, formulate and solve engineering problems, understanding of professional and ethical responsibility. Students will also gain ability to communicate and dealing with the management of various production processes used in the industry.

Course Name: Data Warehousing and Data Mining

Course Code: ESU033

Course Outcome: After completion of the course students will be able to know the concept of data warehouse. Student can easily interpret the contribution of data warehousing and data mining to the decision-support level of organizations and evaluate different models used for OLAP and data pre-processing.

Course Name: LARAVEL

Course Code: ESU034

Course Outcome: After completion of the course students will be able to create an authorized system for a website, creation of dynamic app-build web based applications -work on controller, models and views in LARAVEL -Learn the concepts of MVC.

Course Name: Vastushastra

Course Code: CSU393

Course Outcome: After completion of the course students will be able to learn about traditional Indian system of architecture originating in India which literally translates to "science of architecture", principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry.

Course Name: Hydraulic Structures

Course Code: CSU169

Course Outcome: After completion of the course students will be able to understand understanding of basic principles and concepts of analysis and design of hydraulic structures such as weirs and barrage, regulation works, spillways, canals and various river training works and to provide the detailed insight into the theories of sub-surface flow.

Course Name: Satellite Communication

Course Code: ESU037

Course Outcome: After the completion of the course students will be able to learn about satellites and satellite services, study of satellite orbits and launching, study of earth segment and space segment components, study of satellite access by various users.

Course Name: Energy Management

Course Code: ESU038

Course Outcome: After completion of the course students will be able to know about primary energy resources, explains their production and consumption, renewable energy resources, industrial structure and energy consumption expressions, contribution and support of administrative board.

Course Name: Faculty Elective-III.

Sr. No. Course Name

- 1 Flexible Manufacturing Systems
- 2 Maintenance Engineering
- 3 Mechanical Vibrations
- 4 DSAT
- 5 UNIX Internals
- 6 Green Buildings
- 7 Earthquake resistant buildings

- 8 TV Engineering
- 9 Industries Oriented Electrical Machines

Course Name: Flexible Manufacturing Systems

Course Code: ESU039

Course Outcome: After completion of the course students will be able to know about flexible manufacturing systems used in small (relative to mass production), customized batches of products, kinds of production, material handling, and computer control modules the management of various production processes used in the industry.

Course Name: Maintenance Engineering

Course Code: ESU040

Course Outcome: After completion of the course students will be able to know the basic skills related to systems reliability and systems maintenance function, concept of reliability and to help them learn the techniques of estimating reliability and related characteristics of components/ systems. Students will also get an exposers to the necessary engineering techniques used for analysing, planning and controlling maintenance systems.

Course Name: Mechanical Vibrations

Course Code: CSU409

Course Outcome: After completion of the course students will be able to interpret the behaviour of vibrating systems through an understanding of basic principles and the role of mass, stiffness and damping, appropriate techniques for the solution of analytical problems in vibrations. Students will also know the behaviour of structures by modal and wave approaches.

Course Name: DSAT

Course Code: CSU420

Course Outcome: After completion of the course students will be able to learn about object oriented programming using an easy-to-use language, use of iterators and generators, test objects and handle changing requirements. Students will expose tricks to programming over the web.

Course Name: UNIX Internals

Course Code: ESU042

Course Outcome: After completion of the course students will be able to get knowledge about UNIX operating system working principles, its file system and programming for inter-process communication along with an understanding for using various system calls.

Course Name: Green Buildings

Course Code: CSU394

Course Outcome: After completion of the course students will be able to identify and compare cost and performance of building materials with recycled components, non-petroleum based materials, materials with low volatile organic compounds, materials with low embodied energy and salvaged materials and incorporate them into design. Students can also identify and use construction materials and methods that more easily allow for salvage and re-use of building materials.

Course Name: Earthquake Resistant Buildings

Course Code: CSU395

Course Outcome: After completion of the course students will be able to get knowledge on earthquake engineering, basic engineering concepts related earthquake Engineering, important tools in the implementation of engineering concepts which are applied in field of earthquake engineering, applications of scientific and technological principles of planning, analysis, design of buildings according to earthquake design philosophy.

Course Name: TV Engineering

Course Code: ESU045

Course Outcome: After completion of the course students will be able to get knowledge on to TV transmission and reception, interlaced scanning, TV picture: resolution, brightness, video bandwidth, line and frame wave frequency, blanking synchronizing and equalizing pulses, storing images, extracting interesting patterns from Students will also learn about colour signal transmission and reception, frequency interleaving, modulation of colour – difference signals. Students will also learn about PAL colour TV system, choice of sub – carrier frequency, PAL colour receiver, comparison of PAL with NTSC, SECAM system remote control circuits.

Course Name: Industries Oriented Electrical Machines

Course Code: ESU046



Course Outcome: After completion of the course students will learn about energy efficient machines, energy cost and two part tariff, energy conservation in industries and farms, energy management and energy audit system. Students will also learn review of induction motor characteristics.

Course Name: SPRINT-VIII

Course Code: SP008

Course Outcome: After completion of the course students will be able to enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations

Course Name: Project- IV (D)

Course Code: CE402

Course Outcome: Students will follow the 7th semester's project to complete 8th semester and finally they will give the actual shape to their major project with designed plan and idea so that they can gain practical knowledge, exposure and sensitize the demands of the work and workplace.

Course outcome of B.Tech Mechanical Engineering Shoolini University.

Course outcome of Semester- (III)

Course Name: Thermodynamics

Course Code: CSU001

Course Outcome: After completion of the course students will be able to understand about the use of thermodynamic terminology correctly, explain fundamental thermodynamic properties. Students will also learn to derive and discuss the first and second laws of thermodynamics, to solve problems using the properties and relationships of thermodynamic fluids and to analyze the basic thermodynamic cycles.

Course Name: Computer Aided Engineering Drawing

Course Code: CSU102

Course Outcome: After completion of the course students will be able to inculcate the imagination and mental visualization capabilities for interpreting the geometrical details of common engineering objects. To impart knowledge about principles/methods related to projections of one, two and three-dimensional objects. Sketch orthographic projections into isometric projections and vice versa. Apply modern CAD software (Auto CAD).

Course Name: Materials Science

Course Code: CSU024

Course Outcome: After completion of the course students will be able to describe the basic structure of materials at the molecular, microscopic, and macroscopic scales, and will be able to describe modern methods of characterizing materials at each of these length scales. Students will understand diffusion and electrochemical processes in materials, all natural and man-made materials, their extraction, synthesis, processing, properties, characterization, and development for technological applications.

Course Name: Introduction to Electrical and Electronics Engineering

Course Code: CSU100

Course Outcome: After completion of the course students will be able to describe the basics of electrical and electronics Engineering. To impart knowledge about the basic laws of electric circuits to calculate the unknown quantities. Apply the basic fundamental of magnetic circuits to calculate the unknown quantities. Analyze and interpret the sinusoidal electrical quantities and parameters mathematically as well as graphically for 1- phase/3-phase AC circuits. Remember need, construction, principle, types and applications of 1 phase

Course Name: Observation skills

Course Code: CSU195

Course Outcome: After completion of the course students will get knowledge to become good observers. This course helps students to acquire the “observation skills” by observing various public places around us. Students can apply the observation skills to practical target fields e.g. Industry, to improve an ongoing process, identification of hidden hazard causing elements and their prevention.

Course Name: Basics of Management

Course Code: CSU101

Course Outcome: After completion of the course students will get knowledge to analyze the fundamental terms used in modern business environment and their relevance to economy. Students will learn the concepts from micro and macroeconomics and will contain basics of financial, human resource, marketing and operations management, knowledge of economics or business.

Course Name: SPRINT-III

Course Code: SP003

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project III (A)

Course Code: ME201

Course Outcome: After completion of the course students will follow the Second year project to complete 3rd semester. They will gain practical knowledge.

Course Name: Industrial Visit-III

Course Code: ME205

Course Outcome: After completion of the course students will get knowledge of about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (IV)

Course Name: Manufacturing Technology-I

Course Code: CSU108

Course Outcome: After completion of the course students will get knowledge of primary manufacturing processes like casting, welding, forging, forming processes etc. These processes are used to prepare material for further manufacturing processes to obtain the final product.

Course Name: Strength of Materials

Course Code: CSU022

Course Outcome: After completion of the course students will get knowledge of fundamental understanding of the behavior of structural components commonly used in engineered structures and machines; develop skills to help them model and analyze the behavior of structural and machine components subjected to various loading and support conditions based on principles of equilibrium and material constitutional relationships.

Course Name: Computer Aided Machine Drawing

Course Code: CSU119

Course Outcome: After completion of the course students will get knowledge of and draw/design various parts and assemblies of various mechanical elements, sectioning and bill of materials from given details. Drawings of assemblies: Lathe tail stock, machine vice, Pedestal bearing, Steam stop valve, drill jigs and milling fixture.

Course Name: Evolution & Basic Knowledge modern manufacturing

Course Code: CSU407

Course Outcome: After completion of the course students will get knowledge of about basic tools used in modern manufacturing process.

Course Name: Writing Seminar –III

Course Code: FSU010

Course Outcome: After completion of the course students will get knowledge to communicate through effective writing. The course focuses on skills that are critically required to learn,

carefully examine texts and current issues, basic ideas about reading and writing on topics of general importance.

Course Name: Sprint-IV

Course Code: SP004

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project III (B)

Course Code: ME202

Course Outcome: After completion of the course students will follow the 3rd semester's project to complete 4th semester. They will gain practical knowledge and basic engineering exposure.

Course Name: Industrial Visit-IV

Course Code: ME206

Course Outcome: After completion of the course students will get knowledge of about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (V)

Course Name: Machine Design

Course Code: CSU078

Course Outcome: After completion of the course students will get knowledge to demonstrate understanding of various design considerations, illustrate basic principles of machine design, design machine elements for static as well as dynamic loading, design machine elements on the basis of strength/ rigidity concepts, use of design data books in designing various components, acquire skill in preparing production drawings pertaining to various designs.

Course Name: Fluid Mechanics and Hydraulic machines

Course Code: CSU173

Course Outcome: After completion of the course students will get knowledge of understanding the principles of continuity, momentum, and energy as applied to fluid motions, recognize these principles written in form of mathematical equations. Students will learn to apply these equations to analyze problems by making good assumptions and learn systematic engineering method to solve practical fluid mechanics and Hydraulic Machines problems. Students will also learn fundamental principles of fluid mechanics for the solution of practical Mechanical and civil engineering problems.

Course Name: Manufacturing Technology-II

Course Code: CSU109

Course Outcome: After completion of the course students will get knowledge of various metal removal/ manufacturing processes to convert raw material into finished product.

Course Name: CAD/CAM

Course Code: CSU132

Course Outcome: After completion of the course students will get knowledge of designing of the 2D and 3D components using software. In addition to this students will also learn drafting and designing purposes covering the knowledge of computer graphics.

Course Name: MOOC course (Introduction to Internet of things)

Course Code: CSU191

Course Outcome: After completion of the course students will get knowledge of Internet of Things (IoT). Students will understand the basics of IOT, how it works, and how to harness its power to improve business. This introductory course will enable learners to leverage their business and/or technical knowledge across IoT-related functions in the workplace. Students will also examine cybersecurity and privacy issues, and highlight how IoT can optimize processes and improve efficiencies in your business.

Course Name: Introduction to flow Management system

Course Code: CSU404

Course Outcome: After completion of the course students will get knowledge of basics and major principles of flow management system.

Course Name: SPRINT-V

Course Code: SP005

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project-IV (A)

Course Code: ME301

Course Outcome: After completion of the course students will follow the 4th semester's project to complete 5th semester. They will gain practical knowledge.

Course Name: Industrial Visit-V

Course Code: ME303

Course Outcome: After completion of the course students will get knowledge of practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (VI)

Course Name: Theory of Machines

Course Code: CSU016

Course Outcome: After completion of the course students will get knowledge of fundamentals of theory of machines. The Theory of Machines and Mechanisms provides the foundation for the study of displacements, velocities, accelerations, and static and dynamic forces required for the proper design of mechanical linkages, cams, and geared systems.

Course Name: Heat Transfer

Course Code: CSU174

Course Outcome: After completion of the course students will get knowledge of identify the three modes of heat transfer (conduction, convection and radiation), illustration of basic modes of heat transfer, development of mathematical model for each mode of heat transfer, development of mathematical model for transient heat transfer, demonstration and explain mechanism of boiling and condensation, analyzation of different heat exchangers and quantify their performance.

Course Name: Internal Combustion Engine

Course Code: CSU076

Course Outcome: After completion of the course students will get knowledge of each and every component used in an I.C. engine and analysis used to calculate and increase its efficiency

Course Name: Measurement & Control

Course Code: CSU133

Course Outcome: After completion of the course students will get knowledge of instrumentation, installation, maintenance, calibration and troubleshooting of systems used to measure and control the flow, level, temperature and pressure in automated industrial processes in the chemical, oil and gas industry.

Course Name: Production Management

Course Code: CSU134



Course Outcome: After completion of the course students will get knowledge of overview of operations & production management, various principles and decision analysis related to the effective utilization of the factors of production in not just production / manufacturing but also in non-manufacturing activities mainly service sector environment. Applications of management science / operations research will be discussed with select applications from both production & operations context.

Course Name: Flow management concepts

Course Code: CSU405

Course Outcome: After completion of the course students will get knowledge of trending tools and principles about flow management concepts used in industry.

Course Name: SPRINT-VI

Course Code: SP006

Course Outcome: After completion of the course students will get knowledge of enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Name: Project-IV (B)

Course Code: ME302

Course Outcome: After completion of the course students will follow the 5th semester's project to complete 6th semester. They will gain practical knowledge.

Course Name: Industrial Visit-VI

Course Code: ME304

Course Outcome: After completion of the course students will get knowledge of practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course outcome of Semester- (VII)

Course Name: Automobile Engineering

Course Code: CSU144

Course Outcome: After completion of the course students will get knowledge of illustration of the types and working of clutch and transmission system, demonstration of the working of different types of final drives, steering gears and braking systems, constructional features of wheels, wheels and suspension systems, types of storage, charging and starting systems, types of body and chassis of an automobile and different technological advances in automobile.

Faculty Elective -I

Sr. No. Course Name

- 1 Mechatronics
- 2 Power Plant Engineering
- 3 Network Security & Cryptography
- 4 Natural Language processing
- 5 Rock Mechanics and Geology
- 6 Geographic Information System
- 7 Electrical Energy Utilization
- 8 Mobile communication

Course Name: Mechatronics

Course Code: ESU 023

Course Outcome: After completion of the course students will get knowledge of various processes in which devices integrated with mechanical, electronic and computer components those are generally used in modern practice.

Course Name: Power Plant Engineering

Course Code: ESU 024

Course Outcome: After completion of the course students will get knowledge of various types of power plants, boilers, boiler mountings and accessories, working cycles of gas turbines etc. students will also discuss different operations of combined cycle power plants, types of reactors, waste disposal issues in nuclear power plants and illustration of power plant economics.

Course Name: Network Security & Cryptography

Course Code: ESU025

Course Outcome: After completion of the course students will get knowledge of multimedia, principles and major concepts in multimedia applications.

Course Name: Natural Language Processing

Course Code: ESU026

Course Outcome: After completion of the course students will get knowledge of Language processing features, design an innovative application using NLP components, implement a rule based system to tackle morphology/syntax of a Language, design a tag set to be used for statistical processing keeping an application in mind, design a Statistical technique for a new application, Compare and contrast use of different statistical approaches for different types of applications.

Course Name: Rock Mechanics and Geology

Course Code: CSU398

Course Outcome: After completion of the course students will get knowledge of theoretical and mechanical behavior of rock and rock masses; compared to geology, they will also learn about mechanics concerned with the response of rock and rock masses to the force fields of their physical environment.

Course Name: Geographic Information System

Course Code: ESU028

Course Outcome: After completion of the course students will get knowledge of storing, checking, and displaying data related to positions on Earth's surface. By relating seemingly unrelated data, GIS can help individuals and organizations better understand spatial patterns and relationships.

Course Name: Electrical Energy Utilization

Course Code: ESU029

Course Outcome: After completion of the course students will get knowledge of traction – their comparison, types of motors for Traction, systems of track electrification, speed time curves, energy consumption, AC and DC welding, resistance arc and atomic hydrogen welding, Electron beam welding, ultrasonic welding, laser welding, different types of control equipment used for controlling temperature and pressure in arc and resistance welding, welding transformer.

Course Name: Mobile Communication

Course Code: ESU030

Course Outcome: After completion of the course students will become familiar with various generations of mobile communications, concept of cellular communication, basics of wireless communication, GSM mobile communication standard, its architecture, logical channels, advantages and limitations, IS-95 CDMA mobile communication standard, its architecture, logical channels, advantages and limitations. Students will also get knowledge of 3G mobile standards and their comparison with 2G technologies also various Wireless LANs.

Course Name: Business planning and Entrepreneurship

Course Code: CSU142

Course Outcome: After completion of the course students will get cutting-edge knowledge and skills on how to successfully develop captivating products and services to solve challenging problems in a highly uncertain environment, often under considerable time constraints with very limited resources. You will be able to apply these skills in the context of both new ventures as well as in established companies.

Course Name: Leadership Skills for Manufacturing

Course Code: CSU406

Course Outcome: After completion of the course students will understand the history of leadership and current leadership theories in manufacturing. In addition, students will understand how leadership models are put into practice personally, locally, and globally in manufacturing. Students will gain knowledge of diverse cultures, cross-cultural communication, the dynamics of privilege and oppression, and the uses of power between groups. Students will understand how ethics, morals, and values relate to their leadership dilemmas. Students will be able to integrate their lived experiences into their leadership development process

Course Name: Internship

Course Code: ME405

Course Outcome: After completion of the course students will get exposure about to gain knowledge about work culture of an industry and industrial work. They will also learn about report making of assigned projects.

Course Name: Sprint-VII

Course Code: SP007

Course Outcome: After completion of the course students will be able to enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations.

Course Nam: Project –IV(C)

Course Code: ME401

Course Outcome: After completion of the course students will follow the 6th semester's project to complete 7th semester. They will gain practical knowledge.

Course Name: Industrial Visit-VII

Course Code: ME403

Course Outcome: After completion of the course students will get exposure about practical working environment. After visiting an industry student can gain a combined knowledge about both theory and practical. Students will also get good opportunity to gain full awareness about industrial practices.

Course Name: Cases in Engineering

Course Code: CSU131

Course Outcome: After completion of the course students will get exposure about practical problems related to industry will be discussed and solution will be done with interaction with Teaching and industry experts.

Course outcome of Semester- (VIII)

Course Name: Refrigeration and Air Conditioning

Course Code: CSU151

Course Outcome: After completion of the course students will be able to analyze the cooling and the dehumidification produce by RAC devices under various conditions and their design. In addition to this they will also know about the psychometric process.

Course Name: Faculty Elective-II

Sr. No. Course Name

- 1 Operations Research
- 2 Production Planning and Control
- 3 Industrial Engineering and Management
- 4 Data Warehousing and data Mining
- 5 LARAVEL
- 6 Vastushastra
- 7 Hydraulic Structures
- 8 Satellite Communication
- 9 Energy Management

Course Name: Operations Research

Course Code: ESU031

Course Outcome: After completion of the course students will be able to formulate pure, mixed, and binary integer programming models, solve the integer programming models using branch-and-bound method, explain why heuristics are used to solve some large-scale integer programming problems. They will also learn to set up decision models and use of some solution methods for nonlinear optimization problems.

Course Name: Production Planning and Control

Course Code: ESU032

Course Outcome: After completion of the course students will be able to know about various components and functions of production planning and control such as work study, product planning, process planning, production scheduling, Inventory Control.

Course Name: Industrial Engineering and Management

Course Code: CSU408

Course Outcome: After completion of the course students will be able to identify, formulate and solve engineering problems, understanding of professional and ethical responsibility. Students will also gain ability to communicate and dealing with the management of various production processes used in the industry.

Course Name: Data Warehousing and Data Mining

Course Code: ESU033

Course Outcome: After completion of the course students will be able to know the concept of data warehouse. Student can easily interpret the contribution of data warehousing and data mining to the decision-support level of organizations and evaluate different models used for OLAP and data pre-processing.

Course Name: LARAVEL

Course Code: ESU034

Course Outcome: After completion of the course students will be able to create an authorized system for a website, creation of dynamic app-build web based applications -work on controller, models and views in LARAVEL -Learn the concepts of MVC.

Course Name: Vastushastra

Course Code: CSU393

Course Outcome: After completion of the course students will be able to learn about traditional Indian system of architecture originating in India which literally translates to "science of architecture", principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry.

Course Name: Hydraulic Structures

Course Code: CSU169

Course Outcome: After completion of the course students will be able to understand understanding of basic principles and concepts of analysis and design of hydraulic structures such as weirs and barrage, regulation works, spillways, canals and various river training works and to provide the detailed insight into the theories of sub-surface flow.

Course Name: Satellite Communication

Course Code: ESU037

Course Outcome: After the completion of the course students will be able to learn about satellites and satellite services, study of satellite orbits and launching, study of earth segment and space segment components, study of satellite access by various users.

Course Name: Energy Management

Course Code: ESU038

Course Outcome: After completion of the course students will be able to know about primary energy resources, explains their production and consumption, renewable energy resources, industrial structure and energy consumption expressions, contribution and support of administrative board.

Course Name: Faculty Elective-III.

Sr. No. Course Name

- 1 Flexible Manufacturing Systems
- 2 Maintenance Engineering
- 3 Mechanical Vibrations



- 4 DSAT
- 5 UNIX Internals
- 6 Green Buildings
- 7 Earthquake resistant buildings
- 8 TV Engineering
- 9 Industries Oriented Electrical Machines

Course Name: Flexible Manufacturing Systems

Course Code: ESU039

Course Outcome: After completion of the course students will be able to know about flexible manufacturing systems used in small (relative to mass production), customized batches of products, kinds of production, material handling, and computer control modules the management of various production processes used in the industry.

Course Name: Maintenance Engineering

Course Code: ESU040

Course Outcome: After completion of the course students will be able to know the basic skills related to systems reliability and systems maintenance function, concept of reliability and to help them learn the techniques of estimating reliability and related characteristics of components/ systems. Students will also get an exposers to the necessary engineering techniques used for analysing, planning and controlling maintenance systems.

Course Name: Mechanical Vibrations

Course Code: CSU409

Course Outcome: After completion of the course students will be able to interpret the behaviour of vibrating systems through an understanding of basic principles and the role of mass, stiffness and damping, appropriate techniques for the solution of analytical problems in vibrations. Students will also know the behaviour of structures by modal and wave approaches.

Course Name: DSAT

Course Code: CSU420

Course Outcome: After completion of the course students will be able to learn about object oriented programming using an easy-to-use language, use of iterators and generators, test objects and handle changing requirements. Students will expose tricks to programming over the web.

Course Name: UNIX Internals

Course Code: ESU042

Course Outcome: After completion of the course students will be able to get knowledge about UNIX operating system working principles, its file system and programming for inter-process communication along with an understanding for using various system calls.

Course Name: Green Buildings

Course Code: CSU394

Course Outcome: After completion of the course students will be able to identify and compare cost and performance of building materials with recycled components, non-petroleum based materials, materials with low volatile organic compounds, materials with low embodied energy and salvaged materials and incorporate them into design. Students can also identify and use construction materials and methods that more easily allow for salvage and re-use of building materials.

Course Name: Earthquake Resistant Buildings

Course Code: CSU395

Course Outcome: After completion of the course students will be able to get knowledge on earthquake engineering, basic engineering concepts related earthquake Engineering, important tools in the implementation of engineering concepts which are applied in field of earthquake engineering, applications of scientific and technological principles of planning, analysis, design of buildings according to earthquake design philosophy.

Course Name: TV Engineering

Course Code: ESU045

Course Outcome: After completion of the course students will be able to get knowledge on to TV transmission and reception, interlaced scanning, TV picture: resolution, brightness, video bandwidth, line and frame wave frequency, blanking synchronizing and equalizing pulses, storing images, extracting interesting patterns from Students will also learn about colour signal transmission and reception, frequency interleaving, modulation of colour – difference signals. Students will also learn about PAL colour TV system, choice of sub – carrier frequency, PAL colour receiver, comparison of PAL with NTSC, SECAM system remote control circuits.

Course Name: Industries Oriented Electrical Machines

Course Code: ESU046

Course Outcome: After completion of the course students will learn about energy efficient machines, energy cost and two part tariff, energy conservation in industries and farms, energy management and energy audit system. Students will also learn review of induction motor characteristics.

Course Name: SPRINT-VIII

Course Code: SP008

Course Outcome: After completion of the course students will be able to enhancing soft skills, which are of prime importance in the corporate world. They will also learn intensive sessions on business communication, group discussions, personal interviews, assertive skills, role plays, case studies time management, and goal setting with simulations

Course Name: Project- IV (D)

Course Code: ME402

Course Outcome: Students will follow the 7th semester's project to complete 8th semester and finally they will give the actual shape to their major project with designed plan and idea so that they can gain practical knowledge, exposure and sensitize the demands of the work and workplace.

## Program Outcome: B.Tech CSE

1. Apply the fundamentals of mathematics, science and engineering knowledge to understand, analyze and develop computer programs in the areas related to algorithms, multimedia, big data analytics, machine learning, artificial intelligence and networking for efficient design of computer-based systems of varying complexity
2. Apply appropriate techniques and modern engineering hardware and software tools for the design and integration of computer system and related technologies, to engage in lifelong learning for the advancement of technology and its adaptation in multi-disciplinary environments.
3. Implementation of professional engineering solutions for the betterment of society keeping the environmental context in mind, be aware of professional ethics and be able to communicate effectively.

## Advanced Analytics and Mathematics

Upon successful completion of

1. Represent vectors analytically and geometrically, and compute dot and cross products for presentations of lines and planes,
2. Analyze vector functions to find derivatives, tangent lines, integrals, arc length, and curvature,
3. Compute limits and derivatives of functions of 2 and 3 variables,
4. Apply derivative concepts to find tangent lines to level curves and to solve optimization problems,
5. Evaluate double and triple integrals for area and volume,
6. Differentiate vector fields,
7. Determine gradient vector fields and find potential functions,
8. Evaluate line integrals directly and by the fundamental theorem, and
9. Use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of multivariable calculus concepts.

## Engineering Physics

1. Ability to design and conduct simple experiments as well as analyze and interpret data.
2. engineering applications Capability to understand advanced topics in engineering
3. Ability to Identify formula and solve engineering problems

4. Ability to Apply quantum physics to electrical phenomena

### Introduction to Big Data

after completion of the course:

1. Ability to identify the characteristics of datasets and compare the trivial data and big data for various applications.
2. Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
3. Ability to solve problems associated with batch learning and online learning, and the big data characteristics such as high dimensionality, dynamically growing data and in particular scalability issues.
4. Ability to understand and apply scaling up machine learning techniques and associated computing techniques and technologies.
5. Ability to recognize and implement various ways of selecting suitable model parameters for different machine learning techniques.
6. Ability to integrate machine learning libraries and mathematical and statistical tools with modern technologies like hadoop and mapreduce.

### Object Oriented Programming

On successful completion of this course students will be able to

1. Demonstrate the Conceptual model of UML and SDLC.
2. Define classes modeling techniques and instances modeling techniques.
3. Describe interaction diagrams and their modeling techniques.
4. Demonstrate activity diagram and their modeling techniques.
5. Demonstrate component and deployment diagram

### Engineering Chemistry

After studying this course, students will be able to

1. develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.
2. Substitute metals with conducting polymers and also produce cheaper biodegradable polymers to reduce environmental pollution.

3. Design economically and new methods of synthesis nano materials.
4. Apply their knowledge for protection of different metals from corrosion .
5. Have the knowledge of converting solar energy into most needy electrical energy efficiently and economically to reduce the environmental pollution.

#### Introduction to Cloud and IT Infrastructure

1. The primary learning outcomes of this course are five-fold. Students will be able to:
2. Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing.
3. Apply fundamental concepts in cloud infrastructures to understand the tradeoffs in power, efficiency and cost, and then study how to leverage and manage single and multiple datacenters to build and deploy cloud applications that are resilient, elastic and cost-efficient.
4. Discuss system, network and storage virtualization and outline their role in enabling the cloud computing system model.
5. Illustrate the fundamental concepts of cloud storage and demonstrate their use in storage systems such as Amazon S3 and HDFS.
6. Analyze various cloud programming models and apply them to solve problems on the cloud.

#### Information Security Fundamentals

1. Develop an understanding of information assurance as practiced in computer operating systems, distributed systems, networks and representative applications.
2. Gain familiarity with prevalent network and distributed system attacks, defenses against them, and forensics to investigate the aftermath.
3. Develop a basic understanding of cryptography, how it has evolved, and some key encryption techniques used today.
4. Develop an understanding of security policies (such as authentication, integrity and confidentiality), as well as protocols to implement such policies in the form of message exchanges.
5. Determine appropriate mechanisms for protecting information systems ranging from operating systems to database management systems and to applications.

## Computer Organization and Architecture

### COURSE OUTCOMES:

1. Understand the theory and architecture of central processing unit.
2. Analyze some of the design issues in terms of speed, technology, cost, performance.
3. Design a simple CPU with applying the theory concepts.
4. Use appropriate tools to design verify and test the CPU architecture.
5. Learn the concepts of parallel processing, pipelining and interprocessor communication.
6. Understand the architecture and functionality of central processing unit.
7. Exemplify in a better way the I/O and memory organization.
8. Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.

## Applications based Programming in Python

### COURSE OUTCOMES:

At the end of the course, the student will be able to

1. Explain basic principles of Python programming language
2. Implement object oriented concepts
3. Implement database and GUI applications.
4. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## Data Structure

### COURSE OUTCOMES:

1. Ability to analyze algorithms and algorithm correctness.
2. Ability to summarize searching and sorting techniques
3. Ability to describe stack, queue and linked list operation.
4. Ability to have knowledge of tree and graphs concepts

#### Core Java

##### COURSE OUTCOMES:

On completion of the course the student should be able to:

1. Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
2. Read and make elementary modifications to Java programs that solve real-world problems.
3. Validate input in a Java program.
4. Identify and fix defects and common security issues in code.
5. Document a Java program using Javadoc.
6. Use a version control system to track source code in a project.

#### System Programming

##### COURSE OUTCOMES:

1. Study the architecture of a hypothetical machine, its assembly language, macro language.
2. Program in assembly language.
3. Understand the structure and design of assemblers, linkers and loaders.
4. Understand the concepts and theory behind the implementation of high level programming languages

#### Database Management System

##### COURSE OUTCOMES:

Upon successful completion of this course, students should be able to:



1. Describe the fundamental elements of relational database management systems
2. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
3. Design ER-models to represent simple database application scenarios
4. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
5. Improve the database design by normalization.
6. Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

## Computer Networks

### COURSE OUTCOMES

Upon successful completion, students will have the knowledge and skills to:

1. Understand and describe the layered protocol model.
2. Describe, analyses and evaluate a number of data link, network, and transport layer protocols.
3. Program network communication services for client/server and other application layouts.
4. Describe, analyses and evaluate various related technical, administrative and social aspects of specific computer network protocols from standards documents and other primary materials found through research.
5. Design, analyses, and evaluate networks and services for homes, data centers, IoT/IoE, LANs and WANs.

## Operating System

### COURSE OUTCOMES

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and threads and their communication

3. To learn the mechanisms involved in memory management in contemporary OS
4. To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols
5. To know the components and management aspects of concurrency management
6. To learn programmatically to implement simple OS mechanisms

### Theory of Computation

Students will be able to:

1. To use basic concepts of formal languages of finite automata techniques
2. To Design Finite Automata's for different Regular Expressions and Languages
3. To Construct context free grammar for various languages
4. To solve various problems of applying normal form techniques, push down automata and Turing Machines
5. To participate in GATE, PGECET and other competitive examinations

### Analysis and Design of Algorithm

Students who complete the course will have demonstrated the ability to do the following:

1. Argue the correctness of algorithms using inductive proofs and invariants.
2. Analyze worst-case running times of algorithms using asymptotic analysis.
3. Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.
4. Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize dynamic-programming algorithms, and analyze them.
5. Describe the greedy paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize greedy algorithms, and analyze them.
6. Explain the major graph algorithms and their analyses. Employ graphs to model engineering problems, when appropriate. Synthesize new graph algorithms and algorithms that employ graph computations as key components, and analyze them.

7. Explain the different ways to analyze randomized algorithms (expected running time, probability of error). Recite algorithms that employ randomization. Explain the difference between a randomized algorithm and an algorithm with probabilistic inputs.
8. Analyze randomized algorithms. Employ indicator random variables and linearity of expectation to perform the analyses. Recite analyses of algorithms that employ this method of analysis.
9. Explain what amortized running time is and what it is good for. Describe the different methods of amortized analysis (aggregate analysis, accounting, potential method). Perform amortized analysis.
10. Explain what competitive analysis is and to which situations it applies. Perform competitive analysis.
11. Compare between different data structures. Pick an appropriate data structure for a design situation

### Computer Networks

the student must demonstrate the knowledge and ability to:

1. Independently understand basic computer network technology.
2. Understand and explain Data Communications System and its components.
3. Identify the different types of network topologies and protocols.
4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
5. Identify the different types of network devices and their functions within a network
6. Understand and building the skills of subnetting and routing mechanisms.
7. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation. students will have the knowledge and skills to:

### Mobile Technology

the student must demonstrate the knowledge and ability to:

1. Read and understand Java-based software code of medium-to-high complexity.
2. Use standard and third party Java's API's when writing applications.
3. Understand the basic principles of creating Java applications with graphical user interface (GUI).
4. Create rich user-interface applications using modern API's such as JAVAFX.

5. Understand the fundamental concepts of computer science: structure of the computational process, algorithms and complexity of computation.
6. Understand the basic approaches to the design of software applications.
7. Apply the above to design, implement, appropriately document and test a Java application of medium complexity, consisting of multiple classes.
8. able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally

### Computer Forensic

After completion of this course students will be able to:

1. conduct digital investigations that conform to accepted professional standards and are based on the investigative process: identification, preservation, examination, analysis, and reporting;
2. cite and adhere to the highest professional and ethical standards of conduct, including impartiality and the protection of personal privacy;
3. identify and document potential security breaches of computer data that suggest violations of legal, ethical, moral, policy, and/or societal standards;
4. apply a solid foundational grounding in computer networks, operating systems, file systems, hardware, and mobile devices to digital investigations and to the protection of computer network resources from unauthorized activity;
5. work collaboratively with clients, management, and/or law enforcement to advance digital investigations or protect the security of digital resources;
6. access and critically evaluate relevant technical and legal information and emerging industry trends; and
7. communicate effectively the results of a computer, network, and/or data forensic analysis verbally, in writing, and in presentations to both technical and lay audiences.

### Software Engineering and Testing

1. Apply modern software testing processes in relation to software development and project management.
2. Create test strategies and plans, design test cases, prioritize and execute them.
3. Manage incidents and risks within a project.
4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes.

5. To gain expertise in designing, implementation and development of computer based systems and IT processes.

### Compiler Design

1. Apply modern software testing processes in relation to software development and project management.
2. Create test strategies and plans, design test cases, prioritize and execute them.
3. Manage incidents and risks within a project.
4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes.
5. To gain expertise in designing, implementation and development of computer based systems and IT processes.

### Multimedia and Graphics

1. Critical understanding of the theory of 2D and 3D transformations, projection and
2. viewing
3. Ability to find & combine relevant sources and synthesize designs
4. Detailed knowledge of the graphics pipeline
5. Detailed knowledge of shading and texture mapping algorithms
6. Broad knowledge of 3D modelling and rendering techniques
7. Ability to understand, design and implement scene graphs

### Block Chain

On completion of this course, students should be able to:

1. Understand the structure of a blockchain and why/when it is better than a simple distributed database;
2. Analyze the incentive structure in a blockchain based system and critically assess its functions, benefits and vulnerabilities;
3. Evaluate the setting where a blockchain based structure may be applied, its potential and its limitations,
4. Understand what constitutes a “smart” contract, what are its legal implications and what it can and cannot do, now and in the near future,
5. Analyze to what extent smart and self-executing contracts can benefit automation, governance, transparency and the Internet of Things (IOT),

6. Attain awareness of the new challenges that exist in monetizing businesses around blockchains and smart contracts,
7. Describe and understand the differences between the most prominent blockchain structures and permissioned blockchain service providers, as well as rising alliances and networks

## Cloud Operations

### Course Outcomes:

1. Ability to gain insight about basic technology behind the Cloud.
2. cloud computing and the possible applications for state-of-the-art cloud articulate the main concepts, key technologies, strengths, and limitations of computing
3. identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.
4. explain the core issues of cloud computing such as security, privacy, and interoperability.
5. choose the appropriate technologies, algorithms, and approaches for the related issues.
6. identify problems, and explain, analyze, and evaluate various cloud computing solutions.
7. provide the appropriate cloud computing solutions and recommendations according to the applications used.
8. attempt to generate new ideas and innovations in cloud computing.
10. Completing a Business case for going to the Cloud.

## Big Data Analytics

### Course Outcomes:

1. Ability to identify the characteristics of datasets and compare the trivial data and big data for various applications.
2. Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
3. Ability to solve problems associated with batch learning and online learning, and the big data characteristics such as high dimensionality, dynamically growing data and in particular scalability issues.

4. Ability to understand and apply scaling up machine learning techniques and associated computing techniques and technologies.
5. Ability to recognize and implement various ways of selecting suitable model parameters for different machine learning techniques.
6. Ability to integrate machine learning libraries and mathematical and statistical tools with modern technologies like hadoop and mapreduce.

## Neural Networks

### Course Outcome:

1. To understand the fundamental theory and concepts of neural networks.
2. Identify different neural network architectures, algorithms, applications and their limitations.
3. Understand appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications.
4. Reveal different applications of these models to solve engineering and other problems.

## Machine Learning

### Course Outcome:

1. Gain knowledge about basic concepts of Machine Learning.
2. Identify machine learning techniques suitable for a given problem.
3. Solve the problems using various machine learning techniques.
4. Apply Dimensionality reduction techniques.
5. Design application using machine learning techniques.

## Unix Internals

### Course Outcome:

On completion of this course the student should be able to:

1. Identify and use UNIX/Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and develop shell scripts to perform more complex tasks.

2. Effectively use the UNIX/Linux system to accomplish typical personal, office, technical, and software development tasks.
3. Monitor system performance and network activities.
4. Effectively use software development tools including libraries, preprocessors, compilers, linkers, and make files.
5. Comprehend technical documentation, prepare simple readable user documentation and adhere to style guidelines.
6. Collaborate in teams on system tasks.

### Data Warehouse and Data Mining

#### Course Outcomes:

1. Understand Data Warehouse fundamentals, Data Mining Principles.
2. Design data warehouse with dimensional modelling and apply OLAP operations.
3. Identify appropriate data mining algorithms to solve real world problems.
4. Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining.
  - a) Describe complex data types with respect to spatial and web mining.
6. Benefit the user experiences towards research and innovation. integration.

### Faculty of Pharmaceutical Sciences

#### Program Outcomes B.Pharm.

##### 1. Pharmacy Knowledge

Possess knowledge and comprehension of the core information associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.

##### 2. Thinking Abilities



Utilise the principles of scientific inquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyse, evaluate and apply information systematically and shall make defensible decisions.

### 3. Planning Abilities

Demonstrate effective planning abilities including time management, resource management, delegation skills and organisational skills. Develop and implement plans and organise work to meet deadlines.

### 4. Leadership skills

Understand and consider the human reaction to change, motivation issues, leadership and team building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles, whenever appropriate, to facilitate improvement in health and well-being.

### 5. Professional Identity

Understand, analyse and communicate the value of their professional roles in society (e.g. health care professionals, suppliers of pharmaceuticals, promoters of health, educators, business managers, employers, employees) through consideration of historical, social, economic and political issues.

### 6. The Pharmacist and society

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional pharmacy practice.

### 7. Environment and sustainability

Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

### 8. Ethics

Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognises cultural and personal variability in values,

communication and lifestyles. Use ethical frameworks, apply ethical principles while making decisions, and take responsibility for the outcomes associated with the decisions.

#### 9. Communication

Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

#### 10. Modern tool usage

Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

#### 11. Life-long learning

Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

### Course Outcomes B. Pharmacy

#### 1st semester

#### BP101T Human Anatomy and Physiology I– Theory

The students should be able to:

1. Describe the various physiological aspect of the human body,
2. Explain various systems in coordination with various organs and tissues
3. Explain pathological and diseased process and repair mechanism of various systems, and
4. Acquire the knowledge regarding health education in human life.

#### BP102T Pharmaceutical Analysis I – Theory

The students should able to:

1. Explain about accuracy, precision and significant figure error concepts,
2. Acquire knowledge on computation of analytical results,

3. Understand the physiochemical concepts of analysis, theories of acids and bases, stoichiometry etc, and
4. Explain the principles and applications of complexometric, iodometric, redox, non-aqueous, gravimetric, and gas analysis techniques.

#### BP103T      Pharmaceutics I – Theory

The students should be able to:

1. Acquire knowledge of dispensing the prescriptions and the principals involved in the preparations,
2. Gain skill and confidence in preparing quality formulations of various types
3. Document and maintain the various records in experimental stage and during manufacture of pharmaceutical preparations, and
4. Meet the challenges occurring in practicing pharmacy profession.

#### BP104T      Pharmaceutical Inorganic Chemistry – Theory

The students should be able to:

1. Explain the concepts of quality control tests in limiting the impurities,
2. Explain the preparations, properties and assay procedures of pharmaceutical agents including pharmaceutical aids,
3. Acquire knowledge on different types of diagnostic agents, dialysis fluids and dental products, and
4. Understand the concepts such as storage and therapeutic uses.

#### BP105T      Communication skills – Theory \*

At the end of the course, the student should be able to:

1. Understand the behavioral needs for a Pharmacist to function effectively in the
2. Areas of pharmaceutical operation
3. Communicate effectively (Verbal and Non-Verbal)
4. Effectively manage the team as a team player
5. Develop interview skills
6. Develop Leadership qualities and essentials
7. Develop skills of communication, medium and presentation,
8. Practice spoken and written English, communicate through letters and speech, and

9. Write essays on specified topics.

#### BP106RBT Remedial Biology

The students should be able to:

1. Explain plant tissues morphology and histology along with their functions,
2. Familiarize with the plant physiology – absorption, transpiration, respiration, photosynthesis, mitosis and meiosis, DNA replication,
3. Identify histological features of different human organs/tissues through permanent slides, and
4. Explain the principles of morphology and life-history of human parasites.

#### BP106RMT Remedial Mathematics – Theory\*

The students should be able to:

1. Apply both conventional and creative techniques to the solutions of mathematical problems,
2. Solve problems of trigonometry, calculus and matrices,
3. Relate the mathematical tools in the wide professional views and
4. Apply a range of techniques effectively to solve problems including theory deduction, approximation and simulation.

#### BP107P Human Anatomy and Physiology – Practical

The students should be able to

1. identify the different bones of the skeletal system and various models/specimen/slides of human organs and tissues,
2. explain various complete blood picture parameters and mechanisms involved blood experiments and
3. explain various methods, handling procedures in the estimation and analysis of various blood experiments

#### BP108P Pharmaceutical Analysis I – Practical

Students should be able to

1. Calibrate the glass ware used in volumetric analysis.
2. Calculate the %purity of compounds by using analytical methods.
3. Compute the relevant analytical data.
4. Calculate and prepare the required concentrate solution

#### BP109P      Pharmaceutics I – Practical

Upon completion of this course the student should be able to:

1. Know the history of profession of pharmacy
2. Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
3. Understand the professional way of handling the prescription
4. Preparation of various conventional dosage forms

#### BP110P      Pharmaceutical Inorganic Chemistry – Practical

The students should be able to

1. evaluate the impurities in pharmaceuticals through limit tests,
2. perform chemical reactions through the preparation of inorganic compounds and
3. Identify cations and anions present in the inorganic sample through systematic qualitative analysis.
4. understand the medicinal and pharmaceutical importance of inorganic compounds

#### BP111P      Communication skills – Practical\*

Communication skills course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.

Upon completion of the course the student shall be able to

1. Understand the behavioural needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. Communicate effectively (Verbal and Non Verbal)
3. Effectively manage the team as a team player
4. Develop interview skills
5. Develop Leadership qualities and essentials

#### BP112RBP    Remedial Biology – Practical\*

The students should be able to

1. identify the plant parts and their modification,
2. explain the representative of families – apocynaceae, solanaceae, umbelliferae and rubiaceae, and

3. identify histological features of different organs/tissues through permanent slides.

2nd semester

BP201T Human Anatomy and Physiology II – Theory

Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

BP202T Pharmaceutical Organic Chemistry I – Theory

The students should be able to:

1. Understand and explain the concepts of hybridization, electronic and steric effects of organic molecules,
2. Acquire knowledge about preparation and reactivity of compounds with functional groups, such as aldehydes and ketones, carboxylic acids, amino and azo compounds, and
3. Explain the mechanism involved in the substitution, addition, nucleophilic and elimination reactions.

BP203T Biochemistry – Theory

The students should be able to:

1. Describe the molecular and functional organization of a cell, enzymology and its clinical relevance,
2. Explain the biochemical role of carbohydrates, proteins, lipids and metabolic pathway of nutrients,
3. Describe the electron transport mechanisms and role of cofactors involved in it,
4. Explain the metabolism of nucleotides, their clinical relevance, and

5. Understand the concepts of DNA replication, transcription and translation.

BP204T Pathophysiology – Theory

At the end of course the students will be able to:

1. Explain & interpret the use of ECG, EEG, LFTs and RFTs for body disorders.
2. Understand the biology of human body pertaining to functioning of all voluntary and involuntary controls.
3. Know about the process of digestion, secretions, respiration, kidney filtration, nervous control etc.
4. Explain the etiological factors, method of prevention & cure for various chronic disorders.

BP205T Computer Applications in Pharmacy – Theory \*

The students should able to:

1. Acquire the up-to-date technical knowledge and develop the skills needed for a successful start to careers in pharmacy,
2. Understand the architecture, organization and programming of modern computing systems (C language and SQL), and
3. Practice MS Office, MS Word, MS Access and MS Power point and
4. Understand the principles and design of internet and website.

BP206T Environmental sciences – Theory \*

The student should able to:

1. Appreciate awareness and sensitivity to the total environmental and its allied problems,
2. Explain the impact of biodiversity and its conservation,
3. Solve environmental problems and pollution and
4. Evaluate measures in terms of ecological, economic, social, aesthetic and educational factors.

BP207P Human Anatomy and Physiology II –Practical

Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.

4. Perform the haematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

BP208P      Pharmaceutical Organic Chemistry I– Practical

The students should be able to

1. appreciate the reaction mechanism, and
2. perform systematic qualitative analysis of unknown organic compounds

BP209P      Biochemistry – Practical

Upon completion of course student shall be able to

1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.
3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

BP210P      Computer Applications in Pharmacy – Practical\*

The students should be able to

1. explain the underlying architecture of computer,
2. understand the paradigms of program languages and be exposed to at least one language from each model, C and SQL, and
3. use the software development tools.

3rd semester

BP301T      Pharmaceutical Organic Chemistry II – Theory

Upon completion of the course student shall be able to

1. Write the structure, name and the type of isomerism of the organic compound
2. Write the reaction, name the reaction and orientation of reactions



3. Account for reactivity/stability of compounds,
4. Prepare organic compounds

BP302T Physical Pharmaceutics I – Theory

The students should be able to:

1. Describe the process of solubility of solids, distribution phenomena for application in the design of drugs,
2. Explain the types of flow (rheology) and their measurement, thixotropic/stability of dispersions, semisolid systems,
3. Describe the reaction kinetics, rate, order and factors affecting the rate of reaction, prevent degradation, stabilization of drugs and shelf-life assessment, and
4. Explain principles and applications of colloids, micromeritics and interfacial phenomena.

BP303T Pharmaceutical Microbiology – Theory

The students should be able to:

1. Apply the principles in evaluation of microbiological quality of pharmaceutical preparations
2. Understand hygienic conditions required for the manufacture of non-sterile products,
3. Describe the principles of sterilization and disinfection processes and
4. Explain the techniques for the detection and isolation of pathogenic microorganisms, techniques for the enumeration of microorganisms.

BP304T Pharmaceutical Engineering – Theory

The students should be able to:

1. Explain the concepts of energy transfer, mass transfer, unit operations, plant construction, operation and maintenance of pharmaceutical industry,
2. Describe the engineering approaches to avoid corrosion, and
3. Explain with current principles, fluid flow, heat transfer, material transportation, filtration and centrifugation methodologies.

BP305P Pharmaceutical Organic Chemistry II – Practical

The students should be able to

1. synthesize compounds and drugs,
2. propose reaction mechanisms involved in the synthesis, and
3. Adopt the purification strategies for hetero aryl derivatives.

### BP306P Physical Pharmaceutics I – Practical

Physical Pharmaceutics I laboratory course concentrates on determination of solubility of drug at room temperature, pKa value by Half Neutralization/ Henderson Hassel Balch equation, Partition co-efficient of benzoic acid in benzene and water, Partition co-efficient of Iodine in CCl<sub>4</sub> and water, % composition of NaCl in a solution using phenol-water system by CST method, particle size, particle size distribution using sieving method, bulk density, true density and porosity, angle of repose and influence of lubricant on angle of repose, stability constant and donor acceptor ratio of PABA-Caffeine complex by solubility method and stability constant and donor acceptor ratio of Cupric-Glycine complex by pH titration method

### BP307P Pharmaceutical Microbiology – Practical

Pharmaceutical Microbiology laboratory course concentrates

1. Introduction and study of different equipment and processing, e.g., B.O.D. incubator, laminar flow, aseptic hood, autoclave, hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology.
2. Sterilization of glassware, preparation and sterilization of media.
3. Sub culturing of bacteria and fungus. Nutrient stabs and slants preparations.
4. Staining methods- Simple, Grams staining and acid-fast staining (Demonstration with practical).
5. Isolation of pure culture of micro-organisms by multiple streak plate technique and other techniques.
6. Microbiological assay of antibiotics by cup plate method and other methods
7. Motility determination by Hanging drop method.
8. Sterility testing of pharmaceuticals.
9. Bacteriological analysis of water
10. Biochemical test (IMViC reactions)
11. Revision Practical Class

### BP 308P Pharmaceutical Engineering –Practical

The students should able to

1. perform size reduction, size separation, distillation, drying experiments
2. quantitate heat transfer by radiation and convention,
3. measure humidity of room and
4. draw the symbols and equipment in unit operations and flow sheets.

4th semester

BP401T      Pharmaceutical Organic Chemistry III– Theory

At the end of the course, the student shall be able to

1. Understand the methods of preparation and properties of organic compounds
2. Explain the stereo chemical aspects of organic compounds and stereo chemical reactions
3. Know the medicinal uses and other applications of organic compounds

BP402T      Medicinal Chemistry I – Theory

The students should able to:

1. Explain the influence of physicochemical properties on drug action,
2. Outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of pharmacodynamics agents,
3. Classify the therapeutic agents and based on the chemical nature,
4. Explain the relationship between the biological activity and structure of therapeutic agents, and
5. Describe therapeutic uses of specified pharmacodynamics agents.

BP403T      Physical Pharmaceutics II – Theory

Upon the completion of the course student shall be able to

1. Understand various physicochemical properties of drug molecules in the designing the dosage form
2. Know the principles of chemical kinetics & to use them in assigning expiry date for Formulation
3. Demonstrate use of physicochemical properties in evaluation of dosage forms.
4. Appreciate physicochemical properties of drug molecules in formulation research and Development

BP404T      Pharmacology I – Theory

The students should able to:

1. Explain the structure, mechanism of action, systemic effects, side effects and contra-indications of cholinergic and adrenergic agents,

2. Describe the mechanism of drug action, pharmacokinetics, systemic and electro-physiological effects, uses and treatment of toxicity and drug interactions,
3. Describe the pharmacology of drugs acting on cardiovascular and respiratory systems, and
4. Explain drugs and their mechanism of action for various gastro-intestinal drugs.

BP405T Pharmacognosy and Phytochemistry I– Theory

The students should be able to:

1. understand the cultivation and collection methods of medicinal plants,
2. evaluate the crude drugs for adulteration,
3. explain various biosynthetic pathways of medicinal plant constituents, and
4. understand the methods of quality control of crude drugs according to WHO guidelines.
5. classify carbohydrates, fats/oils, proteins, terpenoids, flavonoids, alkaloids and steroids based on their structure,
6. describe extraction, isolation and purification methods of natural compounds,
7. describe qualitative and quantitative methods for the identification of natural compounds – alkaloids, purine and xanthines, and
8. highlight the importance of retro-synthetic analysis in the structural elucidation of compounds.

BP406P Medicinal Chemistry I – Practical

Medicinal Chemistry I laboratory course concentrates on Preparation of drugs/ intermediates like 1,3-pyrazole, 1,3-oxazole, Benzimidazole, Benzotriazole, 2,3- diphenyl quinoxaline, Benzocaine, Phenytoin, Phenothiazine and Barbiturate.

Medicinal Chemistry I laboratory course concentrates on Assay of drugs like Chlorpromazine, Phenobarbitone, Atropine, Ibuprofen, Aspirin and Furosemide

BP407P Physical Pharmaceutics II – Practical

Physical Pharmaceutics II laboratory course concentrates on determination of surface tension of given liquids by drop count and drop weight method, HLB number of a surfactant by saponification method, Freundlich and Langmuir constants using activated char coal, critical micellar concentration of surfactants, viscosity of liquid using Ostwald's viscometer,

sedimentation volume with effect of different suspending agent, sedimentation volume with effect of different concentration of single suspending agent, viscosity of semisolid by using Brookfield viscometer, reaction rate constant first order, reaction rate constant second order and Accelerated stability studies

#### BP408P      Pharmacology I – Practical

1. Pharmacology I laboratory course concentrates on
2. Introduction to experimental pharmacology.
3. Commonly used instruments in experimental pharmacology.
4. Study of common laboratory animals.
5. Maintenance of laboratory animals as per CPCSEA guidelines.
6. Common laboratory techniques. Blood withdrawal, serum and plasma separation, anaesthetics and euthanasia used for animal studies.
7. Study of different routes of drugs administration in mice/rats.
8. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
9. Effect of drugs on ciliary motility of frog oesophagus
10. Effect of drugs on rabbit eye.
11. Effects of skeletal muscle relaxants using rota-rod apparatus.
12. Effect of drugs on locomotor activity using actophotometer.
13. Anticonvulsant effect of drugs by MES and PTZ method.
14. Study of stereotype and anti-catatonic activity of drugs on rats/mice.
15. Study of anxiolytic activity of drugs using rats/mice.
16. 15. Study of local anaesthetics by different methods

#### BP409P      Pharmacognosy and Phytochemistry I – Practical

Pharmacognosy and Phytochemistry I laboratory course focus on the

1. Analysis of crude drugs by chemical tests: (i)Tragacanth (ii) Acacia (iii)Agar (iv) Gelatin (v) starch (vi) Honey (vii) Castor oil
2. Determination of stomatal number and index

3. Determination of vein islet number, vein islet termination and palisade ratio.
4. Determination of size of starch grains, calcium oxalate crystals by eye piece micrometre
5. Determination of Fibre length and width
6. Determination of number of starch grains by Lycopodium spore method
7. Determination of Ash value
8. Determination of Extractive values of crude drugs
9. Determination of moisture content of crude drugs
10. 10. Determination of swelling index and foaming

5th semester

PHR-PT-351 Hospital & Community Pharmacy

The students should able to:

1. describe hospital and clinical pharmacy organization,
2. explain hospital functions, administration and pharmacy therapeutic committee and rational drug therapy,
3. discuss overview of hospital formulary i.e., inventory control of drugs, formulations, surgicals and radio isotopes,
4. explain the basic principles of clinical pharmacy, and
5. explain diseases, disease systems and treatment.

PHR-PG-352 Pharmacognosy III

The students should able to:

1. explain crude drugs containing alkaloids, glycosides and volatile oil,
2. isolate and characterize phytoconstituents
3. explain biotransformation and immobilization technique, and
4. explain the importance of the herbal and ayurvedic formulation.

PHR-PC-353 Medicinal Chemistry-I

1. The course is comprised of basic knowledge of medicinal Chemistry its introduction, the principle of medicinal chemistry, Study of classification, mechanism of action, structure activity relationship, physiochemical properties and synthesis of selected drugs (only drugs marked with

asterisk): Sympathomimetic agents, Alpha adrenergic blockers, Beta adrenergic blockers, Cholinergic drugs, Cholinergic Blocking agents, Local Anesthetics, Skeletal Muscle Relaxant. The concept of these fundamental in medicinal chemistry are required to elaborate details study of pharmacological activities, mechanism of action, side effects and their adverse effect. The knowledge of this basic concept required to formulate an appropriate dosage form of the particular disease.

2. At the end of the course, the student should be able to understand the:
3. Basic concept, principle of Medicinal chemistry
4. Physico-chemical Properties their role in medicinal chemistry and applications
5. Route of synthesis of drugs
6. Structure activity relationship of sympathomimetic drugs
7. Knowledge of drugs acting on Autonomic Nervous System
8. Mechanism of action, uses of class of drugs
9. Study Structure activity relationship of compounds
10. Identify different steps of synthetic routes of various drugs their uses, mentioned in the contents.
11. Know the mechanism of action of drugs and their adverse conditions
12. Explain various synthetic routes in the field of medicinal chemistry

#### PHR-PT-354 Pharmacology II

At the end of the course, the student should be able to:

1. To learn about the drug with regard to classification, pharmacodynamic and pharmacokinetic aspects, adverse effects, uses, dose, route of administration, precautions, contraindications and interaction with other drugs.
2. To provide an understanding of the basic principles of drug action.
3. Identify typical examples of drugs which are used to restore physiological functions in the cardiovascular, endocrine system, respiratory and urinary system
4. Explain the role of absorption, distribution, metabolism and excretion in drug disposition.
5. Explain the mechanisms of drug action of well-known drug examples.
6. Explain how drugs modify the action of chemical mediators to produce therapeutic and adverse effect.

#### PHR-PT-355 Pharmaceutical Technology

At the end of lecture the students will be able to:

1. Learn about various pharmaceutical dosage forms.
2. Learn about formulation considerations of different dosage forms
3. Understand manufacturing methods of various dosage forms.
4. Understand the design and working of various equipment used for production
5. To explain different dosage forms and their essential attributes
6. To explain various finished dosage form evaluation parameters and their limits

#### PHR-PT-351(P) Hospital & Community Pharmacy Practical

Hospital & Community Pharmacy laboratory course focus on the

1. Sterilization of certain glassware by using dry heat sterilization method.
2. Sterilization of the surgical cotton using autoclave.
3. Sterilization of surgical materials used in hospital.
4. Preparation ascorbic acid injection.
5. Preparation 50mL of 5% dextrose infusion IP and sterilize it by filtration method.
6. Preparation ampoules of 10mL water for injection IP.
7. Preparation and submit eye lotion for first aid.

#### PHR-PG-352(P) Pharmacognosy III Practical + Tutorial

The students should also able to

1. study morphology and microscopical characteristics of crude drugs and mixture of crude drug powders,
2. conduct transverse section of crude plant materials,
3. isolate and identify chemical constituents using chemical tests and
4. Evaluate quantitative parameters of leaf crude drugs.

#### PHR-PC-353(P) Medicinal Chemistry-I Practical + Tutorial

Medicinal Chemistry-I laboratory course focus on the

1. Determination of partition co-efficient, dissociation constant and molar refractivity of compounds for QSAR analysis
2. Preparation of medicinally important compounds or intermediates required for synthesis of drugs.



3. Assay of Selected drugs from course content prescribed as per I.P or B.P.

PHR-PT-354 (P) Pharmacology II Practical + Tutorial

The student should be able to

1. Demonstrate the simulation of pharmacology and effect of drugs, and
2. explain the functioning of equipment available in pharmacology.

PHR-PT-355 (P) Pharmaceutical Technology Practical + Tutorial

Pharmaceutical Technology laboratory courses are focused on the preparation of cold cream and vanishing cream, paracetamol microcapsules, glycerogelatin suppositories, cocoa butter suppositories, tablets by direct compression method and carry out IPQC tests, tablets by dry granulation method and carry out IPQC tests, tablets by wet granulation method and carry out IPQC tests, hard gelatin capsule formulation, compound sodium chloride injection, sterilize compound sodium lactate injection, water for injection (WFI) and carry out pharmacopoeia tests on it, sodium chloride eye drops and perform identification tests for sodium and chloride, castor oil emulsion and salicylic acid ointment

6th semester

PHR-PT-361 Biopharmaceutics and Pharmacokinetics

The students should be able to:

1. explain the principles of biopharmaceutics and pharmacokinetics with relevance to clinical development,
2. determine factors affecting drug absorption, bioavailability and bioequivalence,
3. describe disposition kinetic models with applications,
4. evaluate the PK parameters related to distribution, metabolism and excretion, and
5. explain the clinical pharmacokinetics, dose adjustment and therapeutic drug monitoring.

PHR-PC-362 Medicinal Chemistry-II

At the end of the course, the student should be able to:

1. Understand the basics of Drug discovery, combinatorial Chemistry, CADD, and QSAR Study.
2. Understand the basic concept and application of pro drugs design. Along with the history and development of combinatorial chemistry.

3. Understand the synthesis, uses and mechanism of action of anti anginal drugs, like Nitroglycerine and Isosorbide dinitrite.
4. Understand the synthesis, uses and mechanism of action of anti anginal drugs like, cardiotonics. Eg. Digoxin, Digitoxin, Deslanoside.
5. Understand the structural activity relationship. Stereochemistry and different synthetic aspect of calcium channel blockers, e.g. Verapamil, Diltiazem, Nifedipine.
6. Understand the synthesis, uses and mechanism of action structural activity relationship. Stereochemistry and different synthetic aspect of diuretics, coagulant and anticoagulant, hypoglycemic agent opioid analgesic and NASIDs.

#### PHR-PT-363 Pharmaceutical Jurisprudence

The students should be able to:

1. describe schedule rules, laws and regulations related to drugs and cosmetics,
2. explain pharmaceutical legislation, history, evolution and growth of pharmaceutical industry,
3. describe the pharmaceutical education and its regulatory bodies; pharmacy profession in concern to code of ethics,
4. explain other acts and rules associated with food and factories, and
5. explain the intellectual property rights.

#### PHR-PG-364 Chemistry of Natural Products

At the end of lecture, the students will be able to

1. Know the basic definition, concept, and classification methodology, general methods
2. of structural elucidation, structures, and pharmacological uses of the important examples of Terpenoids.
3. Know the basic definition, concept, classification methodology, general methods of structural elucidation, structures, and pharmacological uses of the important examples of Alkaloids
4. Know the basic definition, concept, classification methodology, structures, and pharmacological uses of the important examples of Glycosides and lignans.
5. Know the basic definition, concept, classification methodology, structures, and pharmacological uses of Carotenoids and Flavonoids.
6. To understand and become familiar with structures and pharmacological uses of the Xanthines and Coumarin.

#### PHR-PL-365 Pharmacology III

At the end of the course, the student should be able to:

1. To learn about the drug with regard to classification, pharmacodynamic and pharmacokinetic aspects, adverse effects, uses, dose, route of administration, precautions, contraindications and interaction with other drugs.
2. To provide an understanding of the basic principles of drug action.
3. Identify typical examples of drugs which are used to restore physiological functions in the cardiovascular, endocrine system, respiratory and urinary system

PHR-PT-361(P) Biopharmaceutics and Pharmacokinetics Practical + Tutorial

Student will be able to:

1. prove the validity of Noyes Whitney law of dissolution of sparingly soluble drug
2. find out the acid neutralization capacity of given brand by USP/AJPE method
3. study the effect of pH on dissolution of a sparingly soluble acid, benzoic acid
4. find out AUC of oral and i.v data by trapezoidal method
5. calculate various pharmacokinetic parameters for the given set of data obeying 1CBM kinetics following iv bolus administration
6. calculate various pharmacokinetic parameters for the given set of data obeying 1 CBM kinetics following oral administration

PHR-PC-362(P) Medicinal Chemistry-II Practical

The students should able to

1. Design and adopt the reaction schemes for the synthesis of various drugs of diverse chemical categories,
2. Analyze functional groups present in drugs through IR, and
3. Estimate the actual amount of drug present in pharmaceutical formulations.

PHR-PG-364(P) Chemistry of Natural Products Practical + Tutorial

The student should able to

1. evaluate the quality of oils by various analytical methods as per the
2. pharmacopoeial methods, qualitatively identify natural compounds and biomolecules – carbohydrates, amino acids, proteins, flavonoids, terpenoids, alkaloids and steroids, and
3. Perform estimation of alkaloids by chemical methods.

PHR-PL-365(P) Pharmacology III Practical + Tutorial

Pharmacology III laboratory course involves

1. To study demonstration of Sciatic nerve ligation method for neuropathic pain.
2. To study demonstration of Cotton-pellet induced Granuloma for Chronic inflammation.
3. To carry out bioassays for a drug using ex-vivo organ bath assembly method.
4. To calculate pA2 and pA10 values for a drug using ex-vivo experimentation.
5. To study demonstration of techniques like electrophoresis and PCR.
6. To study safety assessment or LD50 dose of a drug using toxicological studies.
7. To study various sign and symptoms for toxicological reaction of a drug.
8. To study the biological efficacy of agent for anti-microbial activity in-vitro.
9. To study the biological efficacy of agent for immune-modulatory activity in-vitro.
10. To study anti-oxidant activity of a drug using DPPH / NOx method.
11. To determine the level of serum ALT/AST level for Liver function using biochemical kit.
12. To determine serum Glucose / cholesterol level using biochemical kit.
13. To draw the standard curve of sodium nitrite/nitrate for estimation of serum Nitric oxide level.

7th semester

#### PHR-PT-471 Pharmaceutical Technology II

The course is divided into four sections including seven chapters that are Preformulation Studies, Packaging of Pharmaceutical Products, QC, QA and GMP, Pilot Plant Scale Up, Sustained and Controlled release (CR) delivery systems, Blood Products and Plasma Substitutes, Cosmetic Preparations. Preformulation Studies mainly includes general introduction bulk characterization, Solubility Analysis and stability studies, Packaging of Pharmaceutical Products mainly focused packaging materials and different types of packaging, QC, QA and GMP includes basic introduction and elements covering controls of area and processes and product. Pilot Plant Scale Up includes introduction and scale up of solid dosage forms, Sustained and Controlled release (CR) delivery systems includes introduction, concept and types of controlled release systems, osmotic pump, transdermal systems, Cosmetic Preparations describes the fundamentals of cosmetic science, structure and functions of skin, and different formulations, preparation and packaging of cosmetics

#### PHR-PL-472 Pharmacovigilance

At the end of lecture the students will be able to:

1. Why drug safety monitoring is important?
2. History and development of pharmacovigilance
3. National and international scenario of pharmacovigilance
4. Dictionaries, coding and terminologies used in pharmacovigilance
5. International standards for classification of diseases and drugs
6. Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India
7. ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning  
CIOMS requirements for ADR reporting
8. Writing case narratives of adverse events and their quality.
9. Detection of new adverse drug reactions and their assessment
10. Adverse drug reaction reporting systems and communication in pharmacovigilance  
Methods to generate safety data during preclinical, clinical and post approval phases of drugs' life cycle
11. Drug safety evaluation in paediatrics, geriatrics, pregnancy and lactation
12. Writing case narratives of adverse events and their quality

#### PHR-PT-473 Pharmaceutical Management

At the end of lecture the students will be able to

1. Understand the management process necessary to achieve organizational goal
2. Understand the role of marketing, sales and role of a salesman
3. Understand the role of an economic system
4. Understand the accounting principles and their need
5. Formulate a management plan and create standards to compare
6. Formulate marketing plan for a category of products
7. How to select sales representative and how to motivate them

#### PHR-PC-474 Medicinal Chemistry & Cheminformatics

The course is divided into four sections including different chapters that are general anesthetics, opioid analgesics, NASIDS etc. course also include the information of cheminformatics.

1. Students will practically understand drug related problems in health care and ADR's
2. Able to understand Drug related diseases affecting GIT

#### PHR-PT-475 Pharmaceutical Biotechnology

The students should be able to:

1. Design a suitable reactor for the industry based on their requirements of yield and cost,
2. Analyze the genetic code and explain the production of proteins using r-DNA technology,
3. Explain manufacture, standardization, storage and labeling of immunization products (passive and active),
4. Explain the biological/blood products, plasma substitutes regarding collection, processing and storage, and
5. Explain production techniques of monoclonal antibodies.

PHR-PT-471 (P)      Pharmaceutical Technology II Practical+ Tutorial

Pharmaceutical Technology II laboratory course involves to determination of partition coefficient of a given drug and solubility of a given drug.

Pharmaceutical Technology II laboratory course involves to carry out degradation study of aspirin at different temperature conditions, dissolution study of a conventional tablet, dissolution study of sustained release tablet, dissolution study of enteric coated formulation and drug excipient compatibility study.

Pharmaceutical Technology II laboratory course involves to preparation of solid dispersion of a poorly soluble drug, effervescent tablets of a given drug, tooth powder and tooth paste, mouth wash and gargle, shampoo, nail lacquer/ nail polish and nail polish remover and shaving cream and after shave lotion.

PHR-PL-472 (P)      Pharmacovigilance Practical + Tutorial

Pharmacovigilance laboratory course train various case studies or report for adverse drug reactions of the disease profiles. Pharmacovigilance laboratory course also train various Collection and management of safety data during clinical trials

PHR-PC-474 (P)      Medicinal Chemistry & Cheminformatics Practical+Tutorial

Pharmaceutical biotechnology laboratory course train various Synthesis process of selective drugs involving two steps.

Pharmaceutical biotechnology laboratory course Establishing the Pharmacopoeial standards of the drugs synthesized (selected examples).

Pharmaceutical biotechnology laboratory course also used to draw structures such as chem Draw, chem sketch etc.

Pharmaceutical biotechnology laboratory course explains Identification of pharmacophores by computational analysis to the students

PHR-PT-475 (P)      Pharmaceutical Biotechnology Practical + Tutorial

The students should be able to

1. explain the factors affecting fermentation,
2. isolate bacterial DNA,
3. explain the passive and active immunization products usage, and application,
4. Select, isolate, and preserve useful microorganisms for industrial applications, and
5. perform microbiological assays of pharmaceutical dosage forms.

8th semester

PHR-PL-481 Clinical Pharmacotherapeutics

Students will understand

1. Basic principles of drug therapy in pediatric and geriatric patients, and in pregnancy and lactation.
2. Epidemiology of drug use, organization of drug information services/center, Essential medicine list and national drug policy.

PHR-PG-482 Industrial Pharmacognosy

At the end of lecture, the students will be able to

1. Know the procurement and supply channels details of plant drug material.
2. Know about the chemical standardization of plant drug material: through marker analysis and fingerprinting profiling using HPTLC
3. Know the various WHO guidelines utilized for the standardization of herbal formulation.
4. Know the plant tissue culture technique and various techniques utilized for extraction of plant material.
5. To understand economy status and trade of medicinal plants and their products across the world and India.
6. Know about the anti-tumor agents, bitters, sweeteners and colorants of plant origin.

PHR-PC-483 Pharmaceutical Analysis-II

At the end of the course, the student should be able to:

1. Explain basic terminology used in Instrumental analysis and Fundamental of thermal analytical methods.
2. Describe the theoretical concept of HPLC.

3. Understand concepts of computation of analytical Data.
4. Interpretation of Analytical data.
5. Demonstrate Quantitative and qualitative determinations by using GLC, NMR, MS analytical methods and Thermal methods.
6. Understand the pharmaceutical applications of Instrumental analytical methods.
7. explain the principles, instrumentation and applications of different spectroscopy methods
8. describe separation techniques like chromatography and gel electrophoretic techniques
9. describe the theoretical aspects on electro analytical methods.
10. Calculate the %purity of compounds by using Instrumental analytical methods.
11. Compute the relevant analytical data.
12. Calculate and prepare the required concentrate standards.
13. Understand the dilution concept.

#### PHR-PC-484 Chemical Biology

At the end of the course, the student should be able to:

1. Apply chemical biology for discovery of biological mechanisms and drug discovery.
2. Use chemical tools and probes to elucidate biological mechanisms.
3. Design and synthesize designing probes.
4. Apply system biology in drug discovery

#### PHR-PG-482 (P) Industrial Pharmacognosy Practical + Tutorial

Industrial Pharmacognosy laboratory course provides knowledge about the various WHO Herbal drug standardization techniques and Development of various chromatographic techniques: TLC fingerprinting profile, Column Chromatography, HPLC.

#### PHR-PC-483 (P) Pharmaceutical Analysis-II Practical + Tutorial

The students should able to

1. describe the separation techniques like paper, TLC and electrophoretic techniques,
2. demonstrate principles of fluorometry, nepheloturbidometry, IR and flame photometry, UHPLC, GC-MS, ICP-MS, HPTLC techniques in the quantitative identification of pharmaceuticals, and
3. illustrate the principles and applications of thermal analytical techniques like DSC, TGA and DTA.



4. understand the basic interpretation of IR spectrum and Mass spectrum for basic compounds

PHR-PR-356

PHR-PR-366

PHR-PR-476

PHR-PR-485 Project

Project

Project Literature Seminar/Approval

Project

This course is designed to provide students experience on doing projects in the field of pharmaceutical sciences. The purpose is to practically introduce and expose the students to the process and methodology of research. The idea is to stimulate the student's intellect and inculcate innovativeness, creativity and appreciation for research. Students will be able to select broad range of topics related to the field of pharmaceutical sciences, conduct literature survey, define aims & objectives, decide suitable research design, carry out experimental work and report the findings. The complete project work will spread over all the eight semesters of their B. Pharmacy course.

Seminar component of the course provides an opportunity to the student to develop advanced knowledge on the search and manuscript preparation. The students become competent in presentations about the specific topic in scientific and pharmacy fields. It gives a chance to the learning community to describe new trends among group.

The course is targeted for the following points

- i. Novelty
- ii. Content
- iii. Presentation
- iv. Response to Questions
- v. Attendance

Program Outcomes: M.Pharm

- i) PO1: An ability to independently carry out research /investigation and development work to solve practical problems.
- ii) PO2: An ability to write and present a substantial technical report/document.
- iii) PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program

## Course Outcomes M. Pharmacy

### Pharmaceutics

#### 1st semester

#### MPH101T Modern Pharmaceutical Analytical Techniques

After completion of course student is able to know,

1. Chemicals and Excipients
2. The analysis of various drugs in single and combination dosage forms
3. Theoretical and practical skills of the instruments

#### MPH 102T DRUG DELIVERY SYSTEMS

Upon completion of the course, student shall be able to understand

1. The various approaches for development of novel drug delivery systems.
2. The criteria for selection of drugs and polymers for the development of delivering system
3. The formulation and evaluation of Novel drug delivery systems..

#### MPH 103T MODERN PHARMACEUTICS

Upon completion of the course, student shall be able to understand

1. The elements of preformulation studies.
2. The Active Pharmaceutical Ingredients and Generic drug Product development
3. Industrial Management and GMP Considerations.
4. Optimization Techniques & Pilot Plant Scale Up Techniques
5. Stability Testing, sterilization process & packaging of dosage forms.

#### MPH 104T REGULATORY AFFAIRS

Upon completion of the course, it is expected that the students will be able to

Understand

1. The Concepts of innovator and generic drugs, drug development process
2. The Regulatory guidance's and guidelines for filing and approval process
3. Preparation of Dossiers and their submission to regulatory agencies in different countries
4. Post approval regulatory requirements for actives and drug products
5. Submission of global documents in CTD/ eCTD formats
6. Clinical trials requirements for approvals for conducting clinical trials
7. Pharmacovigilence and process of monitoring in clinical trials.

#### MPH 105P PHARMACEUTICS PRACTICALS - I

At the end of the course, the student should be able to understand:

1. Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer
2. Simultaneous estimation of multi component containing formulations by UV spectrophotometry
3. Experiments based on HPLC
4. Experiments based on Gas Chromatography
5. Estimation of riboflavin/quinine sulphate by fluorimetry
6. Estimation of sodium/potassium by flame photometry
7. To perform In-vitro dissolution profile of CR/ SR marketed formulation
8. Formulation and evaluation of sustained release matrix tablets
9. Formulation and evaluation osmotically controlled DDS
10. Preparation and evaluation of Floating DDS- hydro dynamically balanced DDS
11. Formulation and evaluation of Muco adhesive tablets.
12. Formulation and evaluation of trans dermal patches.
13. Preformulation studies of tablets.
14. Effect of compressional force on tablets disintegration time.
15. Micromeritic properties of powders and granulation.
16. The effect of particle size on dissolution of a tablet.

17. The effect of binders on dissolution of a tablet
18. Heckal plot, Higuchi and peppas plot and determine similarity factors.

2nd Sem

#### MPH 201T MOLECULAR PHARMACEUTICS (NANO TECHNOLOGY & TARGETED DDS) (NTDS)

Upon completion of the course student shall be able to understand

1. The various approaches for development of novel drug delivery systems.
2. The criteria for selection of drugs and polymers for the development of NTDS
3. The formulation and evaluation of novel drug delivery systems.

#### MPH 202T ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS

Upon completion of this course it is expected that students will be able understand,

1. The basic concepts in biopharmaceutics and pharmacokinetics
2. The use raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination.
3. The critical evaluation of biopharmaceutic studies involving drug product equivalency.
4. The design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters
5. The potential clinical pharmacokinetic problems and application of basics of pharmacokinetic

#### MPH 203T COMPUTER AIDED DRUG DEVELOPMENT

Upon completion of this course it is expected that students will be able to understand,

1. History of Computers in Pharmaceutical Research and Development
2. Computational Modeling of Drug Disposition
3. Computers in Preclinical Development
4. Optimization Techniques in Pharmaceutical Formulation
5. Computers in Market Analysis
6. Computers in Clinical Development
7. Artificial Intelligence (AI) and Robotics
8. Computational fluid dynamics(CFD)

## MPH 204T COSMETICS AND COSMECEUTICALS

Upon completion of the course, the students shall be able to understand

1. Key ingredients used in cosmetics and cosmeceuticals.
2. Key building blocks for various formulations.
3. Current technologies in the market
4. Various key ingredients and basic science to develop cosmetics and cosmeceuticals
5. Scientific knowledge to develop cosmetics and cosmeceuticals with desired Safety, stability, and efficacy.

## MPH 205P PHARMACEUTICS PRACTICALS - II

At the end of the course, the student should be able to understand:

1. The effect of temperature change , non solvent addition, incompatible polymer addition in microcapsules preparation
2. Preparation and evaluation of Alginate beads
3. Formulation and evaluation of gelatin /albumin microspheres
4. Formulation and evaluation of liposomes/niosomes
5. Formulation and evaluation of spherules
6. Improvement of dissolution characteristics of slightly soluble drug by Solid dispersion technique.
7. Comparison of dissolution of two different marketed products /brands
8. Protein binding studies of a highly protein bound drug & poorly protein bound drug
9. Bioavailability studies of Paracetamol in animals.
10. Pharmacokinetic and IVIVC data analysis by WinnolineR software
11. In vitro cell studies for permeability and metabolism
12. DoE Using Design Expert® Software
13. Formulation data analysis Using Design Expert® Software
14. Quality-by-Design in Pharmaceutical Development
15. Computer Simulations in Pharmacokinetics and Pharmacodynamics
16. Computational Modeling Of Drug Disposition
17. Clinical Data Collection manual

18. To carry out Sensitivity Analysis, and Population Modeling.
19. Development and evaluation of Creams
20. Development and evaluation of Shampoo and Toothpaste base

## Pharmaceutical Chemistry

### Semester I

#### 1st Sem

#### MPC 101T MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

After completion of course student is able to know about chemicals and excipients

1. The analysis of various drugs in single and combination dosage forms
2. Theoretical and practical skills of the instruments

#### MPC 102T ADVANCED ORGANIC CHEMISTRY - I

Upon completion of course, the student shall be to understand

1. The principles and applications of retrosynthesis
2. The mechanism & applications of various named reactions
3. The concept of disconnection to develop synthetic routes for small target molecule.
4. The various catalysts used in organic reactions
5. The chemistry of heterocyclic compounds

#### MPC 103T ADVANCED MEDICINAL CHEMISTRY

At completion of this course it is expected that students will be able to understand

1. Different stages of drug discovery
2. Role of medicinal chemistry in drug research
3. Different techniques for drug discovery
4. Various strategies to design and develop new drug like molecules for biological targets
5. Peptidomimetics

#### MPC 104T CHEMISTRY OF NATURAL PRODUCTS

At completion of this course it is expected that students will be able to understand-

1. Different types of natural compounds and their chemistry and medicinal importance
2. The importance of natural compounds as lead molecules for new drug Discovery
3. The concept of rDNA technology tool for new drug discovery
4. General methods of structural elucidation of compounds of natural origin
5. Isolation, purification and characterization

#### MPC 105P PHARMACEUTICAL CHEMISTRY PRACTICAL - I

At the end of the course, the student should be able to understand:

1. Simultaneous estimation of multi component containing formulations by UV spectrophotometry
2. Analysis of Pharmacopoeial compounds and their formulations by UV Vis spectrophotometer, RNA & DNA estimation
3. Column chromatography, HPLC, Gas Chromatography, flame photometry
4. Claisen-schimidt reaction, Benzyllic acid rearrangement, Beckmann rearrangement, Hoffmann rearrangement and Mannich reaction

2nd Sem

#### MPC 201T ADVANCED SPECTRAL ANALYSIS

At the end of the course, the student should be able to:

1. Explain basic terminology used in Instrumental analysis and Fundamental of thermal analytical methods.
2. Describe the theoretical concept of HPTLC, GC-MS, LC-MS, X-Ray, Raman IR etc.
3. Understand concepts of computation of analytical Data.
4. Interpretation of Analytical data.
5. Demonstrate Quantitative and qualitative determinations by using GLC, NMR, MS analytical methods and Thermal methods.
6. Understand the pharmaceutical applications of Instrumental analytical methods.
7. Calculate the %purity of compounds by using Instrumental analytical methods.
8. Compute the relevant analytical data.
9. Calculate and prepare the required concentrate standards.
10. Understand the interpretation concept of analytical data.

#### MPC 202T ADVANCED ORGANIC CHEMISTRY - II

Upon completion of course, the student shall able to understand

1. The principles and applications of Green chemistry
2. The concept of peptide chemistry.
3. The various catalysts used in organic reactions
4. The concept of stereochemistry and asymmetric synthesis.

#### MPC 203T COMPUTER AIDED DRUG DESIGN

At completion of this course it is expected that students will be able to understand

1. Role of CADD in drug discovery
2. Different CADD techniques and their applications
3. Various strategies to design and develop new drug like molecules.
4. Working with molecular modeling softwares to design new drug molecules

The in silico virtual screening protocols This is the bridge course offered to BiPC students in to first year B. Pharmacy course.

#### MPC 204T PHARMACEUTICAL PROCESS CHEMISTRY

At completion of this course it is expected that students will be able to understand

1. The strategies of scale up process of apis and intermediates
2. The various unit operations and various reactions in process chemistry

#### MPC 205P PHARMACEUTICAL CHEMISTRY PRACTICALS – II

At the end of the course, the student should be able to understand:

1. Synthesis of organic compounds by adapting different approaches involving
  - a) Oxidation
  - b) Reduction/hydrogenation
  - c) Nitration
2. Comparative study of synthesis of APIs/intermediates by different synthetic routes
3. Assignments on regulatory requirements in API (2 experiments)
4. Comparison of absorption spectra by UV and Wood ward – Fieser rule
5. Interpretation of organic compounds by FT-IR
6. Interpretation of organic compounds by NMR



7. Interpretation of organic compounds by MS
8. Determination of purity by DSC in pharmaceuticals
9. Identification of organic compounds using FT-IR, NMR, CNMR and Mass spectra
10. the preparation of following organic compounds
11. Preparation of 4-chlorobenzhydrylpiperazine. (an intermediate for cetirizine HCl).
12. Preparation of 4-iodotoluene from p-toluidine.
13. NaBH<sub>4</sub> reduction of vanillin to vanillyl alcohol
14. Preparation of umbelliferone by Pechhman reaction
15. Preparation of triphenyl imidazole
16. Determination of log P, MR, hydrogen bond donors and acceptors of selected drugs using softwares
17. Calculation of ADMET properties of drug molecules and its analysis using Softwares  
Pharmacophore modeling

## Pharmacology

### Semester I

#### 1st Sem

#### MPL 101T MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

After completion of course student is able to know about chemicals and excipients

1. Chemicals and Excipients
2. The analysis of various drugs in single and combination dosage forms
3. Theoretical and practical skills of the instruments

#### MPL 102T ADVANCED PHARMACOLOGY - I

Upon completion of course, the student shall be to understand

1. Discuss the pathophysiology and pharmacotherapy of certain diseases
2. Explain the mechanism of drug actions at cellular and molecular level

3. Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

#### MPL 103T PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING

##### METHODS - I

At completion of this course it is expected that students will be able to understand

1. Appraise the regulations and ethical requirement for the usage of experimental animals.
2. Describe the various animals used in the drug discovery process and good laboratory practices in maintenance and handling of experimental animals
3. Describe the various newer screening methods involved in the drug discovery process
4. Appreciate and correlate the preclinical data to humans

#### MPL 104T CELLULAR AND MOLECULAR PHARMACOLOGY

At completion of this course it is expected that students will be able to understand-

1. Explain the receptor signal transduction processes.
2. Explain the molecular pathways affected by drugs.
3. Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process.
4. Demonstrate molecular biology techniques as applicable for pharmacology

#### MPL 105P PHARMACOLOGICAL PRACTICAL - I

At the end of the course, the student should be able to understand:

1. Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer
2. Simultaneous estimation of multi component containing formulations by UV spectrophotometry, HPLC, Gas Chromatography, flame photometry
3. Handling of laboratory animals.
4. Various routes of drug administration.
5. Techniques of blood sampling, anesthesia and euthanasia of experimental animals.
6. Evaluation of diuretic activity.
7. Evaluation of antiulcer activity by pylorus ligation method.
8. Oral glucose tolerance test.
9. Isolation and identification of DNA from various sources (Bacteria,

10. Cauliflower, onion, Goat liver).
11. Isolation of RNA from yeast
12. Estimation of proteins by Bradford/Lowry's in biological samples.
13. Estimation of RNA/DNA by UV Spectroscopy
14. Gene amplification by PCR.
15. Protein quantification Western Blotting.
16. Enzyme based in-vitro assays (MPO, AChEs,  $\alpha$  amylase,  $\alpha$  glucosidase).
17. Cell viability assays (MTT/Trypan blue/SRB).
18. DNA fragmentation assay by agarose gel electrophoresis.
19. DNA damage study by Comet assay.
20. Apoptosis determination by fluorescent imaging studies.
21. Pharmacokinetic studies and data analysis of drugs given by different
22. routes of administration using softwares
23. Enzyme inhibition and induction activity
24. Extraction of drug from various biological samples and estimation of drugs in biological fluids using different analytical techniques (UV)
25. Extraction of drug from various biological samples and estimation

2nd Sem

MPL 201T ADVANCED PHARMACOLOGY - II

At the end of the course, the student should be able to:

1. Explain the mechanism of drug actions at cellular and molecular level
2. Discuss the Pathophysiology and pharmacotherapy of certain diseases
3. Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

MPL 202T PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING

METHODS-II

Upon completion of course, the student shall able to understand

1. Explain the various types of toxicity studies.
2. Appreciate the importance of ethical and regulatory requirements for toxicity studies.

3. Demonstrate the practical skills required to conduct the preclinical toxicity studies.

#### MPL 203T PRINCIPLES OF DRUG DISCOVERY

Upon completion of the course, the student shall be able to,

1. Explain the various stages of drug discovery
2. Appreciate the importance of the role of genomics, proteomics and bioinformatics in drug discovery
3. Explain various targets for drug discovery.
4. Explain various lead seeking method and lead optimization
5. Appreciate the importance of the role of computer aided drug design in drug discovery

#### MPL 204T CLINICAL RESEARCH AND PHARMACOVIGILANCE

Upon completion of the course, the student shall be able to,

1. Explain the regulatory requirements for conducting clinical trial
2. Demonstrate the types of clinical trial designs
3. Explain the responsibilities of key players involved in clinical trials
4. Execute safety monitoring, reporting and close-out activities
5. Explain the principles of Pharmacovigilance
6. Detect new adverse drug reactions and their assessment
7. Perform the adverse drug reaction reporting systems and communication in Pharmacovigilance

#### MPL 205P PHARMACOLOGICAL PRACTICAL - II

At the end of the course, the student should be able to understand:

1. DRC of agonist using suitable isolated tissues preparation.
2. effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation.
3. bioassay by using suitable tissue preparation.
4. Estimation of PA<sub>2</sub> values of various antagonists using suitable isolated tissue preparations.
5. effects of various drugs on isolated heart preparations
6. ECG
7. OECD guidelines.

8. Design of ADR monitoring protocol.
9. In-silico docking studies
10. In-silico QSAR studies.

#### M. Pharmacy

#### Semester III

#### MRM 301T Research Methodology & Biostatistics

At the end of the course, the student should be able to understand:

1. General Research Methodology
2. parametric tests(students “t” test, ANOVA, Correlation coefficient, regression)
3. Non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test)
4. Interpretation of P values.effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation.
5. Medical Research
6. CPCSEA guidelines for laboratory animal facility
7. Declaration of Helsinki

Faculty of management Sciences & Liberal Arts

#### Semester-I

Course Name : Mathematical Methods

Hours: 3+1+0

Credits: 4

#### Course Description:

The course aims to train students on applications of mathematical methods in the area of Finance, Marketing, Economics, and Operations etc. The course is designed to understand the nature of the markets and their growth, Decay etc. The course will give an insight into choosing appropriate mathematical tools and analyze the cost and revenues of the markets. Quadratic equations cost and revenue functions etc. will be dealt with an application orientation. The

course introduces differentiation and integration and their practical applications. Appropriate case studies and or problems will be discussed to complement the learning.

Course Content:

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate growth, rate and change in cost and revenues.
- Understand the decreasing and increasing the cost.
- Understand the market strategy like exponential or logarithmic.
- Understand Marginal average cost and revenue.
- Estimate cost expenditure through differentiation and integration (indefinite).

2. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the mathematical applications according to changes their markets.
- Plotting curves and graphs for cost expenditures, demand & supply.
- Draw slope and intercept.
- Analyze the expenditure through linear equations.
- Evaluate the cost and revenue through mathematical methods.
- Analyze the performance of firms under different market structures.

Course Name : Microeconomic Theory-I

Course Description:

This course is a basic course on micro economics designed to acquaint students of all the streams with basic economic concepts and principles that they must know and understand while dealing with problem solving in any organization/industry. Course provides an introduction to the basic concepts like demand, supply, production, cost, market structures and pricing decisions under different market types. Course will give an insight into the economic problems, behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of videos and case studies to demonstrate how the basic micro economic principles are used in decision making under different market conditions.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate price change in markets applying working of market forces viz. supply and demand.
- Understand the pricing strategy using concept of elasticity of demand and supply.
- Know the production function and costs involved to determine the least cost combination of inputs to maximize profit.
- Analyze impact of competition on working of a firm through the understanding of different market structures.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the nature of economics in dealing with the issue of scarcity.
- Draw demand and supply curves.
- Perform supply and demand analysis to analyze the impact of economic events on markets.
- Calculate and predict the change in demand due to change in price and income using elasticity of demand.
- Analyze the behavior of consumers in terms of demand for various products.
- Evaluate the relevant costs of business decisions.
- Analyze the performance of firms under different market structures.

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Videos and case studies to understand the application of economics concepts
- Case study discussions
- 8 Assignments
- 3 Quizzes based on subject matter

Course Name : Business Organization & Management

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Hours: 3+0+0

Credits: 3

Course Description:

The purpose of this paper is twofold; one, to impart to students an understanding of management and business concepts and practices being followed globally, with a focus on Indian perspective. Second, to prepare them to face emerging challenges of managing resources and business processes.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

1. Define Business and its objectives.
2. Explore the various forms of Business and outline the pros & cons associated with each of them.
3. Develop an understanding of Globalization, Liberalization & Privatization and their Indian perspective.
4. Explain the basic concepts of the various functional aspects of the Business viz.- Marketing, Operations, HR, Finance and IT.
5. Define Entrepreneurship and explore the various entrepreneurial business models and opportunities available in contemporary India.
6. Enumerate and explain the various theories and concepts related with Leadership & Motivation.
7. Outline the development of management thought – from the Classical Theory till the most recent contemporary management concepts.

2. Skill Outcome:

1. Prepare a Marketing, HR, Financial & Operational Plan and integrate all of them into a comprehensive Business Plan after carrying out a Feasibility study in order to start a Small Business Venture.
2. Adapt and develop any of the contemporary entrepreneurial models at any stage of their life.
3. Motivate & lead an organizational team.



Semester II

Course Name : Introduction to IT Tools

Hours: 3+0+2

Credits: 4

Course Description:

This course is an introductory course on basic Information Technology tools. This course begins with introduction about computers, applications of computers, essential components of computers and basics of internet. After these foundations concepts, students are going to be provided hands on experience in using productivity software like MS-Office. The course includes essentials of working with word-processing software like MS-Office, spreadsheet software like MS-Excel and its business applications and basics about working and using presentation software like MS-PowerPoint.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basics about computers, its essential components and applications of computers in business.
- Understand the essentials of internet and services provided by internet.
- Understand the importance and usage of word processing software.
- Understand the importance, usage and applications of spreadsheet software in business.
- Understand the importance of using presentation software.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges
- Write formulas, calculate values and organize results

- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

Course Name : Basic Accounting

Hours: 3+1+0

Credits: 4

Course Description:

The course includes the following topics: Measuring and Recording Business Transactions, Business Income and Adjusting Entries, Completion of the Accounting Cycle, the course gives an insight to the accounting procedure taken into consideration by different users. The course being a combination of facts related to accounting and the results which are derived from the accounts prepared by the account featuring the financial statements of the firm. Introduction to cost accounting what is the use of cost accounting and how is cost sheet made and used by individual and a company.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Make and analyze accounts of a firm.
- Journalize the entries and put them into different accounts.
- Intelligently interpret and use the financial statements in managing and analyzing business operations
- Use basic accounting terminology and the process by which transactions are analyzed and transformed into financial statements and
- Differentiate between types of costs involved in a business and what impact it has on the firm's profit.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Prepare and analyze statement of affairs in the company.
- Make cash book and find and rectify problems therein.

- Prepare final accounts of the firms and adjust accordingly.
- Answer and provide relevant information about accounting standards of India.
- Differentiate between different types of cost and their uses
- Prepare cost sheet.

Course Name : Basics of Law

Hours: 3

Credits: 3

Course Description:

This course provides students with an overview of the Indian legal system. It explores the basic concepts of law in society including the different sources of law followed by specific lectures on various branches of law. This course gives an insight in our constitutional and contractual law and teaches the beginnings of legal analysis through case briefing, statutory construction and application of law to fact situations.

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe the source of law
- Acquire adequate knowledge of the basic concepts of laws
- Properly define and discuss legal issues of general concern.
- Implement basic legal principles and explain fundamental legal terms.
- Use analytical skills when applying substantive law to fact situations.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Search legal information from different sources.
- Identify the elements of a contract and legal issues
- Identify the role of the Constitutional Law and the fundamental rights
- Apply the fundamentals in their daily affairs of their life.

Course Name : Microeconomic Theory-II

Hours: 3+0+0

Credits: 3

#### Course Description:

This course is a foundation course designed to introduce the students to basic micro economic concepts and principles that can be used by the managers in understanding the business problems. Course provides an introduction to consumer behavior, input market, factor pricing, public goods and market failure. Course will give an insight into the economic behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of case studies to demonstrate how the basic microeconomic principles are used in business decision making under different market conditions.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Analyze behavior of firms and profit maximization under varying competitive conditions
- Evaluate pricing strategies of firms operating under different market conditions
- Get an insight into different viewpoints on factor pricing
- Analyze factors affecting the factor prices like rent, rate of interest rate etc.
- Understand the concept of market failure
- Know about the public goods and related issues

##### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Develop pricing strategies for products sold in different market structures
- Evaluate change in rate of interest and other factor prices
- List the public goods
- Analyze why does market fail in terms of some goods

Semester-III

Course Name : Corporate Accounting

Hours: 3+1+0

Credits: 4

### Course Description:

To provide the students' knowledge about use of costing data for planning, control and decision making.

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Passing journal entries for issue of shares
- Forfeiture and Redemption of Shares & Debentures
- Accounting for managerial remuneration and Bonus Shares
- External and Internal Reconstruction - Amalgamation
- Understanding Royalty Accounts

#### 2. Skill Outcome:

- Understanding the concept of corporate accounting.
- Accounting of Issue of Shares
- Valuation of Shares and Goodwill
- Accounting for Amalgamation, Absorption and Reconstruction of Companies.
- Interpretation of financial statements

Course Name : Marketing Management

Hours: 3

Credits: 3

### Course Description:

This course aims at introducing the basic concepts of marketing in order to build a strong foundation for marketing concepts. The course builds practical skills in introducing marketing management, marketing environment, buying behavior, marketing mix concept & sales management. It aims at equipping the students with knowledge of marketing mix with special focus on product, price, place & promotion. The course will also equip students with knowledge on contemporary issues in marketing. The students will also learn the concept of emerging marketing in reference to Rural Marketing.

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in marketing
- Become aware of marketing as open system
- Understand the complexities of human behavior in marketing
- Know how target markets are selected & positioned
- Realize the basic pillars on which marketing is built
- Understand concepts in marketing mix
- Develop insight of Logistics & marketing communications.
- Understand the concept & practices in brand management.
- Gain knowledge on contemporary issues and Rural Marketing

2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior
- Develop target markets & facilitate sales
- Develop appropriate mix of product, pricing, place & promotion
- Use concepts in brand management
- Assist in development of independent marketing strategy.
- Succeed in dynamic Market condition
- Market effectively in Rural segment behind capital budgeting and cost of capital
- Appreciate the impact of capital structure on the risk and return aspect of a firm
- Make out the advantages and disadvantages of operating and financial leverages
- To understand the impact of dividend theory and policy on valuation of firm.
- To understand the sources of finance, cash management, Accounts receivable and inventory management.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others



- Understand and discuss the impact of inflation and recession
- Analyze and critique macroeconomic policy initiatives
- Understand and interpret discussions on macroeconomic issues in Economic Times and TV Channels

Course Name : Human Resource Management

Hours: 3+0+0

Credits: 3

Course Description:

HRM is the strategic and coherent approach to the management of an organization's most valued assets; the people working there, who individually and collectively contribute to the achievement of the objectives of the business. The goal of HRM is to help an organization to meet strategic goals by attracting and maintaining employees and also managing them effectively.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.
- Understand the significance of training, development and appraisal programs.
- Recognize the best methodology in welfare and security measures for employees.
- Discuss the general guidelines followed for administering discipline in an organization.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.



- Effectively run a recruitment and selection program.
- Knowing your employees and look out for their welfare.

To effectively handle discipline among employees

Course Name : Corporate Auditing

Hours: 3+0+0

Credits: 3

#### Course Description:

The purpose of this subject is to impart to students an understanding of auditing, as it is through audit that one can see the soundness of commercial and non-commercial concerns. Keeping in mind the complexities and problems faced in the field of auditing the subject uses an easy, simple approach for acquainting and imparting basic knowledge relating to various types of audit and their importance to a business.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define Auditing and its objectives.
- Explore the various types of audit and outline the advantage of having a good audit mechanism to a concern.
- Develop an understanding of Internal Control, Internal Check and Internal Audit.
- Explain the basic concepts relating to auditing like vouching, verification, investigation etc.
- Define Auditor and explore the role of auditor with respect to various types of audit.
- Enumerate the various Auditing Assurance Standards (AAS).
- Outline the role of regulator with respect to Government and other statutory audits.

##### 2. Skill Outcome:

- Prepare an Audit Program for a small enterprise.
- Adapt and develop any of the specific audit program at any stage of their life depending on the special requirements of a business concern.

Course Name : Computerized Accounting System

Hours: 3+2

Credits: 2

Course Description: In this course students are trained to operate accounting software (Tally). All students irrespective of their backgrounds can learn the practical accounting with the help of software. This course will broadly deal in fundamentals of Tally, creating accounting masters, inventory masters, voucher entry and generating reports. After completion of this course student will be having complete knowledge of tally and will be able to use this software for practical accounting.

#### Knowledge Outcome

At the end of the course, the student should be able to:

- Learn basics of accounting
- Payroll management

#### Skill Outcome

- Will be able to operate accounting software tally ERP 9
- Will know how to generate basic accounting reports from tally ERP 9

Course Name : Management Accounting

Hours: 3+1+0

Credits: 4

#### Course Description:

To provide the students' knowledge about use of costing data for planning, control and decision making.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Differentiate between cost accounting and management accounting.
- Understanding of BEP and PV ratio.
- Importance of BEP and its use by the management.
- Budgetary control and its impact on the company.

- Prepare funds flow statement and cash flow statement.
- Importance of ratios in understanding of financial statements.

. Skill Outcome:

- Calculation of BEP both numerically and graphically.
- Understanding of financial statements and use of financial ratios of the same.
- Understanding the concept of management accounting.
- Calculation of material control
- Budgetary control.
- Preparation of funds flow statement and cash flow statement

Course Name : Indian Economy

Hours:3+0+0

Credits :3

Course Description:

The course provides a broad overview of the Indian economy, economic structure, planning and reforms are some of the key issues that would be taken up in this course. The objective of the course is to enable students to comprehend, contextualize and critically examine contemporary issues in Indian economy.

CourseOutcome

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Better understand the features and problems of Indian Economy
- Understand the working of the economic system and the types of systems.
- Understand major contributing sectors of GDP and trends in India's GDP.

- Compare and understand the basis of differences across regions/economies
- Understand the niceties of planning process in the country

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Evaluate different economic systems and their welfare effects
- Analyze the GDP of the country
- Evaluate current economic issues and their impact on business activities
- Analyze better the planning process of the country

## Course Description:

This course will simplify the understanding of INCOME TAX and its practical understanding of the LAW and making it is to Save TAX

## Course Content:

### Unit-A:

Introduction of INCOME TAX, Basic Concepts, Difference between Revenue and Capital, Basis on which TAX is imposed and Exempted Income

### Unit-B:

Understanding types of INCOME, Income from Salaries, and Income from House property.

### Unit-C:

Profits and Gains of Business and Profession I and Understanding Depreciation, capital Gains, Income from other Sources. Aggregation of Income

### Unit-D:

Set Off and Carry Forwards, Deductions to be made in computing Income, Double Taxation relief

## Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define different terms used in Income Tax.
- Will be able to recognize the nature of a transaction and rules to treat the same under Income tax act.
- Differentiate between types of income and sources of income for an individual.
- Types of heads of income.
- Deductions available for an individual under income tax act.
- Rules laid down to calculate the sources of income under different heads.
- Calculate income from Salaries, House property, capital gains, Business and Profession, and Income from other sources.
- Powers and procedures laid down by the act and its applications.

2. Skill Outcome:

- Will be able to calculate the income of an Individual.
- Will be able to apply rules laid down under income tax act to save tax.
- Knowledge about deductions and exemptions available for an individual under income tax act.
- Can define tax avoidance, tax evasion and tax management • File an ITR of an Individual.
- Knowledge about different forms and their usage.

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house practical
- 3 Assignments
- 3 Quizzes/tests.

Required Books and Materials:

Text Book:

1. V.P. Gaur, D.B. Narang ,Puja Gaur .,Income Tax Law and Practices , Kalyani Publishers

Reference Book:

1. Income Tax by Taxman Publishers

### Course Description:

This course is designed with a hands-on problem solving approach in mind. The students would be exposed to various quantitative and reasoning problems that would require a sophisticated and disciplined approach in order to arrive at the proper solution.

### Course Content:

#### UNIT-I:

- Number system: Types of numbers, Test of Divisibility, Multiplication tricks, Sum of series.
- LCM & HCF: Least Common Multiple and Highest Common Factor of numbers and fractions.
- Percentages:

#### UNIT-II:

- Ratio and Proportion
- Averages

#### UNIT-III:

- Time and distance
- Chain rule

#### UNIT-IV:

- Syllogism
- Seating arrangements
- Input/ Output
- Coding/Decoding
- Assumptions

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Develop an understanding of the number system and related exercises.
- Understand key concepts of analytical reasoning.

- Demonstrate various shortcut keys which can be applied in quantitative aptitude.
2. Skill Outcome:

At the end of the course, the student should be able to:

- To build in students speed and accuracy with respect to quantitative and logical reasoning problems.
- To make autonomous and quick calculations.
- Articulate and solve reasoning statements.
- To help students develop skill in effectively solving reasonably statements.

Methodology:

- 45 participative lectures
- 8 Assignments
- 3 Surprise quizzes

Course Name : Research Methodology

Hours: 3+1+0

Credits:4

Course Description: The objective of this course is to develop the research skills of the students in investigating into the business problems with a view to arriving at objective findings and conclusions and interpreting the results of their investigation in the form of systematic reports.

Course Content:

Unit-A:

- Introduction to Research: Types of Research, Research Approaches: Qualitative and Quantitative, Research Methods vs Methodology, Process of Business Research, Criteria of Good Research, Problems encountered by researchers in India
- Defining the Research Problem: Selecting the research problem, Techniques of defining a research problem
- Research Design: Meaning of research design, Need for research design, Important concepts relating to research design, Different types of research designs

## Unit B:

- Sampling Design: Census and sample survey, Steps in sample design, Criteria of selecting a sampling procedure, Different types of sample designs
- Measurement and Scaling techniques: Measurement in research, Measurement scales, Sources of error in measurement, Goodness of measurement scales, Concept of scaling, Scale classification bases, Important scaling techniques, Scale construction techniques

## Unit C:

- Methods of Data Collection: Types of observation method, Types of interview methods, Collection of secondary data, Collection of data through questionnaires, Selection of appropriate method for data collection
- Processing and Analysis of Data: Processing operations, Types of analysis, Descriptive statistics in research, Inferential statistics in research

## Unit D:

- Testing of Hypothesis: Basic concepts concerning hypotheses, procedure for testing hypotheses, Important parametric tests, important non-parametric tests
- Interpretation and Report Writing- Different steps in writing report, Layout of research report, Types of reports, Precautions for writing research reports

## Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define research
- Understand the roadmap to learn research methods
- Understand the research process
- Get a preliminary idea about the use of software for data preparation and data analysis

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Apply business research methods for decision making
- Design questionnaire for conducting business research
- Apply basic statistical methods to interpret information from the data



### Methodology:

This course will be conducted through lectures, assignments, practical exercises, and role playing activities. Students will be given written assignments, practical exercises, and hands on experience. In addition, the course will incorporate the use of multimedia such as videos and power point and a range of practical teaching techniques focused on the students' needs.

### Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

### Required Books and Materials:

#### Text Book:

1. Kothari, C. R- Research Methodology Methods & Techniques (New Age International Publishers)

#### Reference Book:

1. Bajpai, N.- Business Research Methods (Pearson), 2011
2. Sanders- Research Methods for Business Students (Prentice Hall), Second Edition, 2007
3. Cooper & Schindler – Business Research Methods (Tata McGraw Hill), Ninth Edition

Course Name : Industrial Relations and Labour Laws

Hours: 3+1+0

Credits: 4

Course Description:

This course focuses on the effective management of employee and management relation. The course includes important legislations important in the effective handling of employees in any organization. The goals of this course for the organization to remain ethical and legal in its industrial relations. This course provides an overview of how an organization is to accomplish these purposes.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding the relationship between organization and employees at a workplace.
- Identify different types of trade unions and how they function.
- Identify different ways how workmen can participate in management decisions.
- Understand how bargaining is important for the employees.
- Address to the different acts under labour law that guide in wages and administration.
- Knowledge of different Labour legislations.

2. Skill Outcome:

- Uphold pleasant industrial relations by understanding the concept of industrial relations.
- Identify different mechanism for collective bargaining and worker's participation in management.
- Avoid industrial disputes and procedures for its settlement.
- Effectively handle wages and salary administration.
- Create an organization which abides by all the labour laws.

Course Name : Industrial Economics

Hours: 3+0

Credits: 3

Course Description:

The course is designed to make students comfortable with the foundations and applications of economics in decision making by the firms. The course will also introduce students to the basic understanding of game theory and its applications in industrial economics.

## Course Content:

### Unit-A: Foundations of Industrial Economics

- Foundations of Industrial Economics – economic system and industry
- Costs – classification/ types
- Theory of production – classical production function, optimal production mix,
- Revenue curves – average, marginal and total revenue
- Theory of profit maximization
- Industrial efficiency – concept and determinants
- Economies of scale and scope

### Unit-B: Market Forms and Market Power

- Market forms and market power
- Price and quantity determination by the firm under;
- Perfect competition
- Monopoly
- Price discrimination – meaning and degrees
- Basic of market signaling
- Fundamentals of game theory, normal form games

### Unit-C: Market Forms and Market concentration

- Oligopolistic market – concept and characteristics
- Cournot duopoly
- Collusive oligopoly – cartels
- Monopolistic competition and product differentiation
- Market concentration - concept and measurements, Hirschman-Herfindahl index, concentration ratio, entropy index.

### Unit-D: Investment and Pricing decisions

- Nature of investment decisions
- Project planning and evaluation
- Diversification, integration and mergers
- Advertising strategies and pricing decisions by the firm

- Locational analysis – determinants and approaches
- Alternate approaches to the theory of the firm (sales maximization, maximization of economic growth rate, transaction cost theory and behavioural theory)

Course Outcome:

1. Knowledge Outcome:

At the end of the course the students would be able to:

- better understand the concept and significance of production function, costs and revenue
- understand and play with the concept of profit maximization, industrial efficiency
- perceive and be conversant with different forms of market and their working
- understand the basics of project planning and evaluation
- better understand industrial environment and working of industrial sector

Outcome:

At the end of the course, the student should be able to:

- use cost and revenue analysis for optimal decision making
- use project evaluation tools
- Analyze pricing decisions of the firms

Methodology:

- 45 participative lectures for conceptual clarity
- Assignments
- Quizzes and other exams

Required Books and Materials:

1. Barthwal, R.R. (2014). Industrial Economics. New Age International Publishers.
2. Robert S. Pindyck, Daniel Rubinfeld (2009). Microeconomics. Prentice Hall of India Ltd.
3. Dixit, A., Skeath S., and Reiley, D.H. (2010). Games of Strategy, Viva Books.
4. Dwivedi, DN. Managerial Economics. Vikas Publishing House

Course Name : Banking and Finance(AMFI)

Hours: 3+1+0

Credits: 4

Course Description:

The examination seeks to create a common minimum knowledge benchmark for all persons involved in selling and distributing mutual funds including Individual Mutual Fund Distributors, Employees of organizations engaged in sales and distribution of Mutual Funds and Employees of Asset Management Companies especially persons engaged in sales and distribution of Mutual Funds. The certification aims to enhance the quality of sales, distribution and related support services in the mutual fund industry

Course Content:

- Concept and Role of a Mutual Fund
- Fund Structure and Constituents
- Legal and Regulatory Environment
- Offer Document
- Fund distribution and Channel Management Practices
- Accounting Valuation and Techniques
- Investor Services,
- Return, Risk & Performance of Funds
- Selecting the Right investment Products for Investors
- Helping Investors with Financial Planning
- Recommending Model Portfolios and Financial Plans

Unit A: Mutual funds and their structure

- Concept and Role of a Mutual Fund
- Fund Structure and Constituents
- Legal and Regulatory Environment

Unit B: Accounting terms and management practices

- Offer Document
- Fund distribution and Channel Management Practices
- Accounting Valuation and Techniques
- Investor Services,

Unit C: Choose right fund based on parameters

- Return, Risk & Performance of Funds
- Selecting the Right investment Products for Investors UNIT D: Financial planning and plans
- Helping Investors with Financial Planning
- Recommending Model Portfolios and Financial Plans

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Use offer documents to understand details of a mutual fund
- Helping Investors with Financial Planning • Describe tools for selecting a mutual fund

2. Skill Outcomes:

- Selecting the Right investment Products for Investors
- Write a detailed financial plan
- Recommending Model Portfolios and Financial Plans

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- 15 tutorials for practical approach
- 5 Assignments based on subject matter/ In-house practicals
- 5 Quizzes based on subject matter Grading:

Internal Assessment	-	50%
i.    Assignments	8%	
ii.   Quizzes/Surprise Tests	7%	
iii.   Attendance	5%	
iv.   1st Mid-term exam	15%	
v.   2nd Mid-term exam	15%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

National Institute of Securities Market (NISM), "AMFI Curriculum Reference Books:

Indian Financial System by MY Khan, 7th Edition, Tata McGraw Hill Education Pvt Ltd

Semester VI

Course Name : Goods and service Tax

Course Code : BL311

Course Instructor : Dr.Nitin Gupta

Hours: 3+0+0

Credits:3

Course Description:

The said course is designed for the in-depth analysis of the GST Act 2017. The topic is made and instructed in order to provide the facts and changes made in order to streamline the indirect tax laws by the government of India. The course structure is outlined in a way that the course provides each and every relevant and practical information to the individual who is either a student or a working professional. The course pays emphasis on the practical aspects of the GST and the working of the system for the effective implementation of the same.

Course Content:

Unit – I:

Overview of GST: Introduction, Challenges of Previous Tax Structure,

GST International Scenario Models of GST,

GST in India History of GST, GST Council, Framework of GST,

Introduction to CGST Act, 2017 Important Definitions, Levy of GST, Liability under GST

Supply: Characteristic of Supply, Schedule I under CGST, Schedule II under CGST, Activities which are not Supply.

Unit – II:

Composite and Mixed Supply

Composition levy: Meaning, Condition & Restriction

Time of Supply: Time of Supply of Goods, Time of Supply of Services, Time of Supply in case of change in rate of tax

Value of Supply

Input Tax Credit: Meaning, Input Tax Credit Restrictions

Job Work: Meaning, Input Credit in case of Job Work



## Accounts and Records

### Unit – III:

Tax Invoice, Credit and Debit Notes: Invoice, Credit Note & Debit note

Registration: Persons liable to register, Persons not liable to register

Returns and Payment: Utilization of ITC

Refunds, Assessment

### Unit – IV:

Audit

Inspection, Search, Seizure and Arrest

Introduction to IGST Act, 2017: Important definitions

Nature of Supply: Inter State Supply, Intra State Supply, Supplies in Territorial Waters

Place of Supply: Place of Supply of Goods, Place of Supply of Services

Union Territory Goods and Services Tax Act, 2017

Introduction to GST (Compensation to States) Act, 2017

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Aware of indirect tax GST
- Answer basic question related to GST
- Calculation of GST can be done.
- Knowledge of GST
- Landmark judgements by various courts which has helped in amendment of the indirect taxes.

#### 2. Skill Outcome:

- Calculation GST

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house practical
- 3 Assignments
- 3 Quizzes/tests.

Required Books and Materials:

Text Book:

Reference Book: the following websites are needed to be referred by the student:

1. <http://www.cbec.gov.in/hdocs-cbec/gst/index>
2. <http://www.gstcouncil.gov.in/>

Course Name : International Financial Reporting Standards (IFRS)

Course Code : COM(H) 323

Course Instructor : Mr. Chander Mohan Gupta

Hours: 3+0+0

Credits: 3

#### Course Description:

It will enable learning and application in a practical context, advanced accounting principles and techniques to analyse, interpret and report on financial statements and related information to different user groups. To make preparers and users of financial statements are up-to-date with all requirements and have the skills to apply advanced accounting techniques at work. At the end of the course one will be able to understand both IFRS and GAAP and difference between the two.

#### Course Content:

##### Unit-A:

Introduction to IFRS & GAAP, Presentation of Financial Statements, Statement of Financial Position, Statement of Profit and Loss and other Comprehensive Income, Statement of Cash Flows, Accounting Policies, Changes in accounting estimates, Inventories

##### Unit-B:

Property, Plant and equipment, Borrowing Cost, Intangible Assets, Investment Property, Impairment and Non-Current Assets held for sale, Consolidations Joint Arrangements Associates and separate Financial Statements, Business Combinations, Shareholder's Equity, Share Based Payment.

##### Unit-C:

Current liabilities, provisions, Contingencies and events after the reporting Period, Employee benefits, Revenue recognition including Construction Contracts, Government Grants, Leases, Foreign Currency, Financial Instruments, Fair value, Income taxes

##### Unit-D:

Earnings Per Share, Operating Segments, Related Party Disclosures, Accounting and Reporting by retirement benefits Plan, Agriculture, Extractive Industries, Accounting for Insurance Reporting, Inflation and hyperinflation,

## Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Answer questions related to accounting standards
- Rules and regulation laid down to make and present financial statements.
- Increase the basic knowledge of the students for accounting procedure
- Have an in-depth knowledge of accounting system and working.
- Understand the working of bodies governing accounting rules.
- Describe relationship between strategy and technology

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Describe rules and regulations laid down for the working of the companies.
- Application of rules when and where required.
- Following the steps and procedure laid down by the governing bodies.
- Describe the importance of financial statements for the firms.

## Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house, practical
- 3 Assignments
- 3 Quizzes/Tests

## Grading:

Internal assessment	-	50%
• Assignments	10%	
• Quizzes	5%	
• Attendance	5%	

• In-house Practicals	10%		
• Mid-term exam	20%		
End Term Exam		-	50%

Required Books and Materials:

Text Book:

1. A Nanda, "Understanding IFRS," Wiley John Publication

Reference Book:

2. Wiley's IFRS
3. Students are requested to use and download free data available at icai and icwai website for usage.
4. [http://www.icai.org/post.html?post\\_id=8660](http://www.icai.org/post.html?post_id=8660)
5. <http://casbicwai.org/CASB/casb-resources.asp>

Course Name : Research Project

Course Code : BL323

Course Coordinator : Dr. Kesari Singh

Hours: Whole semester

Credits: 6

Course Description:

In the last Semester of the program, students undertake Research Project Work on individual or group basis. The Research Project Work is a powerful source of practical managerial insights, validation of management concepts, and valuable market knowledge.

Research Project Work may be an industry/ research project - based on primary/secondary data. It is expected that Research Project Work shall sensitize the students to the demands of the real life corporate world. The learning outcomes and utility to the placement and following job related tasks are specifically highlighted.

Research Project Work can be carried out in a/an:

1. Corporate Entity
2. Central Government, State Government and Public Sector Undertaking
3. Overseas entity
4. MSME
5. NGO
6. Cooperative Society
7. Institutions for some special projects
8. Other relevant entities

Students are evaluated by the team of project guides of the Research Project Works. A student is required to get a satisfactory rating on the evaluation to complete the program for award of MBA Degree.

Students are required to submit two hard bound copies of the project report to the Office within the prescribed deadline, failing which it is deemed that the student has not fulfilled the academic requirement as per the norms.

The report should be well documented and supported by:

1. Executive Summary
2. Organizational Profile
3. Introduction to the project

4. Review of Literature
5. Research Methodology
6. Data Analysis
7. Findings
8. Limitations
9. Conclusions
10. Recommendations
11. Bibliography and References

Apart from these, the report must include the title page, certificate from industry project guide, acknowledgements, table of contents, table of figures etc. A prescribed format of the project report shall be communicated to every student well within time.

The report should reflect the nature and quantum of work undertaken by the student. The report must reflect work of two Semesters and justify the same.

There shall be a PPT presentation and a viva-voce for the report. There will be a panel of faculty members to judge the student's work.

A student's work shall broadly be assessed on:

1. Relevance of the actual work undertaken by the student
2. Student's understanding of the project work
3. Design and validity of research instrument
4. Data collection method and reliability of data
5. Analysis and interpretation of data
6. Outcome of the project
7. Utility of the project to the corporate world
8. Basic analytical capabilities
9. Construction and overall get up of the report
10. Confidence and presentation skills of the student
11. Other things as deemed necessary

Course Name : International Economics

Course Code : ECON(H)222

Course Instructor : Dr. Nitin Gupta

Hours: 3+0+0

Credits: 3

#### Course Description:

This course would expose the students to the various economic theories governing international trade. The students would get a thorough grounding in key concept areas like gains from trade, trade regulatory bodies and policies, exchange rates, balance of payments, trade blocks, multilateral trade agreements, and globalization.

#### Course Contents

##### Unit-A

Reasons for trade, globalization – meaning and implications; historical development of modern trade theories; theories of absolute cost advantage, comparative cost advantage and gains from trade.

##### Unit-B

Sources of comparative advantage; the modern theory of factor endowments - Heckscher-Ohlin theory; the factor intensity reversals – the Stolper-Samuelson theory; effect of factor endowment changes on trade.

##### Unit-C

Trade barriers – tariff and non-tariff trade barriers; welfare effects of tariffs; effective rate of protection; trade regulation policies, regional blocks, and multinational enterprises.

##### Unit-D

International monetary relations – balance of payments, foreign exchange, exchange-rate determination, expectation formation, exchange-rate adjustments and balance of payments. Macro-economic policy in an open economy, international banking and international economic relations.



Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the need for international trade/ globalization
- Perceive the meaning of absolute and comparative advantages and the need to harness these advantages by an economy
- Understand the tariff and non-tariff barriers, balance of payments, exchange rates etc.
- Understand the niceties of international trade

2. Skill Outcome:

At the end of the course, the student should be able to:

- analyze the trade patterns among countries in a better manner
- Describe how trade restrictions impact economy and the need for the same
- analyze economic indicators of trade and development and working of MNCs,
- analyze different contemporary economic issues

Methodology:

- Participative lectures to discuss the theoretical concepts
- Assignments based on class discussions
- Quizzes based on the subject matter

Grading:

Internal assessment	-	50%
• Assignments	10%	
• Quizzes	5%	
• Attendance	5%	
• Class Participation in Case Discussions/Seminars	10%	

• Mid-term exam	20%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

1. Carbaugh, Robert J. (2008). International Economics (11th ed.). Mason, OH, USA: Thompson South-Western.

Reference Books:

1. Jhingan, ML (2009). International Economics. New Delhi: Vrinda Publications.

2. Krugman, P. R., & Obstfeld, M. (2008). International Economics (8th ed.). New Delhi: Pearson Education.

3. Mithani, D.M. (2005). International Economics. Mumbai: Himalaya Publishing House.

Course Code : BL 321

Course Instructor : Mr. Amar Rao

Hours: 3+0+0

Credits: 3

### Course Description

To familiarize students with different investment alternatives, introduce them to the framework of their analysis and valuation and highlight the role of investor protection.

### Course Contents:

#### Unit-A: The Investment Environment

The investment decision process, Types of investments – commodities, real estate and financial assets, the Indian securities market, the market participants and trading of securities, security market indices, sources of financial information, concept of return and risk, impact of Taxes and inflation on return.

#### Unit-B: Fixed Income Securities

Bond features, types of bonds, estimating bond yields, types of bond risks, default risk and credit rating.

#### Unit-C: Approaches to Equity Analysis

Introduction to fundamental analysis, technical analysis and efficient market hypothesis, dividend capitalization models, and price earnings multiple approach to equity valuation.

#### Unit-D: Portfolio Analysis and Financial Derivatives:

Portfolio and diversification, portfolio risk and return. Commodities, real estate, and mutual funds. Introduction to financial derivatives, financial derivatives markets in India.

SEBI & role of stock exchanges in investor protection, investor grievances and their redressal system, insider trading, investors' awareness and activism.

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Students will know about types of investments.
- Students will get exposure to fundamental analysis and technical analysis
- Students will learn about portfolio and diversification, portfolio risk and return

#### 2. Skill Outcome:

- Where to invest
- What types of investments are available
- How to choose securities based on fundamental analysis as well as technical analysis
- Choose right portfolio with risk and return

## Semester-I

Course Name : Mathematical Methods

Course Code : FSU017

Course Instructor : Mr. Devesh Kumar

Hours: 3+1+0

Credits: 4

### Course Description:

The course aims to train students on applications of mathematical methods in the area of Finance, Marketing, Economics, and Operations etc. The course is designed to understand the nature of the markets and their growth, Decay etc. The course will give an insight into choosing appropriate mathematical tools and analyze the cost and revenues of the markets. Quadratic equations cost and revenue functions etc. will be dealt with an application orientation. The course introduces differentiation and integration and their practical applications. Appropriate case studies and or problems will be discussed to complement the learning.

### Course Content:

#### Unit A:

- Why mathematics is important for this course?
- Basic concepts of applications of mathematics.
- Introduction set theory and their applications.
- Variables & functions uses in practical life.
- Plotting curves through different functions.
- Models of growth, rate and change.

#### Unit B:

- Introduction to linear equations (two or more variables).
- Solutions of Quadratic Equations.
- Solutions of linear equations by substitution method.
- Solutions of linear equations by matrices.
- Linear equations using the y-intercept and slope.

#### Unit C:

- Introduction of Algebra of matrices.
- Identify cofactor and minors of the matrix.
- How to investigate Singular and non-singular matrices.
- Solving inverse matrix.
- Solving adjoint matrices.
- Solving simultaneous equations in two or three variables.

#### Unit D:

- Introduction to differentiation and their applications.
- Differentiation of Addition, Subtraction, Multiplication & Division (Two Functions).
- Derivatives of Polynomials and Exponential Functions, logarithmic functions.
- Uses of implicit functions.
- Rates of Change, Exponential Growth and Decay.
- Marginal and average cost and revenue.
- Introduction to integration, uses of indefinite integration.
- Integration by Substitution, Integration by Parts.
- Applications in cost and revenue functions, utility.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate growth, rate and change in cost and revenues.
- Understand the decreasing and increasing the cost.
- Understand the market strategy like exponential or logarithmic.
- Understand Marginal average cost and revenue.
- Estimate cost expenditure through differentiation and integration (indefinite).

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the mathematical applications according to changes their markets.
- Plotting curves and graphs for cost expenditures, demand & supply.
- Draw slope and intercept.
- Analyze the expenditure through linear equations.
- Evaluate the cost and revenue through mathematical methods.
- □analyze the performance of firms under different market structures.

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- 30 tutorials will be taken to clarify concepts and solve problems
- In-house practical problems
- Discussion on given problem sets
- 8 Assignments
- 3 Quizzes based on subject matter

Required Books and Materials:

Text Books

1. Aman Jindal, "Business Mathematics", Kalyani Publishers, New Delhi.
2. Shanti Narayan & P.K Mittal. "A text book of Matrices", S. Chand Company Ltd. New Delhi.
3. Digamber Patri & D. N. Patri, "Business Mathematics", Kalyani Publishers, New Delhi.

References:

1. B. Dass Gupta, Statistics for Management, Word Publication.
2. Vohra. N. D., Quantitative Techniques in Management, Tata McGraw Hill, New Delhi.

Course Name : Microeconomic Theory-I

Course Code : CSU165

Course Coordinator : Dr. (Ms) Kesari Singh

Hours: 4+0+0

Credits: 4

#### Course Description:

This course is a basic course on micro economics designed to acquaint students of all the streams with basic economic concepts and principles that they must know and understand while dealing with problem solving in any organization/industry. Course provides an introduction to the basic concepts like demand, supply, production, cost, market structures and pricing decisions under different market types. Course will give an insight into the economic problems, behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of videos and case studies to demonstrate how the basic micro economic principles are used in decision making under different market conditions.

#### Course Content:

- Overview- Problem of scarcity & choice
- Demand and supply
- Elasticity of demand and supply
- Production and costs
- Market structures

#### Unit-A: Basic Economic Concepts and Overview

- General Overview
- Economics- Nature & Scope of Economics
- Demand and Supply
- Determinants of demand and supply
- Law of demand and law of supply



- Shift in demand and supply
- Market equilibrium
- Elasticity of Demand and Supply

#### Unit-B: Utility and Consumer Choices

- Utility Analysis
- Indifference Curve- Properties and Consumer Equilibrium
- PCC, ICC
- Revealed Preference Theory

#### Unit-C: Production and Costs

- Cost of Production- different cost concepts
- Relationship between cost and production concepts
- Production Function
- Scale of Production
- Iso-quant Curve- Producer's Equilibrium

#### Unit-D: Market Structures

- Introduction
- Perfect competition
- Imperfect competition
- Pricing and output decisions under different market types

#### Course Outcome:

##### 3. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate price change in markets applying working of market forces viz. supply and demand.
- Understand the pricing strategy using concept of elasticity of demand and supply.

- Know the production function and costs involved to determine the least cost combination of inputs to maximize profit.
- Analyze impact of competition on working of a firm through the understanding of different market structures.

#### 4. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the nature of economics in dealing with the issue of scarcity.
- Draw demand and supply curves.
- Perform supply and demand analysis to analyze the impact of economic events on markets.
- Calculate and predict the change in demand due to change in price and income using elasticity of demand.
- Analyze the behavior of consumers in terms of demand for various products.
- Evaluate the relevant costs of business decisions.
- analyze the performance of firms under different market structures.

#### Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Videos and case studies to understand the application of economics concepts
- Case study discussions
- 8 Assignments
- 3 Quizzes based on subject matter

#### Required Books and Materials:

##### TEXT BOOK:

1. Principles of Economics by T.R. Jain, V.K. Publications.

##### REFERENCE BOOKS:

1. Economics by Paul A. Samuelson & William D. Nordhaus, Tata McGraw Hill.

2. Principles of Economics by Robert H. Frank & Ben S. Bernanke, Tata McGraw Hill.

Course Name : Business Organization & Management

Course Code : FSU019

Course Instructor : Kamal Kant Vashisth

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Hours: 4+0+0

Credits: 4

Course Description:

The purpose of this paper is twofold; one, to impart to students an understanding of management and business concepts and practices being followed globally, with a focus on Indian perspective. Second, to prepare them to face emerging challenges of managing resources and business processes.

Unit –A: Understanding Business and Its Forms

A critical evaluation of Business Objectives, Business Promotions and forms of business enterprise : Sole Proprietorship, Partnership, Joint Stock Companies, Public Utilities, Co-operative, Business Combinations, Foundation of Indian Business Spectrum of Business Activities, Manufacturing and Service Sectors. India's experience with globalization, liberalization, and privatization. Multinational, transnational corporations and their Indian perspective.

Unit –B: Functional Aspects of Business

1. Administrative: Choice of a suitable form of business ownership. Starting and operating small venturing enterprises, Problems in starting a new business.
2. Operations: business size and location decisions. Lay out: mass production and mass customization, productivity, quality and logistics.

3. Marketing: Marketing Mix, Segmentation, PLC and consumer behavior, Product and pricing decisions, Distribution and promotional decisions
4. Finance: Money and banking, Financial management and securities markets, risk management and insurance
5. Human resources: Objective, scope & functions of HRM, Sources of human capital, Strategies for attracting (staffing) and retaining (training and compensation) human resources
6. Role of Information and Communication Technology (IT) in business: Computing, Storing & Networking. Decision Support System (DSS) and other Support Systems.

#### Unit –C: Process of Management

1. Entrepreneurship: Intrapreneurship and Innovation; Disintermediation; Contemporary Entrepreneurial Models: Franchising, Network Marketing, Freelancing, BPO, e-Commerce and M-Commerce
2. Management in Action: Motivation – Concept and Theories: Maslow, Herzberg, McGregor, and Ouchi; Leadership – Concept and Theories: Leadership Continuum, Situational Leadership, Transactional and Transformational Leadership; Managerial Grid, Communication – Formal and Informal

#### Unit –D: Development of Management Thought

1. Classical, Neo-classical, Systems, Contingency and Contemporary Approach to Management – Peter Drucker’s MBO, Porter’s 5- Force Model, Prahalad’s Core Competency, Peter Senge’s Learning Organization and Tom Peters’ Excellence approach

#### Course Outcome:

3. Knowledge Outcome:

At the end of the course, the student should be able to:

1. Define Business and its objectives.
2. Explore the various forms of Business and outline the pros & cons associated with each of them.
3. Develop an understanding of Globalization, Liberalization & Privatization and their Indian perspective.
4. Explain the basic concepts of the various functional aspects of the Business viz.- Marketing, Operations, HR, Finance and IT.

5. Define Entrepreneurship and explore the various entrepreneurial business models and opportunities available in contemporary India.

6. Enumerate and explain the various theories and concepts related with Leadership & Motivation.

7. Outline the development of management thought – from the Classical Theory till the most recent contemporary management concepts.

4. Skill Outcome:

4. Prepare a Marketing, HR, Financial & Operational Plan and integrate all of them into a comprehensive Business Plan after carrying out a Feasibility study in order to start a Small Business Venture.

5. Adapt and develop any of the contemporary entrepreneurial models at any stage of their life.

6. Motivate & lead an organizational team.

Methodology:

1. 42 lectures to discuss the theoretical concepts

2. 1 Case Study to understand factors that contribute to the success of new ventures

3. 1 Group Discussion

4. 4 Assignments on various concepts

5. 4 Surprise quizzes

6. Discussion Forums

Grading:

Internal Assessment – -50%

i. Assignments & Surprise Quizzes 8%

ii. Group Discussion & Case study 7%

iii. Attendance 5%

First Sessional -15%

Second Sessional -15%

Final Exam -50%

Required Books and Materials: Text Book:

1. Gupta, R.N. "Business Organization and Management", S. Chand & Company Ltd. New Delhi.

References:

2. Talloo, J, Thelma, "Business Organization and Management", Tata McGraw Hill Publishing Company, New Delhi.

3. Sharma R.K. & Gupta S.K., "Business Organization and Management", Kalyani Publishers, Ludhiana.

4. Jim, Barry, John Chandler, Heather Clark, "Organization and Management", Thomson Learning.

Course Name : Current Affairs and International Relations

Course Code : FSU027

Course Instructor : Mr. Vipin Pubby

Hours:4+0+0

Credits: 4

Course Description:

This course is designed to be a conceptual work based on the application of the knowledge to contribute to the society in a positive manner by researching and broadening the horizons of knowledge. The course will help the students to identify, discuss and explain various issues and concerns and to differentiate and apply their knowledge in reforming the society. The course will involve participative teaching methods and discussions.

Course Content:

Unit A

## Global Communication: Historical Perspective

- The Great North – South Divide.
- Domination of Transnational news agencies
- Demand for NWICO & MacBride Commission
- Global communication & culture

## Insight into the 20th Century:

European Imperialism and World Wars, Cold War and Post Cold War, Ideological divides, Emergence of super powers, Third World and Non Aligned Movement Regional Cooperation, Towards a new world order

## Unit B

### Struggle for Balance of Information Flows

- India's Foreign Policy
- India and SAARC
- India and UN
- Role of UN & UNESCO in bridging the gap between north and south

### International Actors:

UN, IMF, World Bank, WTO, GATT and World Trade, Regional organizations like SAARC, ASEAN, etc.

### Major Issues:

Globalisation, Changing nature of Capitalism; International conflicts like War, Ethnicity or Fundamentalism, Terrorism, Environment and Climate Change, Human Rights and other contemporary issues.

## Unit-C

### India and Major Concerns

1. Rapid Urbanization
2. Food Self-Sufficiency
3. Criminalization of Politics

#### 4. Naxalism

#### Unit-D

#### Global Issues

- Terrorism and anti-terror measures
- Human Rights Issues
- Gender Issues

#### Current events during the study period

Events and developments in the field of politics, education, science and technology, culture, sports, etc. at state, national and international level. Detailed discussion of these events with a historical perspective and futuristic view will be conducted in class.

#### Semester II

Course Name : Introduction to IT Tools

Course Code : FSU003



Course Instructor : Mr. Devesh Kumar

Hours: 3+0+2

Credits: 4

Course Description:

This course is an introductory course on basic Information Technology tools. This course begins with introduction about computers, applications of computers, essential components of computers and basics of internet. After these foundations concepts, students are going to be provided hands on experience in using productivity software like MS-Office. The course includes essentials of working with word-processing software like MS-Office, spreadsheet software like MS-Excel and its business applications and basics about working and using presentation software like MS-PowerPoint.

Course Content:

Unit-A: Introduction to Computers & Internet

- Introduction to computers
- Computer System Hardware
- Interaction of user and computer
- Operating system
- Internet & Internet services

Unit-B: Word Processing

- Introduction to word Processing.
- Word processing concepts.
- Working with word document
- Opening an existing document/creating a new document.
- Saving,
- Selecting text,
- Editing text,
- Finding and replacing text,
- Formatting text,
- Bullets and numbering
- Tabs
- Paragraph Formatting

- Page Setup
- Mail Merge

#### Unit-C: Spreadsheet Software (MS Excel 2013)

- Spreadsheet concepts
- Getting started with Excel 2013
- Working with data and Excel Tables
- Performing calculations on data
- Changing workbook appearance
- Working on specific data by using filters
- Reordering and summarizing data
- Creating charts & graphics
- Using Pivot Tables and Pivot charts
- Printing worksheets and charts

#### Unit-D: Presentation software

- Creating a new presentation
- Opening an existing presentation
- Editing and Saving a presentation
- Formatting Presentation – Slide layout, Slide Design, Slide background
- Inserting symbols, chart, tables, pictures, videos and audios
- Inserting page number, date and time
- Copy and Paste from Word document and Excel worksheet
- Different types of views
- Preparing for a slide show – animation schemes
- Printing slides, handout and notes pages

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basics about computers, its essential components and applications of computers in business.

- Understand the essentials of internet and services provided by internet.
- Understand the importance and usage of word processing software.
- Understand the importance, usage and applications of spreadsheet software in business.
- Understand the importance of using presentation software.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges
- Write formulas, calculate values and organize results
- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

## Methodology:

- 45 participative lectures which include demonstration and practical work involving MS-Office.
- 8 Practical Assignments based on MS-Word, MS-Excel and MS-PowerPoint
- 3 Surprise quizzes
- Anything that the course may require like presentation, project or things of this sort.

## Required Books and Materials:

### Text Book:

1. Computer Fundamentals by Anita Goel, Pearson, New Delhi.
2. Step by Step Microsoft Excel 2013 by Curtis D. Frye, PHI Learning Private Limited, Delhi

Course Name : Basic Accounting

Course Code : FSU023

Course Instructor : Mr. Chander Mohan Gupta

Hours: 3+1+0

Credits: 4

#### Course Description:

The course includes the following topics: Measuring and Recording Business Transactions, Business Income and Adjusting Entries, Completion of the Accounting Cycle, the course gives an insight to the accounting procedure taken into consideration by different users. The course being a combination of facts related to accounting and the results which are derived from the accounts prepared by the account featuring the financial statements of the firm. Introduction to cost accounting what is the use of cost accounting and how is cost sheet made and used by individual and a company.

#### Course Content:

##### Unit A: Introduction

- Basic overview of accounts,
- DRIL, CGOG, (Golden rules),
- Understanding Accounting equations,
- Introduction to Journal Entries,
- Ledger posting.

##### Unit B: Ledgers and Books

- Types of subsidiary books, cash book (Single, double, triple column cash book and petty cash book),
- Why and when is BRS (Bank Reconciliation Statement) prepared what are its importance for a company,
- Rectification of errors.

##### Unit C: Final Accounts

- Why and how is Trial Balance made?
- Importance of trial balance
- Final Accounts with adjustments and
- Accounting Standards of India

##### Unit D: Cost Accounting

- Introduction to cost accounting,

- Why is cost important in a company,
- Types of costs and Cost sheet (importance and procedure of making cost sheet)

Course Outcome:

3. Knowledge Outcome:

At the end of the course, the student should be able to:

- Make and analyze accounts of a firm.
- Journalize the entries and put them into different accounts.
- Intelligently interpret and use the financial statements in managing and analyzing business operations
- Use basic accounting terminology and the process by which transactions are analyzed and transformed into financial statements and
- Differentiate between types of costs involved in a business and what impact it has on the firm's profit.

4. Skill Outcome:

At the end of the course, the student should be able to:

- Prepare and analyze statement of affairs in the company.
- Make cash book and find and rectify problems therein.
- Prepare final accounts of the firms and adjust accordingly.
- Answer and provide relevant information about accounting standards of India. • Differentiate between different types of cost and their uses • Prepare cost sheet.

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house practical • 8 assignments • 3 Quizzes/tests.

Required Books and Materials:

Text Book:

1. Financial Accounting by C. Mohan Juneja, Arora, Kalyani Publishers, Ludhiana.

2. Cost Accounting: Principles and Methods by Jain, S.P. and K.L. Narang, Kalyani Publishers, Ludhiana.

Reference Book:

1. Accounting Principles, 10th edition by Weygandt, Kimmel and Kieso, Wiley Publication

Course Name : Microeconomic Theory-II

Course Code : FSU042

Course Coordinator : Dr. (Ms) Kesari Singh

Hours:4+0+0

Credits: 4

Course Description:

This course is a foundation course designed to introduce the students to basic micro economic concepts and principles that can be used by the managers in understanding the business problems. Course provides an introduction to consumer behavior, input market, factor pricing, public goods and market failure. Course will give an insight into the economic behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of case studies to demonstrate how the basic microeconomic principles are used in business decision making under different market conditions.

Course Content:

- Market structures- an overview
- Market for Inputs
- Micro theories of factor pricing

- General equilibrium
- Market failure
- Public Goods

#### Unit-A: Market Structures- Supply Curve and Monopoly Power

- Market Structures- An Overview
- Price & Output under perfect competition and monopoly
- Supply curve under perfect competition
- Absence of supply curve under monopoly
- Monopoly power
- Measurement of monopoly power

#### Unit-B: Market for Factor Inputs

- Wages determination in competitive and imperfectly competitive markets
- Determination of factor rewards under conditions of monopsony
- Monopolistic and monopsonistic exploitation
- Role of trade unions in wage determination.

#### Unit-C: Micro Theories of Factor Pricing

- Determination of rent-concepts of rent
- Rent- Ricardian & Modern views
- Interest rate- Loanable funds and liquidity preference theories
- Modern theory of interest
- Profit- Risk & uncertainty

#### Unit-D: General Equilibrium and Market Failure

- General equilibrium of exchange and consumption
- General equilibrium of production
- General equilibrium of production and exchange
- Economic efficiency and conditions of Pareto Optimality.
- Market failures, public goods and externalities.



Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Analyze behavior of firms and profit maximization under varying competitive conditions
- Evaluate pricing strategies of firms operating under different market conditions
- Get an insight into different viewpoints on factor pricing
- Analyze factors affecting the factor prices like rent, rate of interest rate etc.
- Understand the concept of market failure
- Know about the public goods and related issues

2. Skill Outcome:

At the end of the course, the student should be able to:

- Develop pricing strategies for products sold in different market structures
- Evaluate change in rate of interest and other factor prices
- List the public goods
- Analyze why does market fail in terms of some goods

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Case studies & practical exercises to understand the application of microeconomic concepts by the firms
- Discussions and Practical Exercises
- 5 Assignments
- 3 Quizzes based on subject matter

Grading:

Internal assessment – assignments/quizzes/attendance	-	50%
i. Assignments		8%
ii. Quizzes		7%
iii. Attendance		5%
iv. Two Term Examinations		30% (15% each)

End Term Examination

- 50%

Required Books and Materials:

Text Readings:

1. Jain, T.R. "Micro Economics", V.K. Publications, New Delhi (Latest Edition).
2. Ahuja, H.L. "Advanced Economic Theory", S. Chand & Company ltd. New Delhi (Latest Edition).

Suggested Reading:

1. Managerial Economics- Economic Tools for Today's Decision Makers by Paul G. Keat, Philip K.Y. Young & Sreejata Banerjee, Fifth Edition, Pearson Education.

Course Name : Mathematical Economics

Course Code : FSU022

Course Instructor : Mr. Amar Rao

Hours: 3+0+0

Credits: 3

#### Course Description

The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. Course covered single variable functions and optimization and this course covers the essentials of linear algebra and optimization techniques required for the analysis of functions of several variables that are commonly used in economics.

#### Course Contents:

##### Unit A: Theory of sets and limits and continuity of functions

Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems. Limits and continuity of functions; definition; constant; relation-Domain and range; Binomial theorem.

##### Unit B: Derivatives and differentiation (Logarithmic and exponential functions)

Derivatives, differentiation and certain remarks, derivatives of a standard function, chain rule, slope of curve, logarithms, properties, derivatives of exponential functions, application of differentiation in economics, Maxima and minima, application of maxima and minima in economics.

## Unit C: Application of derivatives in economics

Linear homogenous function, properties of homogenous functions, Euler' theorem, Normal commodities and inferior commodities and exercises.

Discrimination monopoly and partial elasticity's, production function and elasticity of substitution, differential and total derivatives, economic application of total differential

## Unit D: Linear algebra

Vector spaces: algebraic and geometric properties, scalar products, norms, orthogonality; linear transformations: properties, matrix representations and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties and applications.

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the core mathematical disciplines of Calculus and Linear Algebra.
- A coherent core of key economic principles.
- The role of proof and deductive reasoning in mathematics.
- The formulation of problems in mathematical form.
- A range of analytical, numerical, and qualitative techniques.
- The application of economics and the appreciation of economic data.

#### 2. Skill Outcome:

- Understand and replicate the connections between diagrammatic models and their underlying formal mathematical structures using algebra and calculus
- Develop numerical examples and algebraic models to illustrate a variety of theoretical economic results
- Understand and use the mathematical tools of algebra, calculus in a variety of economic models
- Comprehend problems, abstract the essentials of problems and formulate them mathematically.
- Apply core economic theory and economic reasoning to applied topics.

Methodology:

- 45 participative lectures to discuss the theoretical concepts and applications
- 3 case studies or problem sets
- 8 Assignments based on case studies or subject matter
- 8 Quizzes based on subject matter

Grading:

Internal assessment –	-	30%
• Assignments	10%	
• Quizzes	5%	
• Attendance	5%	
• Class Participation	10%	
Mid-term exam	-	20%
Final exam	-	50%

Required Books and Materials:

Text Book:

1. Mathematics for students of economics, C.S. Aggarwal, 12th edition, RC Joshi, New Academic Publishing Co.

Reference:

1. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia, Delhi, 2002.

Course Name : Basics of Law

Course Code : CSU164

Course Instructor : Ms. Anupriya Thakur

Hours: 4+0+0

Credits: 4

Course Description:

This course provides students with an overview of the Indian legal system. It explores the basic concepts of law in society including the different sources of law followed by specific lectures on various branches of law. This course gives an insight in our constitutional and contractual law and teaches the beginnings of legal analysis through case briefing, statutory construction and application of law to fact situations.

Course Content:

Unit-A:

Definition of Law, Nature and scopes of Law, Kinds of Law, Purpose of Law, Source of Law- Custom, Precedent, Legislation, Some other source of law, Law & morals,

Unit-B:

Sanctions, Types of legal Sanctions, Theories of punishment. Making of Indian Constitution, Nature and special features of the constitution, Preamble, Citizenship, Fundamental Rights.

Unit-C:

Directive Principles of State Policy & Fundamental Duties, the President and the Vice President, the Union Judiciary, Parliament, Emergency.

Unit-D:

Contract, Agreement, Essential elements of a contract, offer and acceptance, capacity of parties, free consent, Valid contract, Void and voidable agreements Illegal contracts- there distinction, Consideration, legality of object and consideration.

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe the source of law
- Acquire adequate knowledge of the basic concepts of laws
- Properly define and discuss legal issues of general concern.
- Implement basic legal principles and explain fundamental legal terms.
- Use analytical skills when applying substantive law to fact situations.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Search legal information from different sources.
- Identify the elements of a contract and legal issues
- Identify the role of the Constitutional Law and the fundamental rights
- Apply the fundamentals in their daily affairs of their life.

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house, practical
- 3 Assignments
- 3 Quizzes/Tests

Grading:

Internal assessment		-	50%
• Assignments	10%		
• Quizzes	5%		
• Attendance	5%		
• In-house Practicals	10%		
• Mid-term exam	20%		
End Term Exam		-	50%

Required Books and Materials:

Text Book:

- Jurisprudence Legal Theory by Dr. B.N.Mani Tripathi
- Constitutional Law of India by Narender Kumar
- Indian Contract Act by R.K.Bangia



### Semester-III

Course Name : Macro Economics

Course Code : BL215

Course Instructor : Dr. (Ms.) Kesari Singh

Hours: 3+0+0

Credits: 3

#### Course Description:

This course would expose the students to the functioning of an economy, as a whole. After completing the course, the students would have adequate knowledge of key concepts like national income and accounting, multipliers, demand side & supply side economics, unemployment, monetary & fiscal policy interventions, and inflation. The students would be taught to critically engage in relevant policy debates.

#### Course Contents

##### Unit –A: Introduction to Macroeconomics

- Overview
- How Economists think
- The logic of Macroeconomics
- Measuring the Economy – National Income and Accounting

##### Unit –B: Approaches to Income and Employment

- The Classical Theory of Income and Employment
- Role of Money, Inflation, and Unemployment
- Effective Demand Approach to Income and Employment by Keynes

### Unit –C: Consumption and Investment

- Consumption- Consumption function, psychological law of consumption
- Investment- Types and determinants
- Investment Multiplier
- Inter-temporal Choice

### Unit –D: Policy Framework

- Aggregate Demand- IS and LM framework
- Aggregate Supply
- Policy Choice – Fiscal, Monetary

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Identify the measurement of macroeconomic aggregates such as GDP- real and nominal, national income.
- Evaluate the classical thoughts on income, output and employment and role of money.
- Illustrate the basis of consumption and investment decisions in the economy.
- Describe the working of aggregate demand and aggregate supply and its importance in an economy
- Analyze the effect of macroeconomic policies with regard to real GDP growth, unemployment rate and the rate of inflation.
- Illustrate the effect of implementing expansionary and contractionary monetary and fiscal policies during recession or inflation in the economy.

#### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Convert nominal variables to real variables.
- Evaluate current economic issues and their impact on business activities
- Understand and discuss the impact of inflation and recession
- Analyze and critique macroeconomic policy initiatives

- Understand and interpret discussions on macroeconomic issues in Economic Times and TV Channels

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Videos and case studies to understand the application of economics concepts
- Case study discussions
- 8 Assignments
- 3 Quizzes and surprise tests based on subject matter
- Discussions on current Macroeconomic Policy Initiatives and Economic Survey

Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

1. Mankiw, G. N. (2013). 'Macroeconomics' New York: Worth Publishers.
2. Macroeconomic Theory by M.L. Jhingan., Varinda Publications (P) Ltd. Delhi.

References:

1. Mankiw, G. N. (2012). Brief Principles of Macroeconomics (6th ed.). Mason, OH: South-Western Cengage Learning.
2. Branson, W. H. (2005). Macroeconomic Theory and Policy (3rd ed.). New Delhi: East-West Press.
3. Dwivedi, D. N. (2010). Macroeconomics (3rd ed.). New Delhi: Tata Mcgraw Hill Education Pvt Ltd.

4. Froyen, R. T. (2014). *Macroeconomics: Theories and Policies* (10th ed.). New Delhi: Pearson Education.

Course Name : Marketing Management

Course Code : BL211

Course Instructor : Dr. Dipanker Sharma

Hours: 4+0+0

Credits: 4

#### Course Description:

This course aims at introducing the basic concepts of marketing in order to build a strong foundation for marketing concepts. The course builds practical skills in introducing marketing management, marketing environment, buying behavior, marketing mix concept & sales management. It aims at equipping the students with knowledge of marketing mix with special focus on product, price, place & promotion. The course will also equip students with knowledge on contemporary issues in marketing. The students will also learn the concept of emerging marketing in reference to Rural Marketing.

#### Course Content:

##### Unit-A Understanding the Marketing Process and Segmentation

- Core concepts – Needs, wants, demands, product, exchange, philosophies
- Marketing environment
- Consumer behavior
- Segmentation

##### Unit-B: Targeting, Positioning and and Marketing Program

- Targeting
- Positioning
- Marketing mix
- Sales Management
- Product, product dimensions, new product development

##### Unit-C: Pricing Strategies, Promotion and communication

- Pricing & pricing strategies
- Place Decisions & Integrated marketing communications
- Promotion Mix

## Unit D: Branding, Current Scenario, dynamics and Rural Marketing

- Contemporary Issues in marketing
- Consumerism and legal aspects of marketing
- Emerging marketing (Rural Marketing)

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in marketing
- Become aware of marketing as open system
- Understand the complexities of human behavior in marketing
- Know how target markets are selected & positioned
- Realize the basic pillars on which marketing is built
- Understand concepts in marketing mix
- Develop insight of Logistics & marketing communications.
- Understand the concept & practices in brand management.
- Gain knowledge on contemporary issues and Rural Marketing

#### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior
- Develop target markets & facilitate sales
- Develop appropriate mix of product, pricing, place & promotion

- Use concepts in brand management
- Assist in development of independent marketing strategy.
- Succeed in dynamic Market condition
- Market effectively in Rural segment

Methodology:

- 45 lectures to discuss the theoretical concepts
- 5 case studies
- 8 Assignments
- 1 Project

Required Books and Materials:

1. Philip Kotler, Keller, Koshy and Jha, "Marketing Management," 14e, Pearson Education, New Delhi

Reference Book:

1. Michael J Etzel, Bruce J Walker, William J Stanton and Ajay Pandit, "Marketing," Tata McGraw Hill, New Delhi

Course Name : Industrial Economics

Course Code : COM(H)301

Course Instructor : Dr. Dipanker Sharma

Hours: 4+0+0

Credits: 4

Course Objectives:

Students after having taken this course would be expected:

- To understand the crucial role of strategic thinking in firm decision making.
- To apply theoretical micro-economics methods to understand firms' and regulators' decisions.
- To have a thorough understanding of game theory and its application in industrial economics.

- To understand current themes in the industrial economics literature.

#### Course Contents:

##### Unit-1

Foundations of Industrial Economics and Game Theory.

##### Unit-2

Firm Theory – Economies of Scale & Scope, Existence of Firms, Firm Size, Integration, Shareholders, and Managerial Decision Making.

##### Unit-3

Market Power, Monopoly and Dominant Firms, Non-linear Pricing, Price Discrimination, Benefits of Monopolies.

##### Unit-4

Oligopoly Pricing, Cournot Duopoly, Bertrand Paradox, Cartels and Collusive Oligopoly, Product Differentiation, Concentration and HHI index.

##### Unit-5

Strategic Behaviour, Entry Deterrence, Advertising, Research and Development, Vertical Integration, Regulation.

#### Text Books:

1. Church, J., and Ware, R. (2000) Industrial Organisation: A Strategic Approach. McGraw-Hill
2. Dixit, A., Skeath S., and Reiley, D.H. (2010). Games of Strategy, Viva Books.
3. Barthwal, R.R. (2014). Industrial Economics 3rd Ed. New Age International Publishers



Course Name : Financial Management

Course Code : BL214

Course Instructor : Mr. Nitin Gupta

Hours: 3+1+0

Credits: 4

Course Description:

This course is designed to be the foundation course in the area of finance. The course is concerned with the managerial decisions that result in financing of short term and long term credits for the firm. This course develops the tools required to analyze these decisions and their interaction within the financial system. It deals with theories of modern finance and develop the familiarity with the analytical techniques applied in financial decision making. The course will broadly deal in Valuation, Dividend policies, Capital structure and working capital management. It helps students understand how decisions today affect the future flows of income and how both timing and risk determine the current value of these future flows.

Course Content:

#### Unit-A: Capital Budgeting

- Scope and objective of financial Management
- Time value of money
- The Capital Budgeting Process
- Cash flow Estimation
- Payback Period Method
- Accounting Rate of Return (ARR)
- Net Present Value (NPV)
- Profitability Index
- Internal Rate of Return (IRR)
- MIRR or Net Terminal Value

#### Unit-B: Cost of Capital and Financing Decisions

- Estimation of components of cost of capital
- Equity capital and external & internal retained earnings
- Debt and Preference Capital
- Weighted average cost of capital (WACC) and marginal cost of capital
- Sources of long-term financing:
  - o Capital structure
  - o Determinants of capital structure
  - o Operating and financial leverage.

#### Unit-C: Dividend Policy and Valuation

- Concept of return and Risk

- Valuation of securities
  - o Bonds and Equities
- Dividend Decisions:
  - o Relevance and irrelevance of dividend decisions
  - o Dividend policy in practice
  - o Walter's Model
  - o Gordon's Model
  - o MM Model

#### Unit-D: Working Capital Management

- Working Capital Decisions:
  - o Concepts of working capital
  - o Sources of short-term finance
  - o Measurement of operating cycle
  - o Receivables management
  - o Inventory management
  - o Cash management

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Differentiate between wealth maximization and Profit maximization.
- Understand the significance of the concept of time value of money.
- Know the characteristics of major financial instruments (shares, debentures, bonds)
- Assimilate the basics behind capital budgeting and cost of capital
- Appreciate the impact of capital structure on the risk and return aspect of a firm
- Make out the advantages and disadvantages of operating and financial leverages
- To understand the impact of dividend theory and policy on valuation of firm.
- To understand the sources of finance, cash management, Accounts receivable and inventory management.

##### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others
- Compare projects or investment options by calculating the present values of cash flows.
- Check project feasibility through other methods like Pay-back method, ARR, IRR etc.
- Compute cost of debt and cost of equity and WACC
- Apply degrees of operating and financial leverages to understand risk types

Methodology:

- 45 participative lectures to set in conceptual clarity
- Problems and case studies to fix contextual clarity of concepts as applied
- 8 Assignments
- 3 Quizzes
- Anything that is relevant for the course

Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

3. Financial Management by I M Pandey, Vikas Publishing House Pvt. Ltd., New Delhi

Reference Book:

1. Financial Management- Theory and Practice by Shashi K Gupta and RK Sharma, Kalyani Publishers, Ludhiana

Semester IV

Course Name : Corporate Auditing

Course Code : BL221

Course Instructor : Vijay Kumar

Hours: 3+0+0

Credits: 3

Course Description:

The purpose of this subject is to impart to students an understanding of auditing, as it is through audit that one can see the soundness of commercial and non-commercial concerns. Keeping in mind the complexities and problems faced in the field of auditing the subject uses an easy, simple approach for acquainting and imparting basic knowledge relating to various types of audit and their importance to a business.

Unit –A:

Introduction: meaning, objects, basic principles and techniques. Classification of Audit. Audit Planning. Internal Control – internal check and internal audit.

Unit –B:

Audit Procedure – vouching and verification of assets & liabilities.

Unit –C:

Audit of Limited Companies:

(i) Company Auditor: qualifications and disqualifications, appointment,

removal, remuneration, rights, duties and liabilities.

(ii) Audit Committee

(iii) Auditor's Report: contents and types. Auditor's certificates

Unit –D:

Special areas of audit: special features of cost audit. Tax audit and management audit. Recent trends in auditing: Basic considerations of audit in EDP. Environment. Relevant Auditing and Assurance Standards (AASs).Relevant Case Studies/Problems.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define Auditing and its objectives.
- Explore the various types of audit and outline the advantage of having a good audit mechanism to a concern.
- Develop an understanding of Internal Control, Internal Check and Internal Audit.
- Explain the basic concepts relating to auditing like vouching, verification, investigation etc.
- Define Auditor and explore the role of auditor with respect to various types of audit.
- Enumerate the various Auditing Assurance Standards (AAS).
- Outline the role of regulator with respect to Government and other statutory audits.

2. Skill Outcome:

- Prepare an Audit Program for a small enterprise.
- Adapt and develop any of the specific audit program at any stage of their life depending on the special requirements of a business concern.

Methodology:

- 42 lectures to discuss the theoretical concepts
- 1 Case Study to understand practical aspects of auditing
- 1 Group Discussion
- 4 Assignments on various concepts
- 4 Surprise quizzes
- Discussion Forums

Grading:

Internal Assessment –	-50%
i. Assignments & Surprise Quizzes	8%
ii. Group Discussion & Case study	7%
iii. Attendance	5%
First Sessional	-15%
Second Sessional	-15%
Final Exam	-50%

Required Books and Materials:

Text Book:

2. Auditing Theory and Practice by Pardeep Kumar, Baldev Sachdeva and Jagwant Singh; Kalyani Publications.

References:

1. Auditing by Basu, Pearson Publications.
2. Auditing by Vikas Publications

Course Name : Management Accounting

Course Code : BL223

Course Instructor : Mr. Vijay Kumar

Hours: 3+1+0

Credits: 4

Course Description:

To provide the students' knowledge about use of costing data for planning, control and decision making.

Course Content:



Unit-A: Management Accounting: meaning, nature, scope and functions of management accounting, ratio analysis, liquidity ratios, efficiency ratios, profitability ratios and advantages of ratio analysis.

Unit-B: Funds flow statement as per Indian accounting standards; cash flow statement

Unit-C: Budgeting and budgetary control: Concept of budget and budgetary control objectives, merits, and limitations, Budget administration, Functional budgets, Fixed and flexible budgets, Zero base budget, programme and performance budgets.

Unit-D: Standard costing and variance analysis: Meaning of standard cost and standard costing: advantages, limitations and applications, Variance analysis – material, labour, overhead and sales variances, Disposition of variances, Control ratios.

Responsibility accounting: meaning and definition of responsibility accounting, types of responsibility centers, selection of transfer pricing method, advantages of responsibility accounting.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Differentiate between cost accounting and management accounting.
- Understanding of BEP and PV ratio.
- Importance of BEP and its use by the management.
- Budgetary control and its impact on the company.
- Prepare funds flow statement and cash flow statement.
- Importance of ratios in understanding of financial statements.

2. Skill Outcome:

- Calculation of BEP both numerically and graphically.
- Understanding of financial statements and use of financial ratios of the same.
- Understanding the concept of management accounting.
- Calculation of material control
- Budgetary control.
- Preparation of funds flow statement and cash flow statement

#### Methodology:

- 45 lectures to discuss the theoretical concepts.
- 15 tutus
- In house practical
- 3 Quizzes/tests. Grading:

#### Grading:

Internal assessment – - 50%

- |      |                    |       |
|------|--------------------|-------|
| i.   | Assignments        | 10%   |
| ii.  | Quizzes            | 5%    |
| iii. | Attendance         | 5%    |
| iv.  | In house practical | 10%   |
| v.   | Mid-term exam      | 20%   |
|      | End Term Exam      | - 50% |

#### Required Books and Materials:

Text Book:

1. Shashi K Gupta, R.K. Sharma, "Management Accounting, Kalyani Publishers, Jalandhar.
2. Management Accounting, Concepts and Strategic costing Decisions by Kanhaiya Singh of Wiley Publication

Reference Book:

1. Horngreen, Charles T., Gary L. Sundem, "Introduction to Management Accounting", Prentice Ha

Course Name : Agricultural Economics

Course Code : ECON (H) 324

Course Instructor : Dr. Y.S. Negi

Hours: 4+0+0

Credits: 4

Course Objective:

This course is designed to give students an exposure to the field of agricultural economics, with an emphasis on the use of basic economic tools as applied to the field of agriculture. The course is expected to make students confident of the validity of economic tools in applied fields and also their utility in analyzing the unique field of agriculture and agribusiness. A thorough understanding of the course would make the students a better analysts and planners in the field of agriculture.

Course Contents:

Unit-1

Introduction to the field of Agricultural Economics; the concept of economic systems with special reference to Physiocracy; Agriculture in Indian economy; the concept of utility, demand and elasticity of demand; factors affecting elasticity of demand and the practical importance of elasticity of demand; the concept of supply, supply elasticity and its importance in agriculture.

Unit-2

Costs and their types, with emphasis on farm management costs; Fundamentals of production economics, linear and quadratic production functions; Use of production function technique to find out the optimal use of input of resources; Depreciation- concept and methods to estimate depreciation; the concept of Time value of money; Project planning and evaluation.

### Unit-3

Farm business analysis, planning, budgeting, and farm records – their types and importance; Locational decisions in farming, Use of linear programming techniques in farm decision making; Agricultural credit and its importance and problems in acquisition; Handling risk and uncertainty in agriculture.

### Unit-4

Market and market equilibrium, basis of classification of agricultural markets; Market regulation, Determination of equilibrium price and quantity of a product by a firm under different market conditions; the concept of Market Structure, Conduct and Performance, the concept of Marketing channels, costs, margins and producer's share; marketing efficiency.;

### Books

- Subba Reddy, S, Raghu Ram, P., Sastry, T.V.N. and Bhavani Devi, I. (2009). Agricultural Economics. Oxford & IBH Publishing Co., Pvt. Ltd., New Delhi
- Johal and Kapoor (2015). Fundamentals of Farm Business Management. Kalyani Publishers.
- Kahlon, AS and Karam Singh. Economics of farm management in India: Theory and practice. Allied Publishers, New Delhi.

Acharya, SS and NL Agarwal. Agricultural Marketing in India, CBS Publishers and Distributors

Course Name : International Economics

Course Code : ECON (H)-222

Course Instructor : Dr. Y.S. Negi

Hours: 4+0+0

Credits: 4

#### Course Objectives:

This course would expose the students to the various economic theories governing international trade. The students would get a thorough grounding in key concept areas like gains from trade, trade regulatory bodies and policies, exchange rates, balance of payments, trade blocks, multilateral trade agreements, and globalization.

#### Course Content

##### Unit-1

Reasons for trade; globalization – meaning and implications; historical development of modern trade theories; theories of absolute cost advantage; comparative cost advantage and gains from trade

##### Unit-2

Sources of comparative advantage; the modern theory of factor endowments - Heckscher-Ohlin theory; the factor intensity reversals – the Stolper-Samuelson theory; effect of factor endowment changes on trade

##### Unit-3

Trade barriers – tariff and non-tariff trade barriers; welfare effects of tariffs; dumping; PLC theory; regional blocks; and multinational enterprises; WTO

##### Unit-4

Balance of payments; exchange rates and exchange-rate determination, exchange-rate adjustments and balance of payments; International banking - the World Bank, IMF, ADB; and contemporary issues in the field

#### Required Books

##### Text Book:

2. Carbaugh, Robert J. (2008). International Economics (11th ed.). Mason, OH, USA: Thompson South-Western.

##### References Books:

4. Jhingan, ML (2009). International Economics. New Delhi: Vrinda Publications.

5. Krugman, P. R., & Obstfeld, M. (2008). International Economics (8th ed.). New Delhi: Pearson Education.

Semester V

Course Name : Research Methodology

Course Code : BL313

Course Instructor : Dr. Sakshi Sharma

Hours: 3+1+0

Credits: 4

Course Description: The objective of this course is to develop the research skills of the students in investigating into the business problems with a view to arriving at objective findings and conclusions and interpreting the results of their investigation in the form of systematic reports.

Course Content:

Unit-A:

Introduction to Research: Types of Research, Research Approaches: Qualitative and Quantitative, Research Methods vs Methodology, Process of Business Research, Criteria of Good Research, Problems encountered by researchers in India

Defining the Research Problem: Selecting the research problem, Techniques of defining a research problem

Research Design: Meaning of research design, Need for research design, Important concepts relating to research design, Different types of research designs

Unit B:

Sampling Design: Census and sample survey, Steps in sample design, Criteria of selecting a sampling procedure, Different types of sample designs

Measurement and Scaling techniques: Measurement in research, Measurement scales, Sources of error in measurement, Goodness of measurement scales, Concept of scaling, Scale classification bases, Important scaling techniques, Scale construction techniques

Unit C:

- Methods of Data Collection: Types of observation method, Types of interview methods, Collection of secondary data, Collection of data through questionnaires, Selection of appropriate method for data collection

- Processing and Analysis of Data: Processing operations, Types of analysis, Descriptive statistics in research, Inferential statistics in research

## Unit D:

Testing of Hypothesis: Basic concepts concerning hypotheses, procedure for testing hypotheses, Important parametric tests, important non-parametric tests

Interpretation and Report Writing- Different steps in writing report, Layout of research report, Types of reports, Precautions for writing research reports

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define research
- Understand the roadmap to learn research methods
- Understand the research process
- Get a preliminary idea about the use of software for data preparation and data analysis

#### 2. Skill Outcome:

At the end of the course, the student should be able to:

- apply business research methods for decision making
- design questionnaire for conducting business research
- apply basic statistical methods to interpret information from the data

### Methodology:

This course will be conducted through lectures, assignments, practical exercises, and role playing activities. Students will be given written assignments, practical exercises, and hands on experience. In addition, the course will incorporate the use of multimedia such as videos and power point and a range of practical teaching techniques focused on the students' needs.

### Required Books and Materials:

#### Text Book:

- Kothari, C. R- Research Methodology Methods & Techniques (New Age International Publishers)

#### Reference Book

- Bajpai, N.- Business Research Methods (Pearson), 2011
- Sanders- Research Methods for Business Students (Prentice Hall), Second Edition, 2007

Cooper & Schindler – Business Research Methods (Tata McGraw Hill), Ninth Edition

Course Name : Introductory Environmental Economics

Course Code : ECON (H) 311

Course Instructor : Vijay Kumar

Hours: 4+0+0

Credits: 4

Course Description:

This course will teach the economic analysis of the issues like pollution, the rate of use of renewable and non-renewable resources, conservation of living species and resources and choice of policy to achieve environmental ends. This course will broadly deal in ecological economics, sustainable industrialization, land degradation and sustainable agriculture, human population and environment, resources economics, environmental pollution and disaster management.

Course Content:

- Basic concepts of environmental economics, Introduction to ecological economics
- Economic growth and environment
- Introduction to sustainable industrialization
- Land degradation and sustainable agriculture
- Human population and environment
- Women, religion and environmental human rights
- Resource economics, environmental pollution, control, public awareness and law



- Disaster management

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the basic concepts of environmental economics i.e. environment, natural resources, ecology and ecosystem.
- Understand the economics of recycling and waste management.
- Understand the impact of tourism on environment.
- Understand how green marketing and clean technology is useful for environment.
- Understand how increase in human population is affecting our environment.

2. Skill Outcome:

- Practical implementation of approaches to ecological economics would be easier.
- Will be able to practically implement recycling and waste management techniques into a business model.
- Adoption of clean technology for production
- Will learn optimum utilization of natural resources.
- Will learn practical implementation of pollution controlling techniques.

Methodology:

- 45 participative lectures
- 8 Assignments
- 5 quizzes

Grading:

Internal	–	-	50%
v. Assignments			10%
vi. Quizzes			5%
vii. Attendance			5%

viii.	Case Discussion/Project/Practicals etc	10%	
ix.	Mid-term exam	20%	
	Final exam	-	50%

Required books and materials:

Text Book:

1. Jhingan, M.L. and Chander K. Sharma, “Environmental Economics – Theory, Management & Policy,” Vrinda Publications

Reference Books:

2. Bhattacharya, R.N., “Environmental Economics-An Indian Perspective,” Oxford University Press.

Course Name : Human Resource Management

Course Code : COM(H)322

Course Instructor : Ms. Pooja Verma

Hours: 4+0+0

Credits: 4

Course Description:

HRM is the strategic and coherent approach to the management of an organization’s most valued assets; the people working there, who individually and collectively contribute to the achievement of the objectives of the business. The goal of HRM is to help an organization to meet strategic goals by attracting and maintaining employees and also managing them effectively.

## Course Content:

### Unit-A:

- Human Resource Management: Nature, Scope and Objectives of HRM. Functions of HRM. Future role of HRM. Environment of HRM. Difference between HRM and personnel management. Difference between HRM and strategic HRM.
- Human Resource Planning: Concept and Importance of HRP, Factors affecting HRP, Human Resource Planning Process and techniques of HRP. Benefits and barriers of HRP. Requirements for an effective HRP.

### Unit-B:

- Job Analysis: Meaning, objectives and use of job analysis, Process of job analysis, Methods of Collecting job data for job analysis, Problems of Job Analysis. Job description and job specification.
- Job Design: Concept and Importance of job design, Environmental Influence on the job design, Critical components of job design, Limitations of job design.
- Recruitment: Meaning and factors governing Recruitment, Recruitment process and sources.
- Selection: Meaning and process of Selection. Difference between recruitment and selection.

### Unit-C:

- Induction & Orientation: Concepts, Process, Benefits and Problems associated with Induction and Orientation.
- Training: Introduction, nature and importance of training and development. Difference between training and development. Process and methods of employee training.
- Development: Introduction and significance of management development. Process and techniques of management development.

### Unit-D:

- Performance Appraisal: Concept and objectives of performance appraisal. Performance appraisal process and methods. Benefits of Performance appraisal.
- Discipline and disciplinary action: Characteristics, objectives and types of employee discipline. Symptoms, causes and types of disciplinary action. Steps in establishing a disciplinary action procedure. Elements of a good disciplinary system. Douglas McGregor's Hot Stove Rule of Discipline.

- Employee Grievance: Characteristics and sources of grievance. Techniques of grievance Identification. Grievance procedure stages and essentials.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.
- Understand the significance of training, development and appraisal programs.
- Recognize the best methodology in welfare and security measures for employees.
- Discuss the general guidelines followed for administering discipline in an organization.

2. Skill Outcome:

At the end of the course, the student should be able to:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.
- Effectively run a recruitment and selection program.
- Knowing your employees and look out for their welfare.

To effectively handle discipline among employees

Methodology:

- 45 participative lectures
- 8 Assignments
- 3 Surprise quizzes

Grading:

Internal assessment		-	50%
• Assignments	10%		
• Quizzes	5%		
• Attendance	5%		
• 1st Mid-term exam	15%		
• 2nd Mid-term exam	15%		
End Term Exam		-	50%

Required Books and Materials:

Text Book:

1. Human Resource Management by Pravin Durai

References:

1. Human Resource Management by VSP Rao

Course Code : ECON (H) 316

Course Instructor : Rosey Dhanta

Hours: 3+0+0

Credits: 3

Course Description:

The course is designed to make students perceive the concept of economic development, reasons for differences across nations in the levels of development and approaches to economic development. The course will also introduce students to the basic understanding of game theory and its applications in industrial economics

Course Content:

Unit-A: Foundations of development economics

Economic development – concept and issues, growth v/s development, Developed and developing nations, Sectors of economy and types of Economies, Theory and measurement of National Income, Growth and growth models - Rostow's model, Harrod-Domar model, Wallerstein's world systems model

Unit-B: Approaches to economic development

Sen's approach to economic development, Human Development – an introduction, Human development index, Inequality and measuring inequality – Lorenz curve, The theory of big push – introduction, Theory of balanced growth, Project planning, and evaluation – theory and practice

Unit-C: Globalization and new economic order

Agriculture in economic development, Green Revolution, Globalization, globalization and new economic order, MNEs/MNCs, International organizations – the World Bank, Classic theories of development revisited

Unit-D: Economic reforms and development

Unemployment, Education and economic development, Gender and economic development, Economic reforms in India, Planning process in India - NITI Aayog, Contemporary issues, A comparative look at Indian and neighbouring country economies.

Course Outcome:

1. Knowledge Outcome:

At the end of the course the students would be able to:

- better understand the concept of growth and development,

- understand historical process of economic process and interplay of globalization and development
- understand the considerations in development project planning and their evaluation
- better understand industrial environment and working of industrial sector

Outcome:

At the end of the course, the student should be able to:

- differentiate between growth and development
- use project evaluation tools and get the feeling of the importance of social discount rate

Methodology:

- 45 lectures for conceptual clarity and applicability of the concepts
- Home assignments and participative class discussions
- Quizzes and other exams

Grading:

Internal assessment	-	50%
x. Assignments	8%	
xi. Quizzes, in-class, etc	7%	
xii. Attendance	5%	
xiii. Mid-term exams	30%	
End Term Exam	-	50%

Required Books and Material:

Required Books:

1. Michael P Todaro and Stephen C Smith (2005). Economic Development (8th Ed.) Pearson Education (Singapore) Pte. Ltd., New Delhi.
2. Mishra, SK and VK Puri (2006). Economic Development and Planning – Theory and Practice. Himalaya Publishing House, New Delhi.

Reference Books:

1. Carbaugh, Robert J. (2008). International Economics (11th Ed.). Mason, OH, USA: Thompson South-Western.

2. Singh, Ramesh (2015). Indian Economy (7th Ed.) McGraw Hill Education (India) Private Limited, New Delhi.
3. Mankiw, G.N. Macroeconomic Theories and Practices. New York, Worth Publishers.
4. Dwivedi, D.N. Managerial Economics (7th Ed.). Vikas Publishing House Pvt. Ltd., New Delhi
5. Shapiro, Edward; Macroeconomic Analysis (5th Ed.). Galgotia Publications Pvt. Ltd., New Delhi.

## Semester VI

Course Name : Stock markets and Investment

Course Code : BL 321

Course Instructor : Mr. Amar Rao

Hours: 3+0+0

Credits: 3

### Course Description

To familiarize students with different investment alternatives, introduce them to the framework of their analysis and valuation and highlight the role of investor protection.

### Course Contents:

#### Unit-A: The Investment Environment

The investment decision process, Types of investments – commodities, real estate and financial assets, the Indian securities market, the market participants and trading of securities, security market indices, sources of financial information, concept of return and risk, impact of Taxes and inflation on return.

#### Unit-B: Fixed Income Securities

Bond features, types of bonds, estimating bond yields, types of bond risks, default risk and credit rating.

#### Unit-C: Approaches to Equity Analysis

Introduction to fundamental analysis, technical analysis and efficient market hypothesis, dividend capitalization models, and price earnings multiple approach to equity valuation.

#### Unit-D: Portfolio Analysis and Financial Derivatives:



Portfolio and diversification, portfolio risk and return. Commodities, real estate, and mutual funds. Introduction to financial derivatives, financial derivatives markets in India.

SEBI & role of stock exchanges in investor protection, investor grievances and their redressal system, insider trading, investors' awareness and activism.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Students will know about types of investments.
- Students will get exposure to fundamental analysis and technical analysis
- Students will learn about portfolio and diversification, portfolio risk and return

2. Skill Outcome:

- Where to invest
- What types of investments are available
- How to choose securities based on fundamental analysis as well as technical analysis
- Choose right portfolio with risk and return

Methodology:

- 45 participative lectures to discuss the theoretical concepts and applications
- 3 case studies or problem sets
- 3 Assignments based on case studies or subject matter
- 3 Quizzes based on subject matter

Grading:

Internal assessment –	-	30%
xiv. Assignments	10%	
xv. Quizzes	5%	
xvi. Attendance	5%	
xvii. Class Participation	10%	
Mid-term exam	-	20%
Final exam	-	50%

## Required Books and Materials:

### Text Book:

1. Financial Management by IM Pandey-Ninth Edition.
2. Investment analysis and portfolio management, Reily/Brown, 9th edition

### Reference:

1. Jones, C. P., "Investments Analysis and Management", Wiley, 8th Edition

Course Name : Gender and Economics

Course Code : ECON(H)321

Course Coordinator : Dr. (Ms) Kesari Singh

Hours: 4+0+0

Credits: 4

### Course Description:

This is a basic course on the gender issues and dimensions in economic development. The course consists of an overview of the gender differentials in various aspects of economic development. These include gender inequality, its causes and effects, work force participation and gender pay gap, its determinants and effects, decision making and changing status of women in India. The course will help students understand the nature of economic role of women and their contribution the economy. Further, the knowledge of gender issues in the economy will also help them analyse the policy initiatives taken to address the gender issues in India.

### Course Content:

- Gender and Economics- An Overview
- Gender and Economic Development

- Gender Inequality
- Women and Decision Making
- Women and Labor Force Participation
- Wage Differentials
- Social Security and Social Protection for Women
- Gender Development Policies and Governance

#### Unit-1: Gender and Economics- An Overview

- General Overview
- Gender and Economic Development
- Gender and Human Development
- Gender and Demographic Trends
- Importance of Women Studies
- Development Indices and WID-WAD-GAD

#### Unit-2: Women and Decision Making

- Factors Affecting Decision-making by Women
- Role of Voluntary Organizations, Self-help Groups
- Review of Legislation for Women's Entitlements, Protection of Property Rights and Social Security.
- Power of Decision-Making at Household Levels, Class and Community Levels

#### Unit-3: Women, Labor Force Participation and Wage Differentials

- Concept and Analysis of Women's Work-Paid and Unpaid Work
- Visible and Invisible Works Imperfect competition
- Participation of Women- Sectoral Overview
- Wage Differentials
- Determinants of Wage Differentials in India

#### Unit-4: Social Security, Gender Planning, Development Policies

- Social Security of Women
- Entitlements, Ensuring Economic Independence and Risk Coverage
- Access to Credit and Insurance Markets

- Role of Voluntary Organizations and SHGs in Providing Social Security.
- Labour Market Biases and Gender Discrimination
- Review of Legislations for women's Entitlements
- Gender and Development Indices
- Gender Sensitive Governance
- Paradigm Shifts from 'Women's Wellbeing' to 'Women's Empowerment'

Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the concepts in Gender economics.
- Clearly identify the role and contribution of women in economic development
- Get knowledge about the gender issues in economic development with special reference to India
- Learn the issues in labour market and identify the determinants.
- Understand the provisions and legislations regarding women security and gender policies.

#### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Explain the need for gender studies and gender economics
- Discuss concepts in gender economics
- Analyse gender biases in economic thinking
- List the factors responsible for women's decision making
- Describe the reasons for non-accountability of women's work
- Explain the determinants of wage differentials in Indian context.
- Analyze the social security measures provided to women to improve their economic status
- Illustrate the women's accessibility to credit facilities
- Understand the role of voluntary organizations for social security of women

Methodology:

- 45 participative lectures to discuss the theoretical concepts

- Videos and case studies to understand the application of economics concepts
- Case study discussions
- 8 Assignments
- 3 Quizzes based on subject matter

Required Books and Materials:

TEXT BOOK:

4. Economics of Gender and Development by Dr. Vibhuti Patel

OTHER REFERENCES:

2. World Bank and UNDP Reports

Course Name : Income Tax Law and Practices

Course Code : BL213

Course Instructor : Mr. Vijay Bhardwaj

Hours: 4+0+0

Credits: 4

Course Description:

This course will simplify the understanding of INCOME TAX and its practical understanding of the LAW and making it is to Save TAX

Course Content:

Unit-A:

Introduction of INCOME TAX, Basic Concepts, Difference between Revenue and Capital, Basis on which TAX is imposed and Exempted Income

Unit-B:

Understanding types of INCOME, Income from Salaries, and Income from House property.

Unit-C:

Profits and Gains of Business and Profession I and Understanding Depreciation, capital Gains, Income from other Sources. Aggregation of Income

Unit-D:

Set Off and Carry Forwards, Deductions to be made in computing Income, Double Taxation relief

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define different terms used in Income Tax.
- Will be able to recognize the nature of a transaction and rules to treat the same under Income tax act.
- Differentiate between types of income and sources of income for an individual.
- Types of heads of income.
- Deductions available for an individual under income tax act.
- Rules laid down to calculate the sources of income under different heads.
- Calculate income from Salaries, House property, capital gains, Business and Profession, and Income from other sources.
- Powers and procedures laid down by the act and its applications.

## 2. Skill Outcome:

- Will be able to calculate the income of an Individual.
- Will be able to apply rules laid down under income tax act to save tax.
- Knowledge about deductions and exemptions available for an individual under income tax act.
- Can define tax avoidance, tax evasion and tax management
- File an ITR of an Individual.
- Knowledge about different forms and their usage.

## Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house practical
- 3 Assignments
- 3 Quizzes/tests.

## Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	

• Attendance 5%

End Term Exam - 50%

Required Books and Materials:

Text Book:

1. V.P. Gaur, D.B. Narang ,Puja Gaur .,Income Tax Law and Practices , Kalyani Publishers

Reference Book:

1. Income Tax by Taxman Publishers

Course Name : Himalayan Sustainability

Course Code : ECON(H)325

Course Instructor : Rozy Dhanta

Hours: 4+0+0

Credits: 4

Course Description:

Himalayan Sustainability course is course designed to showcase Himalayan diversity from three themes i.e environment, livelihood and culture. This course is designed for students interested in developing a broad understanding of Himalayan region covering topics from eastern, central and western Himalayas. The course provides the biological, cultural and livelihood diversity within Himalayas. By the end of the course the students will have well-rounded understanding of the important Himalayan issue, challenges and ways to create long term sustainability.

Course content:



Unit I:Himalayan Diversities: Environments, livelihoods and cultures: Scale and Scope of Himalayan Chain: Defining the region: Why the Hindu-Kush Himalaya matters, challenges and opportunities for sustainable mountain development. Environmental History: Severe impact of the climate change in Himalayas; Pursuing environmental History on India's Himalayas: Challenges and rewards. Enhancing the ecosystem services of Hindu Kush.

#### Unit II:

Cultural Diversity: Culture and the politics of caste in the Himalayan Kingdom, Linguistic diversity and the preservation of endangered languages. Himalayan religion in comparative perspective

#### Unit III:

Biological Diversity: Biodiversity in Himalayas, the status and distribution of freshwater biodiversity, the Himalayan amazing biodiversity; Drivers of change in biodiversity and ecosystem services: Climate change impact and vulnerability, impact of environmental change in biodiversity: Natural environment.

#### Unit IV:

Environment, development and sustainability: Concept of sustainability, sustainable development and its different constituents. Drivers of ecological changes and its implication for society. Landscapes and livelihoods: sustainable Agricultural system; land use change in Himalaya and their impacts, agriculture sustainability, patters and ecological implication of agricultural land-use changes.

#### Suggested Readings:

1. The Word Himalaya; The Environs and Native Names of Mount Everest,
2. Himalayas: Two Continents Collide; Mount Everest;
3. Climbing Mount Everest: Postcolonialism in the Culture of Ascent.
4. Cultural Diversity, Biological Diversity, Landscape and Livelihoods, Change, Sustainable Futures

5. Makofske, W.J. and Karlin, E.F., 1995, Technology and Global Environmental issues, Addison Wesley, Longman, Toronto.
6. Toman (Michael) (Ed.), 2002, Climate change, Economics and Policy, Cambridge University Press. Welford, R., 2000, Corporate Environmental Management: Towards Sustainable Development, Book 3, Earthscan Publications Ltd, London.
7. Tietenberg, T., 2003, Environmental and Natural Resource Economics. Pearson Education, New York.
8. Greenough, Paul and Anna Lowenhaupt Tsing (Eds.) Nature in the Global South: Environmental Projects in South and Southeast Asia. Durham and London: Duke University Press: pp. 201-230.

#### Semester-I

Course Name : Linguistics & Structure of English

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the Structure of English language
- Discuss various organs that are responsible for speech production and articulation
- Understand thoroughly the structure of the language.

2. Skill outcome:

At the end of the course, the student would be able to:

- Discuss the structure of English language.
- Discuss various speech organs.
- Discuss the core of this foreign language which is complex in itself.

Course Name : Popular Forms of Drama

Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspects of English Drama;
- Demonstrate understanding of critical and theoretical debates surrounding Dramatic studies at advanced undergraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to English Drama;

3. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by playwrights at advanced undergraduate level;
- Demonstrate research and essay writing skills appropriate to advanced undergraduate level.

Course Name : History of English Literature

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the History of English Literature
- Discuss all great events that had happened in the History of English Literature
- Understand the factors that had influence the World Literature so far.

2. Skill outcome:

At the end of the course, the student would be able to:

- Discuss all the events if English Literature.
- Discuss various movements that had influenced English Literature.
- Discuss about all the Great Scholars those who had contributed to English Literature.

## Semester II

Course Name : Introduction to IT Tools

Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basics about computers, History of computers, essential components and applications of computers in business.
- Understand various types of computer software and latest trends in information technology.
- Understand the importance and usage of word processing software.
- Understand the importance, usage and applications of spreadsheet software in business.
- Understand the importance, usage & applications of presentation software.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges
- Write formulas, calculate values and organize results
- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

Course Name : Popular forms of poetry

Course Outcome:

### 1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different forms of Poetry.
- Discuss about different poets of different ages and their form of poetry.
- Understand the minute things about poetry and poetic diction.

## 2. Skill outcome:

At the end of the course, the student would be able to:

- Describe all the literary style and forms of poetry.
- Describe type of forms used by prominent poets of different ages.
- Describe about all the Great Scholars those who contributed to English Poetry.

Course Name : History of English Literature

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the History of English Literature
- Discuss all great events that had happened in the History of English Literature
- Understand the factors that had influence the World Literature so far.

Skill outcome:

At the end of the course, the student would be able to:

- Discuss all the events of English Literature.
- Discuss various movements that had influenced English Literature.
- Discuss about all the Great Scholars those who had contributed to English Literature.

Course Name : Language Lab

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the Structure of English language



- Discuss various organs that are responsible for speech production and articulation
- Understand thoroughly the structure of the language.
- To understand the structure of English language.

Skill outcome:

At the end of the course, the student would be able to:

- To pronounce words properly.
- Discuss the structure of English language.
- Discuss various speech organs.
- Discuss the core of this foreign language which is complex in itself.

Semester III

Course Name : Indian Vernacular Literatures

Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspects of Indian writing;
- Demonstrate understanding of critical and theoretical debates surrounding Indian writing at advanced undergraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to Indian writing;

4. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by Indian writers at advanced undergraduate level;
- Demonstrate research and essay writing skills appropriate to advanced undergraduate level.

Course Name : Forms of Popular Fiction

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different forms of fiction
- Discuss the main forms of fiction.
- Understand the works introduced to them.

Skill outcome:

At the end of the course, the student would be able to:

- Understand the different forms of fiction
- Discuss the main forms of fiction.
- Understand the works introduced to them.

Course Name : Postcolonial Literatures

Course outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the psychology of postcolonial literature
- Discuss the literature and its feature.
- Understand the works introduced to them.

2. Skill outcome:

At the end of the course, the student would be able to:

- Understand the psychology of postcolonial literature
- Discuss the literature and its feature.
- Understand the works introduced to them.

Course Name : Women Writing

Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspects of women's writing;
- Demonstrate understanding of critical and theoretical debates surrounding women's writing at advanced undergraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to women's writing;

Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by women at advanced undergraduate level;
- Demonstrate research and essay writing skills appropriate to advanced undergraduate level.

## Semester IV

Course Name : Literary Forms & Practical Criticism

Knowledge outcome:

At the end of the course, the student should be able to:

- Able to understand the literary devices in detail
- Write formal and informal responses to literary and critical theory that demonstrate engagement, reflective thought, effective inquiry, perception of patterns in language features, and responsible generalization

5. Skill outcome:

At the end of the course, the student would be able to:

- Recognize and critique the argument underlying literary terms.
- Apply selected theories to specific literary works.

Course Name : Early British Literature 900-1700

Knowledge outcome:

At the end of the course, the student should be able to:

- Demonstrate awareness of the scope and variety of works of literature.
- Understand works of literature as expressions of individual and human values within an historical and social context.
- Respond critically to the works.
- Develop an appreciation for the aesthetic principles that guide or govern the works.
- Demonstrate knowledge of the influence of literature on intercultural experiences.

6. Skill outcome:

At the end of the course, the student would be able to:

- Discuss all the literary style and British English literature.

- Discuss about all the Great Scholars those who had contributed to British literature.

### Semester V

Course Name : Global Literature in Translation

Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspect of Global writing in English;
- Demonstrate understanding of critical and theoretical debates surrounding Global writing at advanced undergraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to Global literature;

Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by various writers at advanced undergraduate level;
- Demonstrate research and essay writing skills appropriate to advanced undergraduate level.

Course Name : Indian Literatures in English

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different themes present in Indian writing.
- Discuss the Terms and forms of Literature
- Understand the works introduced to them.

Skill outcome:

At the end of the course, the student would be able to:

- Critically analyze the writings of Indian writer and their themes.
- Discuss the psychology of the characters and themes present in the novel
- Understand the style of Indian writing and English

Course Name : The Novel

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different themes present in women's writing.
- Discuss the feminism and its feature.
- Understand the works introduced to them.

Skill outcome:

At the end of the course, the student would be able to:

- Critically analyze the writings of feminist writer and their themes.
- Discuss the psychology of the characters and theme of gender and sexuality in the novel
- Understand the works introduced to them.

Course Name : Great Books

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different themes present in the Novels
- Discuss the Terms and forms of Literature and historical background
- Understand the works introduced to them.

Skill outcome:

At the end of the course, the student would be able to:



- Critically analyze the writings of writers and their themes.
- Discuss the psychology of the characters and themes present in the novel
- Understand the style and theories related with different Novels.

Semester VI

Course Name : Global Cinema

Knowledge outcome:

At the end of the course, the student should be able to:

- To engage productivity in the collaborative process.
- To build intellectual and aesthetic understanding of the craft and technique of theatre arts.
- To develop an appreciation of and respect for the various roles/aspects inherent within the theatrical process.
- To explore the diversity of theatre and its intersection with community, culture and society.
- To produce diverse productions that challenge students and engage the university community.

Skill outcome:

At the end of the course, the student would be able to:

- Work in collaborative/artistic ensembles; specifically enhancing skills of listening/respect towards others.
- Possess a broad appreciation for theatre arts – in theory, performance, and production, traditional and global standpoints.
- Exhibit a fundamental working knowledge of the basic areas of theatre art (acting, directing, design, voice, etc.)
- Process and maintain a basic knowledge of the history, origin and tradition of theatre as an art form.
- Articulate theatrical knowledge of the basic areas of theatre (acting, directing, design and voice etc.) in both written and oral communication forms.

Course Name : American Literature

Knowledge outcome:

At the end of the course, the student should be able to:

- Identify key ideas, representative authors and works, significant historical or cultural events, and characteristic perspectives or attitudes expressed in the literature of different periods or regions.
- Analyze literary works as expressions of individual or communal values within the social, political, cultural, or religious contexts of different literary periods.

Skill outcome:

At the end of the course, the student would be able to:

- Demonstrate knowledge of the development of characteristic forms or styles of expression during different historical periods in different regions.
- Articulate the aesthetic principles that guide the scope and variety of works in the arts and humanities.
- Write research-based critical papers about the assigned readings in clear and grammatically correct prose, using various critical approaches to literature.

Semester I

Course Name : Role of Media In Pre & Post Independent India

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- understand how the press began in India.
- explain the emergence of the fourth estate and its journey post independence.
- describe the changing scenario of Indian media after independence.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Apply the understanding of the Indian media scenario pre and post independence to the current scenario.

Course Name : Current Affairs and General Knowledge-I

Course Description:

This course is designed to be a conceptual work based on the application of the knowledge to contribute to the society in a positive manner by researching and broadening the horizons of knowledge. The course will help the students to identify, discuss and explain various issues and concerns and to differentiate and apply their knowledge in reforming the society. The course will involve participative teaching methods and discussions.

Course Content:

Unit A

Global Communication: Historical Perspective

- The Great North – South Divide.
- Domination of Transnational news agencies
- Demand for NWICO & MacBride Commission
- Global communication & culture

Insight into the 20th Century:

European Imperialism and World Wars, Cold War and Post Cold War, Ideological divides, Emergence of super powers, Third World and Non Aligned Movement Regional Cooperation, Towards a new world order

Unit B

Struggle for Balance of Information Flows

- India's Foreign Policy
- India and SAARC
- India and UN
- Role of UN & UNESCO in bridging the gap between north and south

International Actors:

UN, IMF, World Bank, WTO, GATT and World Trade, Regional organizations like SAARC, ASEAN, etc.

Major Issues:

Globalisation, Changing nature of Capitalism; International conflicts like War, Ethnicity or Fundamentalism, Terrorism, Environment and Climate Change, Human Rights and other contemporary issues.

Unit-C

India and Major Concerns

1. Rapid Urbanization
2. Food Self-Sufficiency
3. Criminalization of Politics
4. Naxalism

Unit-D

Global Issues

- Terrorism and anti-terror measures
- Human Rights Issues
- Gender Issues

Current events during the study period

Events and developments in the field of politics, education, science and technology, culture, sports, etc. at state, national and international level. Detailed discussion of these events with a historical perspective and futuristic view will be conducted in class.

Course Name : INTRODUCTION TO REPORTING

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- understand the process of writing for print, radio & TV
- explain the principles of reporting.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Report & write news for Investigative, Cultural, Political, Seminar & civic issues.
- Perform exercise of precision, formats, synonyms, omission and inclusion, highlighting, underlining, Revise, Cross checking, headlines writing and making intros.
- Write stories covering various beats, writing follow-up stories,
- Write interview-based news stories, studying and analyzing investigative stories etc.
- Exercise in news layout;
- Write letters to the editor

Course Name : FUNDAMENTALS OF JOURNALISM

Course Outcomes:

## 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- define and explain the meaning, importance, functions & scope of communication.
- describe different forms of communication.
- list and explain different types of communication.
- explain important theories of communication
- explain various models of communication

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

Apply the theories and models of communication to mass communication process.

Course Name : Industrial Visit-I

Course Outcomes:

After the completion of this course, students will be able to:

- Gain hand-on experience of working of the media industry
- Bridge the gap between classroom learning and real life functioning of the media houses
- Get an exposure to working at different media industries
- Choose the media house to work after the completion of their degrees
- Get aware about the rules and regulations adopted by the different media industries
- Understand each other better while out on the industrial visits
- Improve their inter-personal skills

Course Content:

Visits to Different Media Industries including both Public and Private sector.

Course Name : Current Affairs and General Knowledge

Course Code : FSU039

Course Instructor : Mr. Vipin Pubby

Hours: 3+0+0

Credits: 3

Course Description:

This course is designed to be a conceptual work based on the application of the knowledge to contribute to the society in a positive manner by researching and broadening the horizons of knowledge. The course will help the students to identify, discuss and explain various issues and concerns and to differentiate and apply their knowledge in reforming the society. The course will involve participative teaching methods and discussions.

Course Content:

Unit A

Global Communication: Historical Perspective

- The Great North – South Divide.
- Domination of Transnational news agencies
- Demand for NWICO & MacBride Commission

- Global communication & culture

Insight into the 20th Century:

European Imperialism and World Wars, Cold War and Post Cold War, Ideological divides, Emergence of super powers, Third World and Non Aligned Movement Regional Cooperation, Towards a new world order

Unit B

Struggle for Balance of Information Flows

- India's Foreign Policy
- India and SAARC
- India and UN
- Role of UN & UNESCO in bridging the gap between north and south

International Actors:

UN, IMF, World Bank, WTO, GATT and World Trade, Regional organizations like SAARC, ASEAN, etc.

Major Issues:

Globalisation, Changing nature of Capitalism; International conflicts like War, Ethnicity or Fundamentalism, Terrorism, Environment and Climate Change, Human Rights and other contemporary issues.

Unit-C

India and Major Concerns

1. Rapid Urbanization
2. Food Self-Sufficiency
3. Criminalization of Politics
4. Naxalism

Unit-D

Global Issues

- Terrorism and anti-terror measures
- Human Rights Issues
- Gender Issues

Current events during the study period

Events and developments in the field of politics, education, science and technology, culture, sports, etc. at state, national and international level. Detailed discussion of these events with a historical perspective and futuristic view will be conducted in class.

Course Name : INTRODUCTION TO JOURNALISM

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- understand the process of writing for print
- explain the principles of writing for the print
- understand the different forms of journalism
- understand the role of media in a democracy

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Report & write news for print.
- Perform exercise of Precision, formats, synonyms, omission and inclusion, highlighting, underlining, Revise, Cross checking, headlines writing and making intros.
- Write stories covering various beats, writing follow-up stories.

Course Name : Introduction to Editing/Practical Aspects Of Electronic Media

Course Outcomes:

1. Knowledge Outcomes:



At the end of the course, the student should be able to:

- understand the process of writing for print
- explain the principles of covering news, interviews, and the organization of newspaper newsroom.
- understanding the concepts of news, different types of writing, interviews, news beats, reporting and editing for print media, sociology of news, trends in sectional news and the organization of newspaper newsroom

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Report & write news for print.
- Perform exercise of Cross checking, headlines writing and making intros.
- Write stories covering various beats, writing follow-up stories,
- Write interview-based news stories, studying and analyzing investigative stories etc.
- Exercise in news layout;
- Write letters to the editor
- Write articles
- Write features

Course Name : News & Script Drafting

Course Outcomes:

## 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- understand the process of writing for print, radio & TV
- explain the principles of writing for the print, radio & TV

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Report & write news for Investigative, Cultural, Political, Seminar & civic issues.
- Perform exercise of Precision, formats, synonyms, omission and inclusion, highlighting, underlining, Revise, Cross checking, headlines writing and making intros.
- Write stories covering various beats, writing follow-up stories,
- Write interview-based news stories, studying and analyzing investigative stories etc.
- Exercise in news layout;
- Write letters to the editor

Course Name : NEW MEDIA.

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain the uses of cyber media for journalistic purpose.
- Understand the applications of the online tools for communication.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Design Webpage
- Create and maintain a YouTube channel
- Create and maintain Facebook page, Twitter handle
- Analyse the content of a news portal
- Learn to use search engines
- Create an email and understand its features
- Write in Blogs
- Open an account in social media website and understand their uses.
- Write comments in website.

Course Name : RADIO JOURNALISM AND PRODUCTION

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- describe the characteristics of radio as a medium of mass communication and its limitations
- identify different modes of broadcasting and types of radio stations
- describe different formats of radio programmes
- list basic inputs and main elements of radio production-Human Voice, Music, Sound effects and Silence
- distinguish & describe the qualities of different types of microphones used in radio production

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Preparation of audio brief
- Write news for radio
- Write a feature for radio
- Write questions for a radio talk.
- Research and drafting of questions for interview.

Course Name : ADVERTISING & PUBLIC RELATIONS

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- define and explain the meaning, importance, functions & scope of Public Relations
- explain important theories of Public Relations
- explain various tools of PR and writing for PR

2. Skill Outcomes:

At the end of the course, the student should be able to:

Write for PR internal publics and media, press release/backgrounders, press brief, rejoinders, etc.

Course Name : MEDIA ETHICS AND LAWS

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Define freedom of the press as enshrined in article 19 of the constitution.
- List the reasonable restrictions for freedom of the press.
- Comprehend the media ethics and laws.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Cover judicial proceedings, parliament and state legislature without attracting penal action.
- Identify and apply the necessary provisions of laws and acts applicable to publication and broadcast of news and programmes of a sensitive nature.

Course Name : DEVELOPMENT COMMUNICATION

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- define and explain the meaning, importance, functions & scope of dev communication.
- explain important theories of development communication

- explain various models of development communication

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

Apply the knowledge of the theories and models of development communication practically.

Course Name : TV Journalism and Production

## Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- describe the characteristics of TV as a medium of mass communication and its limitations
- describe different formats of TV programmes
- list basic inputs and main elements of TV production
- understand the different camera shots
- describe the changing character of TV news
- understand the studio lighting

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Preparation of TV news bulletin
- Write news for TV
- Plan and shoot a documentary for TV
- Write questions for a short talk
- Research and drafting of questions for interview
- Practice News Reading
- Report from the locations
- Practice PTC (Piece to camera)

Course Name : Corporate Communication

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- describe the characteristics of corporate communication
- understand the role of CC in crisis communication and disaster management
- understand building a distinct corporate identity
- understand media relations

2. Skill Outcomes:

At the end of the course, the student should be able to:

- organize press conferences, facility visits.
- prepare press briefs

Course Name : MEDIA RESEARCH

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Define and explain the meaning, importance, functions & scope of media research.
- Explain various types and methods of research
- Explain different theories of mass media research

2. Skill Outcomes:

At the end of the course, the student should be able to:

Apply the knowledge of the theories and methods of research in media research.

Course Name : SUMMER INTERNSHIP

Course Description:

The students attend internship for a minimum period of 45 days at different platforms like newspaper, TV, Radio, Public Relations or Advertising agencies. Thereafter their viva is conducted in the university and evaluation is done on the basis of their certificates and internship reports from the different media houses. The students choose their preferences as well as the department shortlists the students for internship based on their interests, skills and performance in the particular streams during the session. This helps the students to learn practical aspects of media in the real situations.

Semester VI

Course Name : FILM STUDIES

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the students should be able to:

- Understand the different aspects of films.
- Learn about the language of cinema, film form and style, alternative visions of cinema and Hindi cinema.

2. Skill Outcomes:

At the end of the course, the students should be able to:

- Apply their knowledge in the practical field.

Course Name : PRACTICAL ASPECTS OF PHOTO/VIDEO JOURNALISM

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Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the students should be able to:

- Understand the basics of photography.
- Comprehend all the aspects of photojournalism.

## 2. Skill Outcomes:

At the end of the course, the students should be able to:

- Apply their knowledge in the field of journalism as a photojournalist.

## Semester-I

Course Name : Mathematical Methods

Course Code : FSU017

Course Instructor : Mr. Devesh Kumar

Hours: 3+1+0

Credits: 4

### Course Description:

The course aims to train students on applications of mathematical methods in the area of Finance, Marketing, Economics, and Operations etc. The course is designed to understand the nature of the markets and their growth, Decay etc. The course will give an insight into choosing appropriate mathematical tools and analyze the cost and revenues of the markets. Quadratic equations cost and revenue functions etc. will be dealt with an application orientation. The course introduces differentiation and integration and their practical applications. Appropriate case studies and or problems will be discussed to complement the learning.

### Course Content:

#### Unit A:

- Why mathematics is important for this course?
- Basic concepts of applications of mathematics.
- Introduction set theory and their applications.
- Variables & functions uses in practical life.
- Plotting curves through different functions.
- Models of growth, rate and change.



#### Unit B:

- Introduction to linear equations (two or more variables).
- Solutions of Quadratic Equations.
- Solutions of linear equations by substitution method.
- Solutions of linear equations by matrices.
- Linear equations using the y-intercept and slope.

#### Unit C:

- Introduction of Algebra of matrices.
- Identify cofactor and minors of the matrix.
- How to investigate Singular and non-singular matrices.
- Solving inverse matrix.
- Solving adjoint matrices.
- Solving simultaneous equations in two or three variables.

#### Unit D:

- Introduction to differentiation and their applications.
- Differentiation of Addition, Subtraction, Multiplication & Division (Two Functions).
- Derivatives of Polynomials and Exponential Functions, logarithmic functions.
- Uses of implicit functions.
- Rates of Change, Exponential Growth and Decay.
- Marginal and average cost and revenue.
- Introduction to integration, uses of indefinite integration.
- Integration by Substitution, Integration by Parts.
- Applications in cost and revenue functions, utility.

#### Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate growth, rate and change in cost and revenues.
- Understand the decreasing and increasing the cost.
- Understand the market strategy like exponential or logarithmic.
- Understand Marginal average cost and revenue.
- Estimate cost expenditure through differentiation and integration (indefinite).

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the mathematical applications according to changes their markets.
- Plotting curves and graphs for cost expenditures, demand & supply.
- Draw slope and intercept.
- Analyze the expenditure through linear equations.
- Evaluate the cost and revenue through mathematical methods.
- □analyze the performance of firms under different market structures.

### Methodology:

- 45 participative lectures to discuss the theoretical concepts
- 30 tutorials will be taken to clarify concepts and solve problems
- In-house practical problems
- Discussion on given problem sets
- 8 Assignments
- 3 Quizzes based on subject matter

Course Name : Microeconomic Theory-I

Course Code : CSU165

Course Coordinator : Dr. (Ms) Kesari Singh

Hours: 4+0+0

Credits: 4

### Course Description:

This course is a basic course on micro economics designed to acquaint students of all the streams with basic economic concepts and principles that they must know and understand while dealing with problem solving in any organization/industry. Course provides an introduction to the basic concepts like demand, supply, production, cost, market structures and pricing decisions under different market types. Course will give an insight into the economic problems, behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of videos and case studies to demonstrate how the basic micro economic principles are used in decision making under different market conditions.

### Course Content:

- Overview- Problem of scarcity & choice
- Demand and supply
- Elasticity of demand and supply
- Production and costs
- Market structures

### Unit-A: Basic Economic Concepts and Overview

- General Overview
- Economics- Nature & Scope of Economics
- Demand and Supply
- Determinants of demand and supply
- Law of demand and law of supply
- Shift in demand and supply
- Market equilibrium
- Elasticity of Demand and Supply

### Unit-B: Utility and Consumer Choices

- Utility Analysis
- Indifference Curve- Properties and Consumer Equilibrium
- PCC, ICC

- Revealed Preference Theory

#### Unit-C: Production and Costs

- Cost of Production- different cost concepts
- Relationship between cost and production concepts
- Production Function
- Scale of Production
- Iso-quant Curve- Producer's Equilibrium

#### Unit-D: Market Structures

- Introduction
- Perfect competition
- Imperfect competition
- Pricing and output decisions under different market types

#### Course Outcome:

##### 5. Knowledge Outcome:

At the end of the course, the student should be able to:

- Evaluate price change in markets applying working of market forces viz. supply and demand.
- Understand the pricing strategy using concept of elasticity of demand and supply.
- Know the production function and costs involved to determine the least cost combination of inputs to maximize profit.
- Analyze impact of competition on working of a firm through the understanding of different market structures.

##### 6. Skill Outcome:

At the end of the course, the student should be able to:

- Describe the nature of economics in dealing with the issue of scarcity.

- Draw demand and supply curves.
- Perform supply and demand analysis to analyze the impact of economic events on markets.
- Calculate and predict the change in demand due to change in price and income using elasticity of demand.
- Analyze the behavior of consumers in terms of demand for various products.
- Evaluate the relevant costs of business decisions.
- analyze the performance of firms under different market structures.

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Videos and case studies to understand the application of economics concepts
- Case study discussions
- 8 Assignments
- 3 Quizzes based on subject matter

Required Books and Materials:

TEXT BOOK:

1. Principles of Economics by T.R. Jain, V.K. Publications.

REFERENCE BOOKS:

3. Economics by Paul A. Samuelson & William D. Nordhaus, Tata McGraw Hill.
4. Principles of Economics by Robert H. Frank & Ben S. Bernanke, Tata McGraw Hill.

Course Name : Business Organization & Management

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Hours: 4+0+0

Credits: 4

Course Description:

The purpose of this paper is twofold; one, to impart to students an understanding of management and business concepts and practices being followed globally, with a focus on Indian perspective. Second, to prepare them to face emerging challenges of managing resources and business processes.

#### Unit –A: Understanding Business and Its Forms

A critical evaluation of Business Objectives, Business Promotions and forms of business enterprise : Sole Proprietorship, Partnership, Joint Stock Companies, Public Utilities, Co-operative, Business Combinations, Foundation of Indian Business Spectrum of Business Activities, Manufacturing and Service Sectors. India's experience with globalization, liberalization, and privatization. Multinational, transnational corporations and their Indian perspective.

#### Unit –B: Functional Aspects of Business

7. Administrative: Choice of a suitable form of business ownership. Starting and operating small venturing enterprises, Problems in starting a new business.
8. Operations: business size and location decisions. Lay out: mass production and mass customization, productivity, quality and logistics.
9. Marketing: Marketing Mix, Segmentation, PLC and consumer behavior, Product and pricing decisions, Distribution and promotional decisions
10. Finance: Money and banking, Financial management and securities markets, risk management and insurance
11. Human resources: Objective, scope & functions of HRM, Sources of human capital, Strategies for attracting (staffing) and retaining (training and compensation) human resources
12. Role of Information and Communication Technology (IT) in business: Computing, Storing & Networking. Decision Support System (DSS) and other Support Systems.

#### Unit –C: Process of Management

3. Entrepreneurship: Intrapreneurship and Innovation; Disintermediation; Contemporary Entrepreneurial Models: Franchising, Network Marketing, Freelancing, BPO, e-Commerce and M-Commerce
4. Management in Action: Motivation – Concept and Theories: Maslow, Herzberg, McGregor, and Ouchi; Leadership – Concept and Theories: Leadership Continuum, Situational Leadership, Transactional and Transformational Leadership; Managerial Grid, Communication – Formal and Informal

#### Unit –D: Development of Management Thought

2. Classical, Neo-classical, Systems, Contingency and Contemporary Approach to Management – Peter Drucker’s MBO, Porter’s 5- Force Model, Prahalad’s Core Competency, Peter Senge’s Learning Organization and Tom Peters’ Excellence approach

Course Outcome:

5. Knowledge Outcome:

At the end of the course, the student should be able to:

1. Define Business and its objectives.
2. Explore the various forms of Business and outline the pros & cons associated with each of them.
3. Develop an understanding of Globalization, Liberalization & Privatization and their Indian perspective.
4. Explain the basic concepts of the various functional aspects of the Business viz.- Marketing, Operations, HR, Finance and IT.
5. Define Entrepreneurship and explore the various entrepreneurial business models and opportunities available in contemporary India.
6. Enumerate and explain the various theories and concepts related with Leadership & Motivation.
7. Outline the development of management thought – from the Classical Theory till the most recent contemporary management concepts.

6. Skill Outcome:

7. Prepare a Marketing, HR, Financial & Operational Plan and integrate all of them into a comprehensive Business Plan after carrying out a Feasibility study in order to start a Small Business Venture.
8. Adapt and develop any of the contemporary entrepreneurial models at any stage of their life.
9. Motivate & lead an organizational team.

Course Name : Current Affairs and International Relations

Course Code : FSU027

Course Instructor : Mr. Vipin Pubby

Hours:4+0+0

Credits: 4

#### Course Description:

This course is designed to be a conceptual work based on the application of the knowledge to contribute to the society in a positive manner by researching and broadening the horizons of knowledge. The course will help the students to identify, discuss and explain various issues and concerns and to differentiate and apply their knowledge in reforming the society. The course will involve participative teaching methods and discussions.

#### Course Content:

##### Unit A

##### Global Communication: Historical Perspective

- The Great North – South Divide.
- Domination of Transnational news agencies
- Demand for NWICO & MacBride Commission
- Global communication & culture

##### Insight into the 20th Century:

European Imperialism and World Wars, Cold War and Post Cold War, Ideological divides, Emergence of super powers, Third World and Non Aligned Movement Regional Cooperation, Towards a new world order

##### Unit B

##### Struggle for Balance of Information Flows

- India's Foreign Policy
- India and SAARC
- India and UN
- Role of UN & UNESCO in bridging the gap between north and south

##### International Actors:

UN, IMF, World Bank, WTO, GATT and World Trade, Regional organizations like SAARC, ASEAN, etc.



## Major Issues:

Globalisation, Changing nature of Capitalism; International conflicts like War, Ethnicity or Fundamentalism, Terrorism, Environment and Climate Change, Human Rights and other contemporary issues.

## Unit-C

### India and Major Concerns

1. Rapid Urbanization
2. Food Self-Sufficiency
3. Criminalization of Politics
4. Naxalism

## Unit-D

### Global Issues

- Terrorism and anti-terror measures
- Human Rights Issues
- Gender Issues

### Current events during the study period

Events and developments in the field of politics, education, science and technology, culture, sports, etc. at state, national and international level. Detailed discussion of these events with a historical perspective and futuristic view will be conducted in class.

## Semester II

Course Name : Introduction to IT Tools

Hours: 3+0+2

Credits: 4

### Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basics about computers, its essential components and applications of computers in business.
- Understand the essentials of internet and services provided by internet.
- Understand the importance and usage of word processing software.
- Understand the importance, usage and applications of spreadsheet software in business.
- Understand the importance of using presentation software.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges
- Write formulas, calculate values and organize results
- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

Course Name : Basic Accounting

Course Code : FSU023

Course Instructor : Mr. Chander Mohan Gupta

Hours: 3+1+0

Credits: 4

## Course Description:

The course includes the following topics: Measuring and Recording Business Transactions, Business Income and Adjusting Entries, Completion of the Accounting Cycle, the course gives an insight to the accounting procedure taken into consideration by different users. The course being a combination of facts related to accounting and the results which are derived from the accounts prepared by the account featuring the financial statements of the firm. Introduction to

cost accounting what is the use of cost accounting and how is cost sheet made and used by individual and a company.

Course Content:

Unit A: Introduction

- Basic overview of accounts,
- DRIL, CGOG, (Golden rules),
- Understanding Accounting equations,
- Introduction to Journal Entries,
- Ledger posting.

Unit B: Ledgers and Books

- Types of subsidiary books, cash book (Single, double, triple column cash book and petty cash book),
- Why and when is BRS (Bank Reconciliation Statement) prepared what are its importance for a company,
- Rectification of errors.

Unit C: Final Accounts

- Why and how is Trial Balance made?
- Importance of trial balance
- Final Accounts with adjustments and
- Accounting Standards of India

Unit D: Cost Accounting

- Introduction to cost accounting,
- Why is cost important in a company,
- Types of costs and Cost sheet (importance and procedure of making cost sheet)

Course Outcome:

5. Knowledge Outcome:

At the end of the course, the student should be able to:

- Make and analyze accounts of a firm.

- Journalize the entries and put them into different accounts.
- Intelligently interpret and use the financial statements in managing and analyzing business operations
- Use basic accounting terminology and the process by which transactions are analyzed and transformed into financial statements and
- Differentiate between types of costs involved in a business and what impact it has on the firm's profit.

#### 6. Skill Outcome:

At the end of the course, the student should be able to:

- Prepare and analyze statement of affairs in the company.
- Make cash book and find and rectify problems therein.
- Prepare final accounts of the firms and adjust accordingly.
- Answer and provide relevant information about accounting standards of India. • Differentiate between different types of cost and their uses • Prepare cost sheet.

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house practical • 8 assignments • 3 Quizzes/tests.

Required Books and Materials:

Text Book:

3. Financial Accounting by C. Mohan Juneja, Arora, Kalyani Publishers, Ludhiana.
4. Cost Accounting: Principles and Methods by Jain, S.P. and K.L. Narang, Kalyani Publishers, Ludhiana.

Reference Book:

1. Accounting Principles, 10th edition by Weygandt, Kimmel and Kieso, Wiley Publication

Course Name : Microeconomic Theory-II

Course Code : FSU042

Course Coordinator : Dr. (Ms) Kesari Singh

Hours:4+0+0

Credits: 4

#### Course Description:

This course is a foundation course designed to introduce the students to basic micro economic concepts and principles that can be used by the managers in understanding the business problems. Course provides an introduction to consumer behavior, input market, factor pricing, public goods and market failure. Course will give an insight into the economic behavior of consumer and the firm which provides a basis for decision making. The course will involve the use of case studies to demonstrate how the basic microeconomic principles are used in business decision making under different market conditions.

#### Course Content:

- Market structures- an overview
- Market for Inputs
- Micro theories of factor pricing
- General equilibrium
- Market failure
- Public Goods

#### Unit-A: Market Structures- Supply Curve and Monopoly Power

- Market Structures- An Overview
- Price & Output under perfect competition and monopoly
- Supply curve under perfect competition
- Absence of supply curve under monopoly
- Monopoly power
- Measurement of monopoly power

#### Unit-B: Market for Factor Inputs

- Wages determination in competitive and imperfectly competitive markets
- Determination of factor rewards under conditions of monopsony

- Monopolistic and monopsonistic exploitation
- Role of trade unions in wage determination.

#### Unit-C: Micro Theories of Factor Pricing

- Determination of rent-concepts of rent
- Rent- Ricardian & Modern views
- Interest rate- Loanable funds and liquidity preference theories
- Modern theory of interest
- Profit- Risk & uncertainty

#### Unit-D: General Equilibrium and Market Failure

- General equilibrium of exchange and consumption
- General equilibrium of production
- General equilibrium of production and exchange
- Economic efficiency and conditions of Pareto Optimality.
- Market failures, public goods and externalities.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Analyze behavior of firms and profit maximization under varying competitive conditions
- Evaluate pricing strategies of firms operating under different market conditions
- Get an insight into different viewpoints on factor pricing
- Analyze factors affecting the factor prices like rent, rate of interest rate etc.
- Understand the concept of market failure
- Know about the public goods and related issues

##### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Develop pricing strategies for products sold in different market structures
- Evaluate change in rate of interest and other factor prices
- List the public goods

- Analyze why does market fail in terms of some goods

Methodology:

- 45 participative lectures to discuss the theoretical concepts
- Case studies & practical exercises to understand the application of microeconomic concepts by the firms
- Discussions and Practical Exercises
- 5 Assignments
- 3 Quizzes based on subject matter

Grading:

Internal assessment – assignments/quizzes/attendance	-	50%
xviii. Assignments		8%
xix. Quizzes		7%
xx. Attendance		5%
xxi. Two Term Examinations		30% (15% each)
End Term Examination	-	50%

Required Books and Materials:

Text Readings:

5. Jain, T.R. “Micro Economics”, V.K. Publications, New Delhi (Latest Edition).
6. Ahuja, H.L. “Advanced Economic Theory”, S. Chand & Company ltd. New Delhi (Latest Edition).

Suggested Reading:

2. Managerial Economics- Economic Tools for Today’s Decision Makers by Paul G. Keat, Philip K.Y. Young & Sreejata Banerjee, Fifth Edition, Pearson Education.

Course Name : Basics of Law  
Course Code : CSU164  
Course Instructor : Ms. Anupriya Thakur

Hours: 4+0+0

Credits: 4

#### Course Description:

This course provides students with an overview of the Indian legal system. It explores the basic concepts of law in society including the different sources of law followed by specific lectures on various branches of law. This course gives an insight in our constitutional and contractual law and teaches the beginnings of legal analysis through case briefing, statutory construction and application of law to fact situations.

#### Course Content:

##### Unit-A:

Definition of Law, Nature and scopes of Law, Kinds of Law, Purpose of Law, Source of Law- Custom, Precedent, Legislation, Some other source of law, Law & morals,

##### Unit-B:

Sanctions, Types of legal Sanctions, Theories of punishment. Making of Indian Constitution, Nature and special features of the constitution, Preamble, Citizenship, Fundamental Rights.

##### Unit-C:

Directive Principles of State Policy & Fundamental Duties, the President and the Vice President, the Union Judiciary, Parliament, Emergency.

##### Unit-D:

Contract, Agreement, Essential elements of a contract, offer and acceptance, capacity of parties, free consent, Valid contract, Void and voidable agreements Illegal contracts- there distinction, Consideration, legality of object and consideration.

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe the source of law
- Acquire adequate knowledge of the basic concepts of laws



- Properly define and discuss legal issues of general concern.
- Implement basic legal principles and explain fundamental legal terms.
- Use analytical skills when applying substantive law to fact situations.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Search legal information from different sources.
- Identify the elements of a contract and legal issues
- Identify the role of the Constitutional Law and the fundamental rights
- Apply the fundamentals in their daily affairs of their life.

## Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house, practical
- 3 Assignments
- 3 Quizzes/Tests

## Grading:

Internal assessment	-	50%
• Assignments	10%	
• Quizzes	5%	
• Attendance	5%	
• In-house Practicals	10%	
• Mid-term exam	20%	
End Term Exam	-	50%

## Required Books and Materials:

### Text Book:

- Jurisprudence Legal Theory by Dr. B.N.Mani Tripathi
- Constitutional Law of India by Narender Kumar

- Indian Contract Act by R.K.Bangia

Semester-III

Course Name : Marketing Management

Course Code : BL211

Course Instructor : Dr. Dipanker Sharma

Hours: 4+0+0

Credits: 4

Course Description:

This course aims at introducing the basic concepts of marketing in order to build a strong foundation for marketing concepts. The course builds practical skills in introducing marketing management, marketing environment, buying behavior, marketing mix concept & sales management. It aims at equipping the students with knowledge of marketing mix with special focus on product, price, place & promotion. The course will also equip students with knowledge on contemporary issues in marketing. The students will also learn the concept of emerging marketing in reference to Rural Marketing.

Course Content:

Unit-A Understanding the Marketing Process and Segmentation

- Core concepts – Needs, wants, demands, product, exchange, philosophies
- Marketing environment
- Consumer behavior
- Segmentation

Unit-B: Targeting, Positioning and and Marketing Program

- Targeting
- Positioning
- Marketing mix
- Sales Management
- Product, product dimensions, new product development

Unit-C: Pricing Strategies, Promotion and communication

- Pricing & pricing strategies

- Place Decisions & Integrated marketing communications
- Promotion Mix

#### Unit D: Branding, Current Scenario, dynamics and Rural Marketing

- Contemporary Issues in marketing
- Consumerism and legal aspects of marketing
- Emerging marketing (Rural Marketing)

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in marketing
- Become aware of marketing as open system
- Understand the complexities of human behavior in marketing
- Know how target markets are selected & positioned
- Realize the basic pillars on which marketing is built
- Understand concepts in marketing mix
- Develop insight of Logistics & marketing communications.
- Understand the concept & practices in brand management.
- Gain knowledge on contemporary issues and Rural Marketing

##### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior

- Develop target markets & facilitate sales
- Develop appropriate mix of product, pricing, place & promotion
- Use concepts in brand management
- Assist in development of independent marketing strategy.
- Succeed in dynamic Market condition
- Market effectively in Rural segment

#### Methodology:

- 45 lectures to discuss the theoretical concepts
- 5 case studies
- 8 Assignments
- 1 Project

#### Required Books and Materials:

2. Philip Kotler, Keller, Koshy and Jha, “Marketing Management,” 14e, Pearson Education, New Delhi

#### Reference Book:

2. Michael J Etzel, Bruce J Walker, William J Stanton and Ajay Pandit, “Marketing,” Tata McGraw Hill, New Delhi

Course Name : Financial Management

Course Code : BL214

Course Instructor : Mr. Nitin Gupta

Hours: 3+1+0

Credits: 4

#### Course Description:

This course is designed to be the foundation course in the area of finance. The course is concerned with the managerial decisions that result in financing of short term and long term credits for the firm. This course develops the tools required to analyze these decisions and their interaction within the financial system. It deals with theories of modern finance and develop the

familiarity with the analytical techniques applied in financial decision making. The course will broadly deal in Valuation, Dividend policies, Capital structure and working capital management. It helps students understand how decisions today affect the future flows of income and how both timing and risk determine the current value of these future flows.

Course Content:

#### Unit-A: Capital Budgeting

- Scope and objective of financial Management
- Time value of money
- The Capital Budgeting Process
- Cash flow Estimation
- Payback Period Method
- Accounting Rate of Return (ARR)
- Net Present Value (NPV)
- Profitability Index
- Internal Rate of Return (IRR)
- MIRR or Net Terminal Value

#### Unit-B: Cost of Capital and Financing Decisions

- Estimation of components of cost of capital
- Equity capital and external & internal retained earnings
- Debt and Preference Capital
- Weighted average cost of capital (WACC) and marginal cost of capital
- Sources of long-term financing:
  - o Capital structure
  - o Determinants of capital structure
  - o Operating and financial leverage.

#### Unit-C: Dividend Policy and Valuation

- Concept of return and Risk
- Valuation of securities
  - o Bonds and Equities

- Dividend Decisions:
  - o Relevance and irrelevance of dividend decisions
  - o Dividend policy in practice
  - o Walter's Model
  - o Gordon's Model
  - o MM Model

#### Unit-D: Working Capital Management

- Working Capital Decisions:
  - o Concepts of working capital
  - o Sources of short-term finance
  - o Measurement of operating cycle
  - o Receivables management
  - o Inventory management
  - o Cash management

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Differentiate between wealth maximization and Profit maximization.
- Understand the significance of the concept of time value of money.
- Know the characteristics of major financial instruments (shares, debentures, bonds)
- Assimilate the basics behind capital budgeting and cost of capital
- Appreciate the impact of capital structure on the risk and return aspect of a firm
- Make out the advantages and disadvantages of operating and financial leverages
- To understand the impact of dividend theory and policy on valuation of firm.
- To understand the sources of finance, cash management, Accounts receivable and inventory management.

##### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others

- Compare projects or investment options by calculating the present values of cash flows.
- Check project feasibility through other methods like Pay-back method, ARR, IRR etc.
- Compute cost of debt and cost of equity and WACC
- Apply degrees of operating and financial leverages to understand risk types

Methodology:

- 45 participative lectures to set in conceptual clarity
- Problems and case studies to fix contextual clarity of concepts as applied
- 8 Assignments
- 3 Quizzes
- Anything that is relevant for the course

Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

7. Financial Management by I M Pandey, Vikas Publishing House Pvt. Ltd., New Delhi

Reference Book:

3. Financial Management- Theory and Practice by Shashi K Gupta and RK Sharma, Kalyani Publishers, Ludhiana

Course Name: Macroeconomics

Hours: 4+0+0

Credits: 4

Course Description:

This course would expose the students to the functioning of an economy, as a whole. After completing the course, the students would have adequate knowledge of key concepts like national income and accounting, multipliers, demand side & supply side economics, unemployment, monetary & fiscal policy interventions, and inflation. The students would be taught to critically engage in relevant policy debates.

### COURSE CONTENTS

Unit –I: Introduction to Macroeconomics

- Overview
- How Economists think
- The logic of Macroeconomics
- Measuring the Economy – National Income and Accounting

Unit –II: Approaches to Income and Employment

- The Classical Theory of Income and Employment
- Role of Money, Inflation, and Unemployment
- Effective Demand Approach to Income and Employment by Keynes

Unit –III: Consumption and Investment

- Consumption- Consumption function, psychological law of consumption
- Investment- Types and determinants
- Investment Multiplier
- Inter-temporal Choice

Unit –IV: Policy Framework

- Aggregate Demand- IS and LM framework
- Aggregate Supply
- Policy Choice – Fiscal, Monetary

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:



- Identify the measurement of macroeconomic aggregates such as GDP- real and nominal, national income.
- Evaluate the classical thoughts on income, output and employment and role of money.
- Illustrate the basis of consumption and investment decisions in the economy.
- Describe the working of aggregate demand and aggregate supply and its importance in an economy
- Analyze the effect of macroeconomic policies with regard to real GDP growth, unemployment rate and the rate of inflation.
- Illustrate the effect of implementing expansionary and contractionary monetary and fiscal policies during recession or inflation in the economy.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Convert nominal variables to real variables.
- Evaluate current economic issues and their impact on business activities
- Understand and discuss the impact of inflation and recession
- Analyze and critique macroeconomic policy initiatives
- Understand and interpret discussions on macroeconomic issues in Economic Times and TV Channels

Course Name : Human Resource Management

Hours: 4+0+0

Credits: 4

Course Outcome:

## 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.

- Understand the significance of training, development and appraisal programs.
- Recognize the best methodology in welfare and security measures for employees.
- Discuss the general guidelines followed for administering discipline in an organization.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.
- Effectively run a recruitment and selection program.
- Knowing your employees and look out for their welfare.

To effectively handle discipline among employees

## Semester IV

Course Name : Corporate Auditing

Hours: 4+0+0

Credits: 4

## Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define Auditing and its objectives.
- Explore the various types of audit and outline the advantage of having a good audit mechanism to a concern.
- Develop an understanding of Internal Control, Internal Check and Internal Audit.
- Explain the basic concepts relating to auditing like vouching, verification, investigation etc.
- Define Auditor and explore the role of auditor with respect to various types of audit.
- Enumerate the various Auditing Assurance Standards (AAS).

- Outline the role of regulator with respect to Government and other statutory audits.

2. Skill Outcome:

- Prepare an Audit Program for a small enterprise.
- Adapt and develop any of the specific audit program at any stage of their life depending on the special requirements of a business concern.

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Course Name : Management Accounting

Hours: 3+1+0

Credits: 4

Course Description:

To provide the students' knowledge about use of costing data for planning, control and decision making.

Course Content:

Unit-A: Management Accounting: meaning, nature, scope and functions of management accounting, ratio analysis, liquidity ratios, efficiency ratios, profitability ratios and advantages of ratio analysis.

Unit-B: Funds flow statement as per Indian accounting standards; cash flow statement

Unit-C: Budgeting and budgetary control: Concept of budget and budgetary control objectives, merits, and limitations, Budget administration, Functional budgets, Fixed and flexible budgets, Zero base budget, programme and performance budgets.

Unit-D: Standard costing and variance analysis: Meaning of standard cost and standard costing: advantages, limitations and applications, Variance analysis – material, labour, overhead and sales variances, Disposition of variances, Control ratios.

Responsibility accounting: meaning and definition of responsibility accounting, types of responsibility centers, selection of transfer pricing method, advantages of responsibility accounting.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Differentiate between cost accounting and management accounting.
- Understanding of BEP and PV ratio.
- Importance of BEP and its use by the management.
- Budgetary control and its impact on the company.
- Prepare funds flow statement and cash flow statement.
- Importance of ratios in understanding of financial statements.

2. Skill Outcome:

- Calculation of BEP both numerically and graphically.
- Understanding of financial statements and use of financial ratios of the same.
- Understanding the concept of management accounting.
- Calculation of material control
- Budgetary control.
- Preparation of funds flow statement and cash flow statement

Methodology:

- 45 lectures to discuss the theoretical concepts.
- 15 tutus
- In house practical
- 3 Quizzes/tests. Grading:

### Grading:

Internal assessment – - 50%

- i. Assignments 10%
- ii. Quizzes 5%
- iii. Attendance 5%
- iv. In house practical 10%
- v. Mid-term exam 20%
- End Term Exam - 50%

### Required Books and Materials:

Course Name : Sales & Distribution Management

Hours: 4+0+0

Credits: 4

### Course Description:

The aim of the course is to acquaint students with the concept of sales as distinct from marketing. The course places emphasis upon individual coaching and is unique in catering specifically for the sales sector. It offers a unique combination of general management skills, personal selling skills and sale specific specializations. This course is developed to meet the needs of retail managers and others servicing the sales industry. Further it explains about the physical distribution, intermediaries, distribution channels, how they are designed, how they work and how to manage them as it is critical element of business strategy. The course also purports to impart knowledge about management of logistics processes from both theoretical and applied viewpoints. It includes the extension of logistics into supply chain management. Special emphasis placed on transportation, inventory management, warehousing, measuring logistics value and financial control of logistics.

### Course Content:

Unit-A: Personal Selling & Sales Strategy

Sales Management and its Objectives; Coordination and Control; Sales Management, Personal Selling and Salesmanship; Theories of Selling; Prospecting; Sales Resistance and Closure; Determining Market Potential through Sales forecasting; Formulating Sales Policies. The Effective Sales Executive; High Trust Selling, Relationship Selling; Sales Organization; Distributive Network Relations.

#### Unit-B: Sales Force Management

Personnel Management in the Selling Field, Recruiting and Selecting Sales Force; Planning, Executing and Evaluating Sales Training Program; Motivating Sales Personnel, Compensation and Expense management; Sales Meeting and Contests; Evaluation and Supervision of Sales Force; Sales Budget; Quotas and Sales Territories; Sales Control and Cost Analysis.

#### Unit-C: Physical Distribution & Supply Chain Management

Physical distribution and logistics, Supply Chain management, Wholesaling and retailing, various types of intermediaries and their roles, Distribution of margin, Disintermediation- pros and cons.

#### Unit-D: Marketing Channel Development & Management

Concepts, Characteristics, Role of channel decisions, Marketing channels- formats and systems, Functions and Flows in Marketing Channels, Analysis of Marketing Channel Structures, Channel relationships. Transportation: modes and containerization, Inventory management: types and costs, Inventory control, Warehousing and material handling, Order processing and Unitization, Distribution control and Performance evaluation, Conflict resolution.

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand of the concepts, attitudes, techniques and approaches required for effective decision making in the area of Sales.
- Emphasize on the practicing manager's problems and dilemmas.
- Develop skills critical for generating, evaluating and selecting sales strategies.
- Understand the importance of relationship selling and high trust selling.
- Market share vs. wallet share.
- Underline the need of distribution & logistics in the current market scenario.
- Explain the components & flow of a Supply Chain.
- Ascertain various intermediaries & their roles in distribution.

- Highlight Disintermediation as a growing trend.
- Describe the various component functions of Marketing channel management.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Become a great sales person.
- Become a high trust/relationship selling expert.
- Create and manage an effective sales or intermediary organization
- Develop any of disintermediation based businesses.
- Manage the various component functions of Marketing Channels.

Course Name : Income Tax Law and Practices

Hours: 4+0+0

Credits: 4

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define different terms used in Income Tax.
- Will be able to recognize the nature of a transaction and rules to treat the same under Income tax act.
- Differentiate between types of income and sources of income for an individual.
- Types of heads of income.
- Deductions available for an individual under income tax act.
- Rules laid down to calculate the sources of income under different heads.
- Calculate income from Salaries, House property, capital gains, Business and Profession, and Income from other sources.
- Powers and procedures laid down by the act and its applications.

2. Skill Outcome:

- Will be able to calculate the income of an Individual.
- Will be able to apply rules laid down under income tax act to save tax.
- Knowledge about deductions and exemptions available for an individual under income tax act.
- Can define tax avoidance, tax evasion and tax management
- File an ITR of an Individual.
- Knowledge about different forms and their usage.



Course Name : Indian Economy

Hours: 4+0+0

Credits :4

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Better understand the features and problems of Indian Economy
- Understand the working of the economic system and the types of systems.
- Understand major contributing sectors of GDP and trends in India's GDP.
- Compare and understand the basis of differences across regions/economies
- Understand the niceties of planning process in the country

2. Skill Outcome:

At the end of the course, the student should be able to:

- Evaluate different economic systems and their welfare effects
- Analyze the GDP of the country

- Evaluate current economic issues and their impact on business activities
- Analyze better the planning process of the country

## Semester V

Course Name : Banking and Finance(AMFI)

Hours: 3+1+0

Credits: 4

### Course Outcomes:

#### 3. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Use offer documents to understand details of a mutual fund
- Helping Investors with Financial Planning • Describe tools for selecting a mutual fund

#### 4. Skill Outcomes:

- Selecting the Right investment Products for Investors
- Write a detailed financial plan
- Recommending Model Portfolios and Financial Plans

### Methodology:

- 45 participative lectures to discuss the theoretical concepts
- 15 tutorials for practical approach
- 5 Assignments based on subject matter/ In-house practicals
- 5 Quizzes based on subject matter Grading:

Internal Assessment

- 50%

i.	Assignments	8%	
ii.	Quizzes/Surprise Tests	7%	
iii.	Attendance	5%	
iv.	1st Mid-term exam	15%	
v.	2nd Mid-term exam	15%	
	End Term Exam	-	50%

#### Course Description:

This course is designed with a hands-on problem solving approach in mind. The students would be exposed to various quantitative and reasoning problems that would require a sophisticated and disciplined approach in order to arrive at the proper solution.

#### Course Content:

##### UNIT-I:

- Number system: Types of numbers, Test of Divisibility, Multiplication tricks, Sum of series.
- LCM & HCF: Least Common Multiple and Highest Common Factor of numbers and fractions.
- Percentages:

##### UNIT-II:

- Ratio and Proportion
- Averages

##### UNIT-III:

- Time and distance
- Chain rule

##### UNIT-IV:

- Syllogism
- Seating arrangements
- Input/ Output
- Coding/Decoding
- Assumptions

Course Outcome:

3. Knowledge Outcome:

At the end of the course, the student should be able to:

- Develop an understanding of the number system and related exercises.
- Understand key concepts of analytical reasoning.
- Demonstrate various shortcut keys which can be applied in quantitative aptitude.

4. Skill Outcome:

At the end of the course, the student should be able to:

- To build in students speed and accuracy with respect to quantitative and logical reasoning problems.
- To make autonomous and quick calculations.
- Articulate and solve reasoning statements.
- To help students develop skill in effectively solving reasonably statements.

Course Name : Research Methodology

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Hours: 3+1+0

Credits:

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define research

- Understand the roadmap to learn research methods
- Understand the research process
- Get a preliminary idea about the use of software for data preparation and data analysis

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Apply business research methods for decision making
- Design questionnaire for conducting business research
- Apply basic statistical methods to interpret information from the data

## Methodology:

This course will be conducted through lectures, assignments, practical exercises, and role playing activities. Students will be given written assignments, practical exercises, and hands on experience. In addition, the course will incorporate the use of multimedia such as videos and power point and a range of practical teaching techniques focused on the students' needs.

## Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

## Required Books and Materials:

### Text Book:

2. Kothari, C. R- Research Methodology Methods & Techniques (New Age International Publishers)

### Reference Book:

4. Bajpai, N.- Business Research Methods (Pearson), 2011
5. Sanders- Research Methods for Business Students (Prentice Hall), Second Edition, 2007

6. Cooper & Schindler – Business Research Methods (Tata McGraw Hill), Ninth Edition

Course Name : Customer Relationship Management

Course Code : BL(M)315

Course Instructor : Mr. Devesh Kumar

Hours:3+1+0 Credits:4

Course Description:

The course introduces the fundamental concepts, models and frameworks of customer relationship management which is more relevant in the new customer-driven business era to meet the future demands of business optimally. It will discuss the latest developments in CRM, its industry application, role of people and employees in particular reference to CRM implementation in service sector also.

Course Content:

- Unit-A Introduction to CRM:
- Relationships in business.
- Marketing phases.
- CLC and CLV
- CRM
- Unit -B Customer management:
- Customer Retention
- Customer Recall management
- Customer Value: Cost-Benefit analysis
- Customer Loyalty Management
- Unit -C Technical developments in CRM and Implementations:
- e-HRM
- Database in CRM
- Customer care management and Sales Force Automation
- CRM Implementations
- Customer expectations and customer perception
- Unit -D Service sector and CRM:

- People factor in CRM
- Growth of services in India
- CRM in Indian service business
- CRM models: Historical and Modern

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding various dimensions of customer relation.
- Identify different customer management strategies.
- Study the customer life cycle.
- Understand how technology is used in customer relation management.
- Address to the different customer relation styles in service sector.
- Knowledge of customer relation models.

2. Skill Outcome:

- Provide information about the evolution of relationship as a marketing tool.
- Avoid mistakes in handling customer relations.
- To effectively motivate one's employees which in turn ensures successful customer relations.
- To use technologies successfully to handle customer groups for higher returns.
- Effectively retain the loyal customers.
- Construct a customer relation model.

Methodology:

- 23 lectures to discuss the theoretical concepts.
- 3 case studies to understand the practical issues
- Assignments/quizzes/tests.

Grading:

• Internal assessment	30%
• Assignments	10%
• Attendance	5%
• Quiz	5%
• Case Discussion/Participation	10%
• Mid-term exam	20%
• Final exam	50%

Required Books and Materials:

Text Book:

4. Rai, A.K, “Customer Relationship Management” PHI Learning Private Limited, New Delhi.

References:

2. Makkar, Urvashi, “Customer Relationship Management”, Tata McGraw Hill Education Private Limited, New Delhi.



Course Name : Capital Markets and Institutions

Course Code : BL315

Course Instructor : Mr. Amar Rao

Hours: 3+1+0 Credits: 3

Course Objectives:

My objective for this course is for you to learn the business and the economics of money and capital markets. To that end, we will analyse the structural interrelationships among the important participants in the Indian financial markets. The course description for BL513 says: “Topics include financial systems, organisational structure of financial systems, types of financial systems, and determinants of interest rates, monetary policy and interest rates, money and capital market instruments, risk management in banking sector, changing landscape of banking sector

- Why private sector financial institutions exist, i.e., the purpose they serve and how they arose.
- The key private sector financial institutions—banks, brokerage houses, exchanges, etc.
- Why government financial regulatory institutions exist, i.e. the purpose they serve
- The key government financial regulatory institutions—RBI, SEBI

- Money, inflation, economic growth, the business cycle and the conduct of monetary policy.
- Interest rates and their role in valuation.
- Why interest rates change.
- How risk and term structure affect interest rates.
- The banking industry and its structure; financial innovation and competition.
- The management of financial institutions.
- The stock market, money market, bond market, mortgage market, mutual funds, etc.
- The foreign exchange market and interest arbitrage.
- Investment banks, security brokers and venture capital firms.
- Why financial crises exist and why they are so damaging to the economy.

## Course Contents

### Unit A: The Role and Importance of Financial Institutions

- Financial systems and its structure
- Regulators of banks and financial institutions

- Reserve Bank of India- functions and conduct of monetary policy, Banking System in India, Financial Institutions – SIDBI, EXIM, NABARD, NHB, etc
- Interest Rate Analysis; Interest Rates in the Financial System
- Yield Curve; Risk and Inflation
- Financial Management of Commercial Banks
- Credit and Monetary Planning; Insurance Companies

#### Unit B: Role of Development Banking in Industrial Financing in India

- Capital Adequacy and Capital Planning with respect to BASEL-III norms
- Financial Planning of Financial Institutions
- Working and Organization of Different Financial Institutions in India like IFCI, CIOT,

#### IDBI, UTI, LIC

- Mutual Funds
- International Aspects of Financial Institutions.

#### Unit C: Money Market in India; Banking System in India:

- Restructuring Process; Working Capital Control

- Banking Policy in India
- Instruments of The International Money Market
- Managing Short-term International Transactions.
- Foreign Exchange Market. Mechanism;
- International Banks
- Non-Banking Financial Service Firms
- Recent developments in banking industry

UNIT: D World's financial markets concepts

- Primary and secondary markets
- Export Management; Licensing
- Securities firm and Investment Banks

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the Indian financial system and the role of regulatory bodies
- How banks manage their capital.
- The types of equity securities that companies can use to raise equity capital
- Understand the characteristics of different types of debt securities
- Understand Basel III norms
- Reading new developments in banking systems and NPA problem
- Reading, interpreting and transposing FX quotations.

## 2. Skill Outcome:

- Demonstrate an understanding of the working of financial systems and markets
- Critically analyse choices of financing available to individuals, small business and corporations..
- Critically analyse the mechanisms that operate within the India and International capital and financial markets.
- Apply problem solving methodology to the operation of equity, debt markets and forex markets and demonstrate how conditions and prices are determined in major financial markets.
- Major financial systems and practices adopt in international finance

### Methodology:

- 45 participative lectures to discuss the theoretical concepts and applications
- 15 tutorials to discuss practical aspects and case studies
- 5 case studies or problem sets
- 5 Assignments based on case studies or subject matter
- 10 Quizzes based on subject matter

### Grading:

Internal assessment – - 30%

i. Assignments 10%

ii. Quizzes 5%

iii. Attendance 5%

iv. Class Participation 10%

Mid-term exam - 20%

Final exam - 50%

### Required Books and Materials:

#### Text Book:

1. Financial markets and Institutions by Saunders and Cornett, Special Indian Edition, Tata McGraw Hill Education Private Limited.
2. Financial management by IM Pandey, Ninth Edition

3. Indian Financial Systems M.Y. Khan, 7th edition

References:

1. Bhalla, V.K. Indian Financial System, Delhi, Anmol Pub. Pvt. Ltd., 1998

2. Dougall, Herbert F and Gaumnitz. Capital Markets and Institutions. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1980.

3. Principles and practices of banking, IIBF, 2nd edition, McMillan

Course Name : Industrial Relations and Labour Laws

Course Code : BL(HR)316

Course Instructor : Ms. Varsha Patil

Hours: 3+1+0

Credits: 4

Course Description:

This course focuses on the effective management of employee and management relation. The course includes important legislations important in the effective handling of employees in any organization. The goals of this course for the organization to remain ethical and legal in its industrial relations. This course provides an overview of how an organization is to accomplish these purposes.

## Course Content:

### Unit –A: Industrial Relations

- Introduction to Industrial relations
- Trade unionism
- The Trade Union Act, 1926

### Unit –B: Discipline

- Collective bargaining
- Workers participation in management in India
- Industrial disputes, prevention and settlement
- The Industrial Disputes Act 1947

### Unit –C: Wage and salary administration

- The minimum Wages Act 1948
- The Payment of wages Act 1936
- The Workers Compensation Act 1923
- The payment of Bonus Act 1965

### Unit –D: Labour Laws

- The Factories Act, 1948
- The Maternity Benefit Act 1961
- Employees state Insurance Act, 1948
- Employees provident fund and miscellaneous provisions Act, 1952.

## Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding the relationship between organization and employees at a workplace.
- Identify different types of trade unions and how they function.
- Identify different ways how workmen can participate in management decisions.
- Understand how bargaining is important for the employees.
- Address to the different acts under labour law that guide in wages and administration.



- Knowledge of different Labour legislations.

## 2. Skill Outcome:

- Uphold pleasant industrial relations by understanding the concept of industrial relations.
- Identify different mechanism for collective bargaining and worker's participation in management.
- Avoid industrial disputes and procedures for its settlement.
- Effectively handle wages and salary administration.
- Create an organization which abides by all the labour laws.

## Methodology:

- 45 participative lectures
- 8 Assignments
- 3 Surprise quizzes

## Grading:

Internal assessment –	-	50%
• 1st Mid Term	15%	
• 2nd Mid Term	15%	
• Assignments	8%	
• Quizzes	7%	
• Attendance	5%	
End Term Exam	-	50%

## Required Books and Materials:

### Text Book:

5. Sasane, Anil P., ‘‘Industrial and labour Laws, AITBS, India.

### Reference Book:

3. Singh, B.D., ‘‘Industrial and labour Laws, Excel books, New Delhi

Semester VI

Course Name : Stock markets and Investment

Course Code : BL 321

Course Instructor : Mr. Amar Rao

Hours: 4+0+0

Credits: 4

Course Description

To familiarize students with different investment alternatives, introduce them to the framework of their analysis and valuation and highlight the role of investor protection.

Course Contents:

Unit-A: The Investment Environment

The investment decision process, Types of investments – commodities, real estate and financial assets, the Indian securities market, the market participants and trading of securities, security market indices, sources of financial information, concept of return and risk, impact of Taxes and inflation on return.

#### Unit-B: Fixed Income Securities

Bond features, types of bonds, estimating bond yields, types of bond risks, default risk and credit rating.

#### Unit-C: Approaches to Equity Analysis

Introduction to fundamental analysis, technical analysis and efficient market hypothesis, dividend capitalization models, and price earnings multiple approach to equity valuation.

#### Unit-D: Portfolio Analysis and Financial Derivatives:

Portfolio and diversification, portfolio risk and return. Commodities, real estate, and mutual funds. Introduction to financial derivatives, financial derivatives markets in India.

SEBI & role of stock exchanges in investor protection, investor grievances and their redressal system, insider trading, investors' awareness and activism.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Students will know about types of investments.
- Students will get exposure to fundamental analysis and technical analysis
- Students will learn about portfolio and diversification, portfolio risk and return

##### 2. Skill Outcome:

- Where to invest
- What types of investments are available
- How to choose securities based on fundamental analysis as well as technical analysis
- Choose right portfolio with risk and return

#### Methodology:

- 45 participative lectures to discuss the theoretical concepts and applications
- 3 case studies or problem sets
- 3 Assignments based on case studies or subject matter

- 3 Quizzes based on subject matter

Grading:

Internal assessment –	-	30%
xxii. Assignments	10%	
xxiii. Quizzes	5%	
xxiv. Attendance	5%	
xxv. Class Participation	10%	
Mid-term exam	-	20%
Final exam	-	50%

Required Books and Materials:

Text Book:

3. Financial Management by IM Pandey-Ninth Edition.
4. Investment analysis and portfolio management, Reily/Brown, 9th edition

Reference:

2. Jones, C. P., “Investments Analysis and Management”, Wiley, 8th Edition

Course Name :International Financial Reporting Standards (IFRS)

Course Code : COM(H) 323

Course Instructor : Mr. Chander Mohan Gupta

Hours: 4+0+0

Credits: 4

Course Description:

It will enable learning and application in a practical context, advanced accounting principles and techniques to analyse, interpret and report on financial statements and related information to different user groups. To make preparers and users of financial statements are up-to-date with all requirements and have the skills to apply advanced accounting techniques at work. At the end of the course one will be able to understand both IFRS and GAAP and difference between the two.

## Course Content:

### Unit-A:

Introduction to IFRS & GAAP, Presentation of Financial Statements, Statement of Financial Position, Statement of Profit and Loss and other Comprehensive Income, Statement of Cash Flows, Accounting Policies, Changes in accounting estimates, Inventories

### Unit-B:

Property, Plant and equipment, Borrowing Cost, Intangible Assets, Investment Property, Impairment and Non-Current Assets held for sale, Consolidations Joint Arrangements Associates and separate Financial Statements, Business Combinations, Shareholder's Equity, Share Based Payment.

### Unit-C:

Current liabilities, provisions, Contingencies and events after the reporting Period, Employee benefits, Revenue recognition including Construction Contracts, Government Grants, Leases, Foreign Currency, Financial Instruments, Fair value, Income taxes

### Unit-D:

Earnings Per Share, Operating Segments, Related Party Disclosures, Accounting and Reporting by retirement benefits Plan, Agriculture, Extractive Industries, Accounting for Insurance Reporting, Inflation and hyperinflation,

## Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Answer questions related to accounting standards
- Rules and regulation laid down to make and present financial statements.
- Increase the basic knowledge of the students for accounting procedure
- Have an in-depth knowledge of accounting system and working.
- Understand the working of bodies governing accounting rules.
- Describe relationship between strategy and technology

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Describe rules and regulations laid down for the working of the companies.
- Application of rules when and where required.
- Following the steps and procedure laid down by the governing bodies.
- Describe the importance of financial statements for the firms.

Methodology:

- 45 lectures to discuss the theoretical concepts.
- In house, practical
- 3 Assignments
- 3 Quizzes/Tests

Grading:

Internal assessment	-	50%
• Assignments	10%	
• Quizzes	5%	
• Attendance	5%	
• In-house Practicals	10%	
• Mid-term exam	20%	
End Term Exam	-	50%

Required Books and Materials:

Text Book:

6. A Nanda, "Understanding IFRS," Wiley John Publication

Reference Book:

7. Wiley's IFRS
8. Students are requested to use and download free data available at icai and icwai website for usage.
9. [http://www.icai.org/post.html?post\\_id=8660](http://www.icai.org/post.html?post_id=8660)
10. <http://casbicwai.org/CASB/casb-resources.asp>

Course Name : Research Project

Course Code : BL323

Course Coordinator : Dr. Kesari Singh

Hours: Whole semester

Credits: 6

Course Description:

In the last Semester of the program, students undertake Research Project Work on individual or group basis. The Research Project Work is a powerful source of practical managerial insights, validation of management concepts, and valuable market knowledge.

Research Project Work may be an industry/ research project - based on primary/secondary data. It is expected that Research Project Work shall sensitize the students to the demands of the real life corporate world. The learning outcomes and utility to the placement and following job related tasks are specifically highlighted.

Research Project Work can be carried out in a/an:

9. Corporate Entity
10. Central Government, State Government and Public Sector Undertaking

11. Overseas entity
12. MSME
13. NGO
14. Cooperative Society
15. Institutions for some special projects
16. Other relevant entities

Students are evaluated by the team of project guides of the Research Project Works. A student is required to get a satisfactory rating on the evaluation to complete the program for award of MBA Degree.

Students are required to submit two hard bound copies of the project report to the Office within the prescribed deadline, failing which it is deemed that the student has not fulfilled the academic requirement as per the norms.

The report should be well documented and supported by:

12. Executive Summary
13. Organizational Profile
14. Introduction to the project
15. Review of Literature
16. Research Methodology
17. Data Analysis
18. Findings
19. Limitations
20. Conclusions
21. Recommendations
22. Bibliography and References

Apart from these, the report must include the title page, certificate from industry project guide, acknowledgements, table of contents, table of figures etc. A prescribed format of the project report shall be communicated to every student well within time.



The report should reflect the nature and quantum of work undertaken by the student. The report must reflect work of two Semesters and justify the same.

There shall be a PPT presentation and a viva-voce for the report. There will be a panel of faculty members to judge the student's work.

A student's work shall broadly be assessed on:

12. Relevance of the actual work undertaken by the student
13. Student's understanding of the project work
14. Design and validity of research instrument
15. Data collection method and reliability of data
16. Analysis and interpretation of data
17. Outcome of the project
18. Utility of the project to the corporate world
19. Basic analytical capabilities
20. Construction and overall get up of the report
21. Confidence and presentation skills of the student
22. Other things as deemed necessary

Course Name :Retail Marketing

Course Code : BL(M)321

Course Instructor : Dr. Dipanker Sharma

Hours: 4+0+0

Credits: 4

Course Description:

The course places emphasis upon individual coaching and is unique in catering specifically for the retail sector. It offers a unique combination of general management skills and retail-specific

specializations. This course was developed to meet the needs of retail managers and others servicing the retail industry.

Course Content:

Unit A:

Introduction to Retail Marketing: retail environment, importance of retail, Retail Operations: Retail & marketing, strategic approach, marketing & selling, environment, business philosophies, marketing orientations.

Unit B:

Management of services & quality in retailing: what constitutes retailing, service product concept, intangible – tangible product continuum, classification of product & quality, service management, quality control, quality auditing. Retail Marketing Mix & retail product: marketing mix, target markets, retail product and store layout.

Unit C:

Merchandise Management: planning & calculating, inventory levels, category management, range planning, space allocation, negotiating the purchase. Retail Pricing: Price sensitivity, factors influencing pricing, pricing retail product, markdown policy considerations.

Unit D:

Retail communications & Promotions: Communication affects, advertising, sales promotion, relationship marketing, personal selling, public relations, other tools. Retail distribution & supply chain management: Channels & channel flows, channel relationship & partnership, distribution logistics & stock control, retail logistics, CRS, internet & direct distribution systems.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define retailing
- Understand what retail marketing means to business executives and academics
- Understand the ways that retailers use marketing tools and techniques to interact with their customers.
- Assimilate the concept of Supply chain
- Infer the role and importance of internet in the distribution system

## 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Carrying out a practical exercise to demonstrate the understanding of retail marketing its application within a particular retailing scenario
- Formulate creative yet feasible solution for retail strategies
- Engaging with complex or unpredictable situations in retail contexts
- Acquire research and investigative skills

## Methodology:

- 45 lectures to discuss the theoretical concepts
- 2 case studies
- 11 Assignments
- 1 Project

## Grading:

Internal assessment – assignments/quizzes/attendance	-	20%
• Assignments	5%	
• Quizzes	5%	
• Attendance	5%	
• Class Participation	5%	
Mid-term exam	-	20%
Project	-	20%
• Project Report	15%	
• Viva-voce	5%	
Final exam	-	40%

## Required Books and Materials:

Text Book

1. Gilbert David, Retail Marketing Management 2/e, Pearson Education

Reference Books:

1. Retail Marketing Management – Swapna Pradhan
2. Services Marketing, Valarie A Zeithmal & Mary Jo Bitner
3. Services Marketing, Christopher Lovelock, Pearson Education, 2004
4. Services Marketing, Rajendra Nargundkar
5. Services Marketing, Ravi Shankar, Excel Books, 2006

Course Name : Techniques for Financial Decisions

Course Code : MST (F) 562

Course Instructor : Mr. Amar Rao

Hours: 4+0+0

Credits: 4

Course Description:

The ability to apply financial principles and concepts to decision making is critical but is often a mystifying blend of mechanical calculation and confusing theories. The focus is on operations

and investment, and the integration of financial principles into those areas. The basic principles of finance will be taught along with the mechanical skills of manipulating financial tools

Course Content:

UNIT A: Financial mathematics

- Integral and Differential Calculus
- Slope calculation
- Curved area application in finance

UNIT B: The Time Value of Money

- Future value of single cash flow
- Future value of a series of cash flow
- Present value of a series of cash flow
- Solving for rates, number of periods or size of annuity payments

UNIT C: Statistical concepts and market returns

- Fundamental concepts
- Summarizing data using frequency distribution
- Measures of dispersion and central tendency
- Skew ness in returns

UNIT D: Portfolio concepts

- Mean variance analysis
- Practical issues in mean variance analysis
- Multifactor models
- Summary

UNIT E: Model building in excel

- Cash flow model in excel
- Mean variance model

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain probability of risk and return through curved area method
- Calculate FV and PV of single and series of cash flows
- Explain the cash flow additivity principle in time value of money applications
- Define, calculate and interpret measures of central tendency
- Skew ness in returns

2. Skill Outcome:

- Calculate FV and PV through Microsoft excel 2013
- Learn how to calculate statistical concepts in returns and risk
- Mean variance model through excel 2013
- Interpret portfolio investment choices on the basis of risk adjusted returns

Methodology:

- 18 participative lectures to discuss the theoretical concepts
- 7 tutorials for practical concepts
- 5 in-house practical's
- 3 Assignments based on subject matter/practical's
- 3 Quizzes based on subject matter/practical's

Grading:

Internal	–	-	50%
xxvi. Assignments		10%	
xxvii. Quizzes		5%	
xxviii. Attendance		5%	
xxix. Case Discussion/Project/Practicals etc		10%	
xxx. Mid-term exam		20%	

Final exam

- 50%

Required Books and Materials:

Text Book:

1. Investment analysis and portfolio management, 8th edition, Reilly/Brown
2. Quantitative investment analysis, 2nd edition, Richard A. Deusco, Dennis W. McLeavey

References:

1. Financial management, 9th edition, IM Pandey, Vikas Publication

Software:

1. Microsoft Excel 2013

Course Name : Training and Development

Course Code : BL(HR)321

Course Instructor : Pooja Verma

Hours: 4+0+0

Credits: 4

#### Course Objective:

The main objectives of the course to know how to develop successful training programs which reinforce the company's mission and goals. The course examines the design, operation, and evaluation of training and development activities in organizations. It also reviews the legal forces influencing training in organizations.

#### Course Content:

##### Unit-I: Employee training and Management Development

- Concept and scope of training and training needs
- Employee training concept, need, process, methods of training and its evaluation. • Management development concept, objectives and different approaches.

##### Unit-II: Potential appraisal and Career planning

- Career Planning & Development: Concept, Objectives, Process, Benefits, Limitations of Career Planning & Development.
- Potential Appraisal and Succession Planning: Potential Attributes and Appraisal of human resources, steps in Succession Planning, Benefits and Limitations Unit- III: Modern performance appraisal techniques
- Assessment and Development Centre (ADC): Concept and Need, Pre-requisites for ADC, Design of the ADC, ADC process, Success, Failures and future of ADCs.
- 360 Degree Feedback: Concept, Need, Steps involved in the comprehensive 360 degree feedback process, Pitfalls of 360 degree feedback and Success of 360 degree feedback.
- Traditional and modern performance appraisal methods

##### Unit- IV: Quality of Work life and contemporary issues

- Quality of Work Life (QWL): Concept, Measures of QWL, Barriers of QWL and Strategies for Improving QWL.
- Outsourcing HR activities – Nature, Scope, Benefits and Hazards.



- HR Knowledge Management-Concept, Challenges, and Opportunities. • e-HRM-concept and techniques, future of e-enabled HR activities.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the training and development techniques in an organisation.
- Detail the process how the training and development can be conducted.
- Understand various concepts of career planning, potential appraisal and succession planning.
- Demonstrate how modern techniques of performance appraisal are used in effective handling of employee's performance.
- Discuss the important tenets of contemporary issues.

2. Skill Outcome:

At the end of the course, the student should be able to:

- To prepare a training and development detailed plan.
- To identify the different training and development needs and develop its objectives accordingly.
- Articulate the career management techniques in detail. • To clarify different related contemporary issues.

SCHOOL OF HOSPITALITY AND HOTEL MANAGEMENT

BSC HHA PROGRAM

SCHEME OF COURSES

SEMESTER-I

S. No. Course Name Code Hours (L+T+P)/Week Credits

1	Food Production-I	BHA111	2+0+4	4
2	Front Office Operations-I	BHA112	2+0+4	4
3	Food & Beverages Service-I	BHA113	2+0+4	4

4	Housekeeping-I	BHA114	2+0+4	4
5	Nutrition	BHA115	2+0+0	2
6	Writing Seminar-101/102/103	FSU036/FSU037/FSU038	3+0+0	3
7	Current Affairs & International Relations	FSU027	(3)/Section	3
8	Industrial Visits-I	BHA116	Min three a sem	1
9	Skill Workshop	BHA117	0+0+2	1
10	Open Elective-I(Grooming &Hospitality Skills)	OE 038	3+0+0	3
11	SPRINT-I	SP001	Once a Sem	2
	Total		31	

Course Name : Food Production-I

Course Code : BHA111

### 1. Course Description:

This is a preliminary knowledge-based content intended to familiarize the student to Cookery as a Profession. This course is designed to form the basis for understanding the professional kitchen layout and organizational hierarchy being followed in 5 star category Hotels. The aim of this course is to develop interest in knowing about basics of cooking. The course introduces to the basics of stocks, soups, sauces, methods of cooking food, important kitchen ingredients, structure and usage of egg in food production. Instruction of this Course will be through the medium of classroom-aided theory alongwith extensive Laboratory Kitchen-based practicals

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Prepare & identify basic Stocks, Soups, and Sauces.
- Identify various Cuts of Vegetables.
- Use various Methods of Cooking suitable for a particular ingredient.
- Identify good and bad quality Egg.

- Use various food commodities for various dishes according to their compatibility.

Course Name : Front Office Operations-I

Course Code : BHA112

#### Course Description:

This is a preliminary knowledge-based content intended to familiarize the student to basic Front Office Management as a Profession. This course is designed to form the basis for understanding the Professional Layout of a Front Office Dept and Organizational Hierarchy being followed in 5-star category Hotels. Aim of this course is to develop interest in knowing about basics of Front Office Management. The course introduces to the basics of Tourism, Hospitality and Hotel industry. Instruction of this Course will be through the medium of classroom-aided theory along with extensive Front Office Laboratory-based practicals.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the importance of Grooming & Hospitality Etiquettes.
- Understand the importance of Telephone Personality.
- Understand the functioning of Room Reservation Dept, Front Desk, Bell Desk, Concierge, Cashiering.
- Understand various forms of technical Front Office jargon.
- Understand some basic Front Office Calculations.

Course Name : Food & Beverage Services-I

Course Code : BHA 113

#### Course Description:

This course is designed to form the basis for understanding the professional Restaurant Layout and Organizational Hierarchy being followed in 5-star category Hotels. The aim of this course is to develop interest in knowing about Basics of Food Service Industry. The course introduces students to the Basic Structure of Catering Industry, Food Service areas, Equipments used in Food Service industry and Non Alcoholic Beverages

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the structure of catering industry.
- Identify Principal staff of various F&B Outlets.
- Learn various attributes of a Waiter
- Identify the various F&B outlets and ancillary departments.
- Identify and select various types of cutlery and crockery
- Classify various types of Non Alcoholic Beverages.

Course Name : Housekeeping - I

Course Code : BHA 114

## Course Description:

This course is designed to form the basis for understanding the Professional Room Layout and Organizational hierarchy being followed in 5-star category Hotels. The aim of this course is to develop interest in knowing about Basics of Housekeeping. The course introduces students to the Basic Structure of Housekeeping Department, Understanding of Cleaning agents, Cleaning Procedure and Interdepartmental Relationship.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the structure of Housekeeping department.
- Identify various cleaning agents and their uses.

- Learn various attributes of a Housekeeper.
- Identify the various Housekeeping areas.
- Appreciate the inter-departmental co-ordination.

Course Name : Nutrition

Course Code : BHA 115

#### Course Description:

This course is designed to form the basis for understanding the concept of health and nutrition alongwith its importance for human body. The aim of this course is to give an insight to various concepts related to health and nutrition like learning about macro and micro nutrients, their role, sources and importance in maintaining balanced diet.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the sources of various nutrients present in our diet.
- Learn about various changes taking place in nutrients while cooking.
- Identify the various macro and micro nutrients.
- Recognise the importance of water in our diet.

Course Name : Current Affairs and International Relations

Course Code : FSU027

#### Course Description:

This course is designed to be a conceptual work based on the application of the knowledge to contribute to the society in a positive manner by researching and broadening the horizons of knowledge. The course will help the students to identify, discuss and explain various issues and

concerns and to differentiate and apply their knowledge in reforming the society. The course will involve participative teaching methods and discussions

## 2. Skill Outcomes:

At the end of the course, the students should be able to:

- Differentiate and apply their knowledge in reforming the society.

## BHA 038-Grooming & Hospitality Skills

### Course Description:

In skill workshop, the objective is to familiarize students with various aspects of hospitality and hoteliering skills. A few of these are enumerated below:-

1. Physical Grooming
2. Table manners
3. Identification of relevant crockery, cutlery.
4. Knowledge of alcoholic and non alcoholic beverages.
5. How to prepare a course wise menu.
6. How to supplement menus with various types of wines.
7. Making a professional telephone personality.
8. General awareness of current affairs.

The goal is to mould a fresh, raw teenager into a well rounded personality who is capable of professional interface in the corporate World.

Course Name : SPRINT-I

Course Code : SP001

### Course Description:

Shoolini University' SPRINT is inspired by Stanford's mini-MBA program – designed significantly to upgrade skills & capabilities of the students. The focus is on corporate exposure and enhancing soft skills which are of prime importance in the corporate world. Hence, intensive sessions on Business Communication, Group Discussions, Personal Interviews, Assertive Skills, Time Management, Goal Setting with simulations, role plays and case studies are conducted

S. NO.	Course Name	Code	L+T+P	Credits	Faculty
1	Food production-II	BHA 121	2+0+4	4	Mr. Karan
2	Front Office Operations-II	BHA 122	2+0+4	4	Mr. Pratip
3	Food & Beverage Service-II	BHA 123	2+0+4	4	Mr. Ankit
4	Housekeeping-II	BHA 124	2+0+4	4	Mr. Ankit
5	Introduction to I.T. Tools	FSU003	3+0+2	4	Mr. Devesh
6	Writing Seminar-102/103	FSU037/038	3+0+0	3	Mr. Kamalkant/ Mr. Adesh Saini
7	Basic Accounting	FSU023	3+1+0	4	Mr. Vijay
8	Open Elective-2	OE	3+0+0	3	
9	Sprint- II	SP002	Once a Sem	2	

Total            39     32

Shoolini University of Biotechnology & Management Sciences

Faculty of Management Science and Liberal Arts

Scheme of B.Sc.- Hospitality & Hotel Administration-II Semester

Course Name            : Food Production-II

Course Code            : BHA121

#### Course Description:

This is a preliminary knowledge-based content intended to familiarize the student to Cookery as a Profession. This course is designed to form the basis for understanding the professional kitchen layout and processes being followed in 5 star category Hotels. The aim of this course is to develop interest in knowing about basics of cooking. The course introduces to the basics of soups, sauces, gravies, meat cookery, fish cookery, rice, cereals and pulses, pastry, flour, simple breads, pastry cream, basic dairy commodities and importance of spices and masalas in Indian cuisine. Instruction of this Course will be through the medium of classroom-aided theory along with extensive Laboratory Kitchen-based practicals.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify various cuts of Meat & Fish.
- Identify various varieties of Rice, Cereals and Pulses, along with their cooking techniques.
- Differentiate between various forms of Pastry, used for preparing various products.
- Explain the structure of wheat, its processing and varieties.
- Explain various methods and steps involved in bread making process.



- Appreciate the use of Basic food commodities like Milk, Cream ,Butter and Cheese alongwith their uses in preparing various dishes according to their compatibility.
  - Appreciate the usage of Herbs and Spices in Indian Food giving suitable examples of several regional masalas.
- Course Name : Front Office Operations-II
  - Course Code : BHA122

#### Course Description:

Semester-II of FO Operations builds on the basic foundation of Semester-I. With students being equipped with preliminary F.O. knowledge, this semester will give them a view of Tariff Structure, Demand & Supply and its influence on Pricing Structure, Guest Stay Cycle and various operational co-ordinations with other departments. This module will also touch upon various Room Selling and Upselling techniques. An added objective of this capsule will be the full theory on Room Reservation Department.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the importance of Grooming & Hospitality Etiquettes.
- Understand the importance of Telephone Personality.
- Understand the functioning of Room Reservation Deptt., Front Desk & inter-departmental co-ordination.
- Understand various forms of technical Front Office jargon.
- Understand Calculations on Fair Market Share, Actual Market Share, Penetration Index, Value Index, A.R.R., REVPAR, etc.

Course Name : Food & Beverages Service-II

Course Code : BHA 123

Course Description:

This course is designed to form the basis for understanding the Different Methods of Food Service in Hospitality Industry along with that The Concept of Meal Planning, Menu Compilation, and Billing system in Restaurants. The aim of this course is to develop interest in knowing about Basic Method of Food Services, Service Styles and Menu Planning in Catering Industry Industry. The course introduces students to the Basic Methods of Services,, French classical Menu, Different types of Meals served in Food Service industry.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the Different types of Meals.
- Identify Principal staff of various F&B Outlets.
- Learn various Service Styles
- Identify the various F&B outlets and ancillary departments.
- Identify and select various types of Equipment's used in Catering Industry
- Classify Tobacco and its Types.

• Course Name : Housekeeping - II

• Course Code : BHA 124

Course Description:

This course is designed to form the basis for understanding the Professional Room Layout and Organizational hierarchy being followed in 5-star category Hotels. The aim of this course is to develop interest in knowing about Basics of Housekeeping. The course introduces students to the Basic Structure of Housekeeping Department, Understanding Routine systems and Records of

## Housekeeping, Room Inspection Procedure, Different Types of Beds, Importance of Pest Control and Key Handling in Housekeeping Department

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the Format of Different Registers and Forms used in Housekeeping Department
- Identify various Methods of Pest Control.
- Learn various Types of Room Keys
- Identify the various Areas under Housekeeping department of the Hotel.
- Appreciate the inter-departmental co-ordination.

- Course Name : Basic Accounting
- Course Code : FSU023

### Course Description:

The course includes the following topics: Measuring and Recording Business Transactions, Business Income and Adjusting Entries, Completion of the Accounting Cycle, the course gives an insight to the accounting procedure taken into consideration by different users. The course being a combination of facts related to accounting and the results which are derived from the accounts prepared by the account featuring the financial statements of the firm. Introduction to cost accounting what is the use of cost accounting and how is cost sheet made and used by individual and a company.

### 3. Skill Outcome:

- Will be able to prepare and analyze statement of affairs in the company.
- Will be able to make cash book and find and rectify problems therein.
- Will be able to prepare final accounts of the firms and adjust accordingly.
- Will be able to answer and provide relevant information about accounting standards of India.
- Will be able to differentiate between different types of cost and their uses
- Will be able to prepare cost sheet.

Course Name : Introduction to IT Tools

Course Code : FSU003

Course Description: This course is an introductory course on basic Information Technology tools. This course begins with introduction about computers, history of computers, applications of computers, essential components of computers, important computer software and latest trends in Information Technology. After these foundations concepts, students are going to be provided hands on experience in using productivity software like MS-Office. The course includes essentials of working with word-processing software like MS-Office, spreadsheet software like MS-Excel and its business applications and basics about working and using presentation software like MS-PowerPoint.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges

- Write formulas, calculate values and organize results
- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

### B. Sc.- Hospitality & Hotel Administration Sem III

S. NO.	Course Name	Code	L+T+P	Credits	
1	Food Production Operations	BHA211	2+0+3	4	
2	Food & Beverage operations	BHA212	2+0+3	4	
3	Front Office Operations	BHA213	2+0+3	4	
4	Accommodation Operations	BHA214	2+0+3	4	
5	Marketing Management	BL211	3+0+0	3	
6	Industrial Visits-III	FSU046	Atleast once a Sem		S/US
7	Open Elective-3	OE	3+0+0	3	
8	Sprint- III	SP003	Once a Sem	1	
9	Writing Seminar-III	FSU010	3+0+0	3	
10	Writing Seminar-103	FSU038	3+0+0	3	
	Total			26	

Course Name : Food Production Operations

Course Code : BHA211

### Course Description:

This Is A Knowledge-Based Content Intended To Familiarize The Student To Indian Regional Cookery. This Course Is Designed To Form The Basis For Understanding The Quantity Kitchen Layout And Processes Being Followed In Banquet Kitchen Of 5 Star Category Hotels. The Aim Of This Course Is To Develop Interest In Knowing About Various Regional Cuisines And Their Specialities. The Course Introduces To The Basics Of Quantity Food Production, Menu Planning & Execution, Mass Catering Establishments And Indian Regional Cuisine And Importance Of Spices And Masalas In Indian Cuisine. Instruction Of This Course Will Be Through The Medium Of Classroom-Aided Theory Along With Extensive Laboratory Kitchen-Based Practicals.

### 2. Skill Outcomes:

At The End Of The Course, The Student Should Be Able To:

- Describe Various Forms Of Catering.
- Formulate Various Types Of Menus On Basis Of Principles Followed In Menu Planning.
- Differentiate Between Various Forms Of Catering With Special Care To Be Taken.
- Explain The Diversity Of Indian Cuisine.
- Explain Various Methods And Steps Involved In Making Special Regional Dishes.
- Appreciate The Usage Of Herbs And Spices In Indian Food Giving Suitable Examples Of Several Regional Masalas.

Course Name : Food & Beverage Operations

Course Code : BHA212

### Course Description:

This course is designed to give information to the students related to Wine, its Terminologies, manufacturing process of Wine, different Wine Laws followed in different Countries also the various old and new Wine regions of Wine. Also this course will give information regarding the Vermouth, Bitters and Liqueurs.

## 2. Skill Outcomes:

Students will be able to serve Wine in a Restaurant, Opening of a Wine with a cork, rolling motion while serving a Wine ,Using of a Waiters Friend.

Course Name : Front Office Operations

Course Code : BHA 213

## Course Description:

Semester-III of FO Operations is designed upon the basic foundation of Semester-I & II. With students being equipped with preliminary F.O. knowledge, this semester will give them a view of Tariff Structure, Demand & Supply and its influence on Pricing Structure, Guest Stay Cycle and various operational co-ordinations with other departments. This module will also touch upon various Room Selling and Upselling techniques. An added objective of this capsule will be the full theory on Room Reservation Department.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the importance of computer applications in FO.
- Understand the importance of Night Audit.
- Understand the functioning of Room Reservation Deptt., Front Desk & inter-departmental co-ordination.
- Understand various forms of technical Front Office jargon.
- Understand FO safety & security procedures.

Course Name : Accommodation Operations

Course Code : BHA 214

## Course Description

This course is designed to form the basis for understanding the Activities of the Linen Room .  
Layout and equipment in the Linen Room, Advantages of providing uniforms to staff .  
Commercial and On-site Laundry . Flow process of Industrial Laundering-OPL . Flower  
arrangement in Hotels . Equipment and material required for flower arrangement.

### 2. Skill Outcomes:

1. At the end of the course, the student should be able to:
2. Make the Layout of the Linen Room and perform activities over there
3. Student will be able to recognize Uniform used in different Departments
4. Students will be able to recognize different chemicals used in the Laundry
5. Student will be able to make different flower arrangement

Course Name : Marketing Management

Course Code : BL211

## Course Description:

This course aims at introducing the basic concepts of marketing in order to build a strong foundation for marketing concepts. The course builds practical skills in introducing marketing management, marketing environment, buying behavior, marketing mix concept & sales management. It aims at equipping the students with knowledge of marketing mix with special focus on product, price, place & promotion. The course will also equip students with knowledge on contemporary issues in marketing. The students will also learn the concept of emerging marketing in reference to Rural Marketing.

### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior
- Develop target markets & facilitate sales



- Develop appropriate mix of product, pricing, place & promotion
- Use concepts in brand management
- Assist in development of independent marketing strategy.
- Succeed in dynamic Market condition

Market effectively in Rural segment

Course Name : Writing Seminar-III

Course Code : FSU010

#### Course Description:

Research Methodology is a hands-on course designed to impart education in the foundational methods and techniques of academic research in the context of business management and economics. Research scholars would examine and be practically exposed to the main components of a research framework i.e., problem definition, research design, data collection, report writing, and presentation. Further, a student will be exposed to frequently applied statistics. Special attention to ethical concerns in research, measurement issues such as reliability and validity, and the critical assessment of research tools such as questionnaires, will be paid.

#### Course Outcome:

The student will learn following things:

- Understand various types of research
- Basics of Good Research
- Information search and evaluation
- Writing mini-reviews

B. Sc.- Hospitality & Hotel Administration Sem-IV (Jan 19)

S. NO. Course Name Code L+T+PCredits

1 Hotel internship BHA 221 6 MONTHS 10

- In this Semester the students have to undergo 6 Months Industrial training where they have to work in 4 different Operational Departments of Hotel Industry

B. Sc.- Hospitality & Hotel Administration Sem-V (July 19)

S. No.	Course Name	Code	Hours (L+T)/Week	Credits
1	Advanced Front Office Management	BHA311(P)	0+0+3	2
2	Advanced Food & Beverage Operations	BHA312(P)	0+0+3	2
3	Advanced Food Production Operations	BHA313(P)	0+0+3	2
4	Human Resource Management	BL322	3+0+0	3
5	Customer Relationship Management	BL(M)315	3+0+0	3
6	Industrial Relation and Labour Laws	BL(HR)316	3+0+0	3
7	Yoga Practicum - V	BSY216	0+0+2	1
8	Open Elective OE	3+0+0		3
9	Industrial Visit-V	FSU048	Atleast once a Sem	S/US
10	SPRINT-V	SP005	Once a Sem	1
	Total		20	

Course Name : Advanced Front Office Management

Course Code :BHA 311

Course Outcome-

The student will be able to handle with all the keys available in the Hotel Front office department and will also able to maintain the guest folio made in the front office department. They will also know the cash handling processes followed in the Hotel.

Course Name : Advance Food & Beverage Operations

Course Code :BHA 312

Course outcome-

The students will be able to handle the managing of the events in the Food & Beverage Outlets.

They will also know the Procedure to work in the KST Department of Hotel.

Course Name : ADVANCE FOOD PRODUCTION OPERATIONS

Course Code : BHA313(P)

Course Description:

This is a preliminary knowledge-based content intended to familiarize the student to Advanced kitchen as a Profession. This course is designed to form the basis for understanding the professional kitchen layout and organizational hierarchy being followed in 5-star category Hotels. The aim of this course is to develop interest in knowing about basics of continental food. The course introduces to the basics of pasta, French food, Italian food, methods of cooking food, important continental ingredients, structure and usage of egg in baking. Instruction of this course will be through the medium of classroom-aided theory along with extensive Laboratory Kitchen-based practicals.

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Prepare & identify basic pasta and continental food.
- Identify various basic ingredients of the cold kitchen.
- Use various Methods of Cooking suitable for a particular ingredient.
- Identify good and bad quality Egg.

Use various food commodities for various dishes according to their compatibility

Course Name : Human Resource Management

Course Code : BL 322

Course Description:

HRM is the strategic and coherent approach to the management of an organization's most valued assets; the people working there, who individually and collectively contribute to the achievement of the objectives of the business. The goal of HRM is to help an organization to meet strategic goals by attracting and maintaining employees and also managing them effectively.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.
- Effectively run a recruitment and selection program.
- Knowing your employees and look out for their welfare.

To effectively handle discipline among employees

Course Name : Customer Relationship Management

Course Code : BL(M)315

## Course Description:

The course introduces the fundamental concepts, models and frameworks of customer relationship management which is more relevant in the new customer-driven business era to meet the future demands of business optimally. It will discuss the latest developments in CRM, its industry application, role of people and employees in particular reference to CRM implementation in service sector also.

## 2. Skill Outcome:

- Provide information about the evolution of relationship as a marketing tool.
- Avoid mistakes in handling customer relations.

- To effectively motivate one's employees which in turn ensures successful customer relations.
- To use technologies successfully to handle customer groups for higher returns.
- Effectively retain the loyal customers.
- Construct a customer relation model.

Course Name : Industrial Relations and Labour Laws

Course Code : BL(HR)316

Course Description:

This course focuses on the effective management of employee and management relation. The course includes important legislations important in the effective handling of employees in any organization. The goals of this course for the organization to remain ethical and legal in its industrial relations. This course provides an overview of how an organization is to accomplish these purposes.

2. Skill Outcome:

- Uphold pleasant industrial relations by understanding the concept of industrial relations.
- Identify different mechanism for collective bargaining and worker's participation in management.
- Avoid industrial disputes and procedures for its settlement.
- Effectively handle wages and salary administration.
- Create an organization which abides by all the labour laws.

B. Sc.- Hospitality & Hotel Administration Sem-VI (July 19)

S. No.	Course Name	Code	Hours (L+T)/Week	Credits
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1	Specialization Training	CSU410	12 weeks/	(Jan/Feb/March) 6
2	Hotel Engineering	CSU411	4+0+0	4

3	Food and Beverage Controls CSU412	4+0+0 4
	Total	14

### Specialization Training-

The students have to undergo 12 weeks Specialization Training in any Star Category Hotel in addition they have to prepare a report and give the Viva Voice for the same.

Course Name : Hotel Engineering

Course Code : CSU 411

### Course Description:

This course is designed to make the Students understand & aware about the various maintainance issues which are happening in the rooms and other areas of the Hotel. It tells the students to have the basic knowledge of the all the electrical and non electrical equipments, how to operate them and what are the guideline to be followed in order to operate all those equipments.

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- They can use the various machines used in the Hotel
- They can use the various Fight Fighting equipments
- They will able to reduce the water wastage
- They can rectify maintainence error easily.

Course Name : Food & Beverage Controls

Course Code : CSU 412

#### Course Description:

This course is designed to make the Students understand the various aspects of Food & Beverage Controls which includes the Purchasing, Storing, Issuing, Weighing, Controlling measures adopted by the Hotel. It also informs them the Production and Sales control for Food and Beverage items and also how to reduce the wastage happen in the Hotel.

#### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- They will able to do FIFO LIFO Procedures
- They will be able to increase the Profitability of F & B Department
- They will be able to standardize the receipes
- They will be able to do the Stock Control

#### BSc Yoga Course Outcomes

1. Course Name : Universe & Human Life

Hours: 3+0+0

Credits: 3

#### Course Outcome:

##### I. Knowledge Outcomes:

By the end of the course the students should be able to:

- Understand the origin of universe and creation of life on the earth
- The purpose of human life, development of body mind and soul to achieve the supreme aim of the life
- Different stages of consciousness
- The concept of Karma and sanskara and its relation with rebirth.



- Understand the concept of Indian philosophy and its relation with society, social structure and life of human being.

## II. Skill Outcomes :

At the end of the course, the students should be able to:

- Describe the creation of life on earth
- Explain purpose of human life importance of the development of three faculties (body mind and soul)
- Life energy and development of consciousness
- Common religious values and meaning of spirituality.
- Explain the meaning of karma and reason of life cycle
- Development of habits and overcoming bad habits.
- Meaning of self-realization.

2. Course Name : Human Anatomy & Physiology I

Hours: 3+0+0

Credits: 3

Course Outcome:

### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand meaning of Anatomy and Physiology.
- Know the concept of Cytology
- Know the proper anatomy & physiology of different body systems.
- Understand the role of different body systems to maintain the metabolism.

### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the Anatomy of few body systems
- Explain the Physiology of few body systems
- Understand the relation between Yoga practices and Human physiology.

3. Course Name : Basics of Yoga

Hours: 3+0+0

Credits: 3

Course Outcomes:

#### I. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand meaning of Yoga and its various classical definitions
- Understand about origin, history and development of Yoga
- Understand about the insights of Indian philosophy & Yoga according to various Yogic texts
- Assimilate the basics of yoga traditions and different streams.

#### II. Skill Outcomes :

At the end of the course, the student should be able to:

- Express about the origin and history of yoga
- Express in their own way about Yoga and its definitions
- Know about different types of classical practices and streams of yoga

4. Course Name : Introductory Sanskrit

Hours: 3+0+0

Credits: 3

Course Outcomes:

#### I. Knowledge Outcome

At the end of the course, the student should be able to:

- Describe Sanskrit language.
- Introduce the basic Sanskrit grammar.
- Differentiate between Karaka and Dhatus
- Explain the Sanskrit Varnamala & Transliteration rules
- Describe the different Intro Parts of speech in sanskritam

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the basic Sanskrit grammar
- Understand the Intro Parts of speech in sanskritam
- Identify the Karaka and Dhatus
- Students will be understanding the Sanskrit language and able to speak Sanskrit

## Semester II

1. Course Name : Introduction to Patanjali Yoga Sutra-I

Hours: 3+0+0

Credits: 3

### Course Outcomes:

#### I. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand the Philosophy of Samkhya and Yoga Darshana.
- Explain the Concept of Chitta & Ishwar.
- Introduce the Samadhipada.
- Describe the Application of Samprajnatah Samadhi

#### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the different stages of Samadhi
- Understand the relation between Samkhya and Yoga Darshana.

2. Course Name : Human Anatomy Physiology II

Hours: 3+0+0

Credits:3

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Nerves system types, the different part of the brain and functions. Classification and nature of spinal nerves, neutral spine cod, cerebrospinal fluid, nerve refluxes.
- The nature, classification and types of different hormones. Anatomy and physiology of thyroid, parathyroid, pancreas, adrenal gland, Gastric and placental hormones.
- The nature and functions of urinary bladder, kidneys and prostate glands, the mechanism urine formation and kidney stones. The concept of menstruation, ovulation, contraceptive , infertility and importance
- The details of gastrointestinal system, stomach peptic ulcers, liver, small intestine, colon, rectum, gastric enzymes and hormones.
- The functioning of vision hearing and skin, the details account of sense organs and their applied physiology.

II. Skill Outcome:

At the end the student will be able to:

- To increase the awareness of neurological Anatomical and physiological concept with respect to spine, cranial nerves and brains parts.
- To understand the links between different body systems to have a homeostasis, neuromuscular conduction and hormonal regulation.

3. Course Name : Introduction to IT Tools

Hours: 3+0+0

Credits:3

Course Outcome:

I. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand basics about computers, History of computers, essential components and applications of computers in business.

- Understand various types of computer software and latest trends in information technology.
- Understand the importance and usage of word processing software.
- Understand the importance, usage and applications of spreadsheet software in business.
- Understand the importance, usage & applications of presentation software.

## II. Skill Outcome:

At the end of the course, the student should be able to:

- Create, edit, format and print documents by using MS-Word.
- Use bullets & numbering, tabs, paragraph formatting and page setup options in word documents
- Create and use tables in MS word and to use mail merge option in MS-Word
- Create, save and edit workbook
- Insert, delete and name worksheets.
- Enter data in spreadsheet cells, selecting and copying data from cells and cell ranges
- Write formulas, calculate values and organize results
- Use common spreadsheet functions (Mathematical, statistical, financial and logical)
- Visualize data with graphics, charts and diagrams
- Create powerful and attractive presentations by using various functionalities available in presentation software (MS-PowerPoint)

4. Course Name : Yoga and Human Psychology

Hours: 3+0+0

Credits: 3

Course Outcome:

### I. Knowledge Outcome:

At the end the student will gain understanding of:

- The concept of psychology its history the different methods of defining the scope and aims of psychology.
- Yoga intervention to assess the important tools of psychology, the contribution of Patanjali sutras, the practice of abhaya, veragaya and the benefits of Omkara chanting.

- How to develop the psychological skills with holistic and organic application of different yogic practice to improve the personality and good attitudes.
- Various mental illnesses like depression, anxiety, addiction, obsession and challenging behavior.

## II. Skill Outcome:

At the end the student will be able to:

- To read and measure the overt and covert behavior clients and correcting the mental processes.
- To Integrated the ethics, morals, philosophy and therapeutic of yoga to bring the positive and healthy outcome

5. Course Name : Sanskrit Adhyayan

Hours: 3+0+0

Credits: 3

Course Outcomes:

## I. Knowledge Outcome

At the end of the course, the student should be able to:

- Describe Subanta & tiganta and Avyays
- Introduce the all Ganas.
- Differentiate between Subantas and Avyays
- Explain the Samasa in sanskrit
- Describe the different pratyayas

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the basic Sanskrit grammar
- Pronounce correct slokas and read sanskritam
- Identify and understand the basic concept related to yoga
- Students will be able to understand basic meaning of Sanskrit words.

Semester III

1. Course Name : Introduction to Upanishad

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand the role and scope of Upanishads.
- Understand the importance and classification of Upanishads.
- Understand the relation between Upanishads and Vedas.
- Relation between Yoga and Upanishads.

II. Skill Outcomes:

At the end of the course, the student should be able to:

- Know the real rituals of Indian Tradition.
- Linked Yoga with Upanishads.

2. Course Name : Introduction to Patanjali Yoga Sutra-II

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the role of Klesha on spiritual pathway.
- Explain the Concept of Ashtanga Yoga and Kriya Yoga.
- Understand the suitable practices for liberation.
- Understand the Introvert and Extrovert practices of Ashtanga Yoga.

II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the appropriate action to achieve the state of samadhi.

- Identify the level of practitioner on spiritual pathway

3. Course Name : Hatha Yoga Pradepika Texts (HYP)

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcome:

At the end of the course, the student should be able to:

- Introduce the basic Hatha Yoga Texts.
- Explain the Concept of Chaturanga Yoga.
- Explain the various Hatha Yogic Practices with Techniques, Benefits & Precautions
- Differentiate between Hatha Yoga and Raj Yoga.

II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the different Practices of Hatha Yoga & Yogic Diet
- Understand the Objective of Hatha Yoga
- Understanding the significance of Hatha Yoga.

4. Course Name : Spiritual Awakening

Hours: 3+0+0

Credits: 3

Course Outcome:

I. Knowledge Outcomes:

At the end the student will gain understanding of:

- To understanding the concept of spirituality and the methods to progress on the spiritual pathway.
- To do the details study of subtle energy channels like Nadis, Chakras and Pancha-koshas.
- The progressive application of different Pranayama practice to enhance the spiritual awareness.



- The application of different yogic mudra's bring the energy indefinite pathways to have healthy body, mind and pure consciousness the healing of Mantras and Bandhas to have good neuromuscular coordination.

## II. Skill Outcomes:

At the end the student will be able to:

- To understand how to expend the perception of senses beyond their limitations and how to connect with the flowing energy in integration at the physical, mental and emotional levels.
- Use the application of different Mudra's Bandha's and Mantra's to bring the desired therapeutic result in different clinical conditions and to optimize the ability in the normal persons. To Integrated the ethics, morals, philosophy and therapeutic of yoga to bring the positive and healthy outcome

## Semester IV

1.Course Name : Hatha Yoga Text- GES & Yoga Vashistha

Hours: 3+0+0

Credits: 3

Course Outcomes:

### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Introduce the basics of Gheranda Samhita.
- Explain the Concept of Ghatashta Yoga and Saptanga Yoga.
- Understand the various Yogic Practices with Techniques, Benefits & Precautions
- Describe the Application of Yoga Vashistha.

### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the Objective of Hatha Yoga
- Identify the different Yogic diet and Yogic Practices of Hatha Yoga
- Understanding the significance of Hatha Yoga for Holistic Health

2. Course Name : Common Ailments

Hours: 3+0+0

Credits: 3

Course Outcome:

I. Knowledge Outcomes:

At the end the student will gain understanding of:

- To understanding of respiratory disorders like COPD (chronic obstructive pulmonary diseases) like chronic bronchitis and emphysema. Asthma, Pneumonia, bronchial cancer, pleural diseases. Respiratory failure, composition of air and different devices to give artificial oxygen. Congenial and genetic disorders like cystic fibrosis.
- Different types and causes of headache and their different features the causes of meningitis, spine and nerves disorders.
- Metabolic syndromes, the obesity and high levels of cholesterol problems.
- Renal failure, kidney stones and their diseases related to kidney bladder and prostate glands

II. Skill Outcomes:

At the end the student will be able to:

- To understand the different clinical signs symptoms of different respiratory problems neurological problems
- The complications and differential diagnosis between identical diseases

3. Course Name : Diet and Nutrition

Hours: 3+0+0

Credits: 3

Course Outcome:

I. Knowledge Outcomes:

At the end the student will gain understanding of:

- The concept of Balanced diet.
- Major and Minor components of diet.
- Uses and need of protein, lipid, carbohydrates, fats in biological system.
- Diet used for various diseases.

## II. Skill Outcomes:

At the end the student will be able to:

- Prepare calory base diet chart.
- Give suggestion to the individual about yogic diet.
- Provide therapy through diet.

4. Course Name : Concept of Yoga in Bhagwad Gita

Hours: 3+0+0

Credits: 3

Course Outcome:

### I. Knowledge Outcomes:

At the end the student will gain understanding of:

- Basic rules for an Ideal life.
- Schools of Yoga mentioned in Bhagwad Gita.
- An appropriate way to achieve liberation
- Concept of Jnana, Karma, Bhakti and Raja Yoga.

### II. Skill Outcomes:

At the end the student will be able to:

- Development of leadership quality.
- Overcome from depression.
- Positive approach towards life.

5. Course Name : Introduction to Alternative Therapy

Hours: 3+0+0

Credits: 3

Solve initial value problems on one dimensional wave and heat conduction equations, Laplace equation in two dimensions.

Course Outcomes:

### I. Knowledge Outcome:

At the end of the course, the student should be able to:

- Describe the History, Meaning and Objectives of Alternative Therapy

- Introduce the all Types, Prevalence and need of Alternative therapy.
- Differentiate between Yagy Therapy and Reiki Therapy
- Explain the Swar Therapy
- Describe the Marma

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the basic concept of Alternative Therapy
- Identify and understand the deference between Yagy Therapy, Reiki Therapy and Marma
- Students have knowledge & skills of therapeutics related to Acupressure, Pranic healing

## Semester V

1. Course Name : Research Methodology

Hours: 3+0+0

Credits: 3

Course Outcome:

### I. Knowledge Outcomes:

By the end of the course the students should be able to:

- Understand the concept and meaning of research methodology
- Application of research in yogic studies
- Various tools, techniques used in data collection and data analysis
- Application of different software used in data analysis
- Techniques of report writing.

### II. Skill outcomes:

At the end of the course, the students should be able to:

- Understand the methodology of research in yoga science

- Different techniques of data analysis for report writing
- Understanding various statistical software of scientific research in the field of yogic science

2. Course Name : Mediation Techniques

Hours: 2+0+1

Credits: 3

Course Outcome:

I. Knowledge Outcomes:

At the end the student will gain understanding of:

- The dynamics of mediation and the preparation to perform different of methods of mediation.
- To regulate the breathing in order to have a good control nerves system and to minimize the distraction of mind.
- To practice the breath awareness, chanting the secret healing vibration of mantra's, the visualization.
- The benefits of various techniques at physiological, psychological, bio-chemistry cal moral and ethical grounds.

II. Skill Outcomes:

At the end the student will be able to:

- Able to practise step by step approach to find the stillness of mind.
- To develop the equanimity and compassionate qualities to have in the awareness of practiceoner

3. Course Name : Yoga Therapy

Hours: 3+0+1

Credits: 4

Course Outcomes:

I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the scope and limitation of Yoga therapy.
- Understand the Principles of Yoga therapy.
- Understand the role of Yoga therapy for different stages of life.
- Know the Yogic management of common disorders.
- Know the role of Yoga therapy for psychological disorders.

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Designe a Yoga protocol for different disorders.
- Provide Yogic management for common disorders.
- Appropriate use of different Yogic practices as per requirement.

4. Course Name : Foundation of Naturopathy and Ayurveda

Hours: 3+0+1

Credits:4

Course Outcome:

## I. Knowledge Outcomes:

At the end the student will gain understanding of:

- History, philosophy and compression of Naturopathy, Ayurveda with other alternative therapy. The basic foundation of Ayurvedic and Naturopathy concepts, their scope and principles of healing.
- The concept of Dosha's, dhatu's, Agani's, Srotash, Samprapti (pathogenesis), dravya-gun'(pharmacology).
- Introduction to clinical Ayurvedic setup, the different detoxification techniques(Punchkarma) the concept of Ayurvedic diet(dosha basis) and the concept of six different taste.
- The healing modalities of Naturopathy like Mud therapy, hydro-therapy, chromo-therapy magnetic-therapy, sun-therapy.

## II. Skill Outcomes:

At the end the student will be able to:

- Identify body constitution and mental attributes (Sattvik, Rajsik, Tamsik ) to recommend dietary modifications and lifestyle changes to different body composition (Vatta, pitta, khapha)

- Have an assessment of Prakruti, Vikruti and the need of intervention of healing methods on the basis of Naturopathy principles

## Semester VI

1. Course Name : Modern Yoga Philosophers & Yoga Institutions in India & World

Hours: 3+0+0

Credits: 3

### Course Outcomes:

#### I. Knowledge Outcomes:

By the end of the course the students will be able to:

- Be aware about the spiritual masters and their contribution in dissemination of yoga throughout the world.
- To know about several yoga institutions and their work.
- The contribution of yogic institution in personal and social wellness.
- The contribution of yogic institution in the field of development.

#### II. Skill Outcomes:

At the end of the course, the students should be able to:

- Know about spiritual masters from ancient to modern period and their contribution in the field of yoga and spirituality.
- To understand the role of yogic institution in individual and social development.
- To adopt the yogic and spiritual perspective to disseminate values and ethics in integral development of the society.

2. Course Name : Methods of Teaching in Yoga

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe various principles and methods of teaching yoga.
- Explain the importance of lesson planning in Yoga & Class management.
- Explain the educational tools of yoga teaching.
- Understand the Significance of lesson planning in yoga

II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the suitable methods for teaching yoga.
- Understanding the Yoga class management in theory and practical class.
- Identify the Yogic educational tools.

3. Course Name : Applies Yoga Practice and Therapy

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the scope and limitation of Yoga therapy.
- Understand the difference between Yoga practice & Yoga therapy.
- Understand the role of Yoga therapy for different stages of life.
- Know the Yogic management of common disorders.

II. Skill Outcomes:



At the end of the course, the student should be able to:

- Suitable use of different Yogic practices as per need.
- Designe a Yoga protocol for different disorders.
- Know the therapeutic use of Yoga practices .

4. Course Name : Research Project

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcomes

By the end of the course the students should be able to:

- Understand the concept and meaning of research methodology
- Application of research in yogic studies
- Various tools, techniques used in data collection and data analysis
- Application of different software used in data analysis
- Techniques of report writing.

II. Skill outcomes:

At the end of the course, the students should be able to:

- Understand the methodology of research in yoga science
- Different techniques of data analysis for report writing
- Understanding various statistical software of scientific research in the field of yogic science

Course Name : English Poetry from Chaucer to Milton

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Read closely and understand Middle and Early Modern English, from Chaucer's rhyming couplets to Milton's blank verse.
- Recognize and understand figurative language, such as allegory and metaphor, and literary techniques, like irony, rhyme, and allusion.
- Demonstrate knowledge of the style, structure, and content of the assigned literary texts, from Chaucer to Milton.
- Identify the unique qualities of the authors studied, and compare and contrast them.
- Situate the assigned literary texts in their historical contexts and recognize the impact of major events and transitions.

## 2. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by writers at advanced postgraduate level;
- Develop a well-written argument about one or more literary texts or authors, and accurately cite literary and other sources.

Course Name : Eighteenth Century English Literature

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspects of Eighteen Century English Literature;
- Demonstrate understanding of critical and theoretical debates surrounding Eighteen Century writings at advanced postgraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to Eighteen century literature;

2. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by writers at advanced postgraduate level;
- Demonstrate research and essay writing skills appropriate to advanced postgraduate level.

Course Name : Linguistics & Stylish Analysis of Text

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the Structure of English language
- Discuss various organs that are responsible for speech production and articulation
- Understand thoroughly the structure of the language.

2. Skill outcome:

At the end of the course, the student would be able to:

- Discuss the structure of English language.
- Discuss various speech organs.
- Discuss the core of this foreign language which is complex in itself.

Course Name : English Drama

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Students will learn to deliver audience-appropriate theatrical presentations.
- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.
- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.

2. Skill outcome:

At the end of the course, the student would be able to:

- Students will learn to comprehend and analyze historical movements in dramatic literature and practice.
- Drama and Theatre Arts majors will demonstrate a proficiency in dramatic literature, stage history, and theatre aesthetics.
- Students will show growth each semester in their performance and production skills

Semester II

Course Name : Romantic Poetry

At the end of the course, the student should be able to:

- Broaden their vocabularies and to develop an appreciation of language and its connotations and denotations
- Develop their critical thinking skills
- Develop a deeper appreciation of cultural diversity by introducing them to poetry from a variety of cultures throughout the world
- Develop their own creativity enhance their writing skills

7. Skill outcome:

At the end of the course, the student would be able to:

- Recognize poetry from a variety of cultures, languages and historic periods
- Understand and appreciate poetry as a literary art form
- Analyze the various elements of poetry, such as diction, tone, form, genre, imagery, figures of speech, symbolism, theme, etc.
- Recognize the rhythms, metrics and other musical aspects of poetry

Course Name : English Novel - I

Knowledge outcome:

At the end of the course, the student should be able to:

- define the term British novel;
- summarize the history of the British novel;
- state the names of at least ten major British novelists;
- state the titles of at least ten major British novels;
- define the basic techniques of writing found in the British novel;
- name the characters found in the eight novels assigned;
- state the ideas of the eight novels assigned;
- identify the specific writing techniques of the eight novels assigned; and
- identify the assigned novel from which key quotations come.

8. Skill outcome:

At the end of the course, the student would be able to:

- state the plot of the novel;
- name the characters of the novel;
- identify the ideas of the novel;
- identify the speaker and situation within the text of the novel, when given a quote from the novel; and
- identify technique or the peculiarities of the craft of the novel, with regard to the novel as an art form.

Course Name : Literary Criticism - I

Knowledge outcome:

At the end of the course, the student should be able to:

- Write formal and informal responses to literary and critical theory that demonstrate engagement, reflective thought, effective inquiry, perception of patterns in language features, and responsible generalization

9. Skill outcome:

At the end of the course, the student would be able to:

- Recognize and critique the argument underlying critical writings.
- Apply selected theories to specific literary works.



Course Name : English Drama-II

Knowledge outcome:

At the end of the course, the student should be able to:

- Students will learn to deliver audience-appropriate theatrical presentations.
- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.
- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.

Skill outcome:

At the end of the course, the student would be able to:

- Students will learn to comprehend and analyze historical movements in dramatic literature and practice.
- Drama and Theatre Arts majors will demonstrate a proficiency in dramatic literature, stage history, and theatre aesthetics.
- Students will show growth each semester in their performance and production skills

Semester III

Course Name : Twentieth Century Poetry

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Read closely and understand twentieth century poetry.
- Recognize and understand figurative language, such as allegory and metaphor, and literary techniques, like irony, rhyme, and allusion.
- Demonstrate knowledge of the style, structure, and content of the assigned literary texts, from T.S. Eliot to Bishop.
- Identify the unique qualities of the authors studied, and compare and contrast them.
- Situate the assigned literary texts in their historical contexts and recognize the impact of major events and transitions.

2. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by writers at advanced postgraduate level;
- Develop a well-written argument about one or more literary texts or authors, and accurately cite literary and other sources.

Course Name : Postcolonial Literatures

Course outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the psychology of postcolonial literature
- Discuss the literature and its feature.
- Understand the works introduced to them.

2. Skill outcome:

At the end of the course, the student would be able to:

- Understand the psychology of postcolonial literature
- Discuss the literature and its feature.
- Understand the works introduced to them.

Course Name : Literature & Gender

Course Outcome:

1. Knowledge outcome:

At the end of the course, the student should be able to:

- Read closely and understand the connection between literature and gender.

- Demonstrate knowledge of the style, structure, and content of the assigned literary texts.
- Identify the unique qualities of the authors studied, and compare and contrast them.
- Situate the assigned literary texts in their historical contexts and recognize the impact of major events and transitions.

2. Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by writers at advanced postgraduate level;
- Develop a well-written argument about one or more literary texts or authors, and accurately cite literary and other sources.

Semester IV

Course Name : Twentieth Century Novel

Knowledge outcome:

At the end of the course, the student should be able to:

- Students will learn to deliver audience-appropriate theatrical presentations.
- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.

- Students will read with comprehension and learn to critically and aesthetically analyze works in dramatic literature and the performing arts.

Skill outcome:

At the end of the course, the student would be able to:

- Students will learn to comprehend and analyze historical movements in dramatic literature and practice.
- Drama and Theatre Arts majors will demonstrate a proficiency in dramatic literature, stage history, and theatre aesthetics.
- Students will show growth each semester in their performance and production skills

Course Name : Literary Criticism - II

Knowledge outcome:

At the end of the course, the student should be able to:

- Write formal and informal responses to literary and critical theory that demonstrate engagement, reflective thought, effective inquiry, perception of patterns in language features, and responsible generalization

Skill outcome:

At the end of the course, the student would be able to:

- Recognize and critique the argument underlying critical writings.
- Apply selected theories to specific literary works.

Course Name : The Novel in India

Knowledge outcome:

At the end of the course, the student should be able to:

- Understand the different themes present in women's writing.
- Discuss the feminism and its feature.
- Understand the works introduced to them.

Skill outcome:

At the end of the course, the student would be able to:

- Critically analyze the writings of feminist writer and their themes.

- Discuss the psychology of the characters and theme of gender and sexuality in the novel
- Understand the works introduced to them.

Course Name : Indian Literature

Knowledge outcome:

At the end of the course, the student should be able to:

- Recognize and discuss aspects of Indian writing;
- Demonstrate understanding of critical and theoretical debates surrounding Indian writing at advanced undergraduate level;
- Demonstrate awareness of cultural and intercultural concerns relating to Indian writing;

Skill outcome:

At the end of the course, the student would be able to:

- Interpret and analyze literary works by Indian writers at advanced undergraduate level;
- Demonstrate research and essay writing skills appropriate to advanced undergraduate level.

SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

MBA PROGRAM

SCHEME OF COURSES

QUADMESTER-I

S. No.	Course Code	Hours	Credits	Faculty
1	Micro Economics	MST511	2+2 2	Dr. Kesari Singh
2	Financial Accounting	MST512	2+2 2	Mr. Chander Mohan Gupta
3	Statistics for Management-I	MST513	2+2 2	Mr. Amar Rao
4	Organizational Behaviour	MST514	2+2 2	Ms. Pooja Verma
5	Marketing Management-I	MST515	2+2 2	Dr. Kuldeep Chand Rojhe
6	Writing Seminar-I	MST516	Whole Quad 1	Prof. Narinder Verma/ Prof. Kuldeep Chand Rojhe
7	Social Project-I	MST517	Whole Quad 1/0%	Individual Faculty
8	SPRINT-I	MST518	Once a Quad 2	Ms. Poonam Nanda
	TOTAL		14	

Total Credits = 14

Note: % - Students who satisfactorily pass the course will get 1(one) credit, rest will get 0(Zero) credit.

Course Name : Micro Economics

Course Code : MST511

Course Instructor : Dr. Kesari Singh



Hours: 2+2

Credits: 2

Course Description:

This foundation course has been designed to introduce the basic microeconomics principles to the management students to help them better understand and handle the business problems. The case studies and class discussion will give an insight into the consumer behavior, decision making process of the firms and the working of the market in general; thus preparing the student to well comprehend the realities of business world.

Course Content:

Unit-A: Foundations of Micro Economics

- Demand - the concept (with short introduction to the concept of utility)
- Derivation of individual and market demand and factors affecting demand
- Elasticity of demand;
- Demand forecasting
- Concept of supply.

Unit-B: Theories of cost and production

- Theory of costs –meaning and types of costs
- Short and long run costs;
- Theory of production – average and marginal product
- Production function
- Classical production function and the law of diminishing returns
- Production with two variables
- Returns to scale;
- Revenue – average, marginal and total revenue
- The maximization problem.

Unit-C: Market Forms and market concentration

- Market forms – perfect and imperfect markets
- Characteristics of different forms of markets
- Perfect competition and price and quantity determination under perfect competition
- Monopolistic competition and Monopoly.

Unit-D: Market Forms – Oligopolistic markets

- Oligopoly: meaning, characteristics;
- Duopoly and the special case of Cournot model;
- Pricing and output decisions under oligopoly
- Price rigidity in oligopoly,
- Pricing and output decisions by low cost and a dominant oligopolistic firm

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course the students are expected to:

- Use the concept of demand and supply to understand working of a market.
- Understand and use different cost and returns concepts to analyze behavior of the firms under different market conditions
- Demonstrate how competitive industries respond to changing market forces.

##### 2. Skill Outcome:

At the end of the course the students should be able to:

- Predict the product demand in response to changes in different factors affecting demand
- Forecast demand for a product
- Use costs and returns concepts to find profitable level of output for a firm and also to estimate profits.

Course Name : Financial Accounting

Course Code : MST 512

Course Instructor : Mr. Chander Mohan Gupta

Hour: 2+2

Credits: 2

#### Course Description:

This course is designed to give student a taste of numbers in business and introduce them with the accounting system and the study of double effect of every transaction which takes place in a firm. The course helps a student to understand as to what keeping of financial records in a firm is all about and how to derive at a particular number called Net profit of a firm while keeping in detail of every entry that takes place in a business firm. Along with the methods of recording the transactions of the business the course will also give a brief introduction of “Accounting standards of India” which governs the rules laid down by the authorities of keeping the records as per standards.

#### Course Contents:

##### Unit-A:

- Introduction to financial Accounting
- Concepts and conventions of Accounting
- Introduction to types of Accounts and Golden Rules of Accounting

##### Unit-B:

- Accounting Standards of India (Introduction)

- Passing of Journal Entries
- Subsidiary Books( Purchase Book, Sales Book, Cash Book)

#### Unit-C:

- Trial Balance
- Final Accounts( Trading, Profit and Loss Account)

#### Unit-D:

- Balance Sheet (as per Schedule VI)
- Cash Flow Statement

#### Course Objective:

##### 1. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand different types of Accounts and differentiate in between.
- Understand Accounting Cycle
- Purpose of Trial Balance.
- Understand why Trading, Profit and Loss Account and Balance Sheet is made.
- Understand the movement of cash in a business

##### 2. Skill Outcome

- Will be able to pass Journal entries as well as post them in their respective Accounts.
- Prepare subsidiary books, Trial Balance and final accounts.
- Will be able to predict cash flows of a company.
- Full knowledge of Accounting Standards of India.

Course Name : Statistics for Management-I

Course Code : MST513

Course Instructor : Mr. Amar Rao

Hours: 2+2

Credits: 2

Course Description:

This course is designed to introduce the students to basic methods of organization and presentation of data like tabular form, Pie chart, bar graph, line charts, ogives, frequency curve and histograms. Students will learn to analyze data by understanding the roles of central tendency like Mean, Median, Mode and measures of dispersion like range, standard deviation and coefficient of variation. To appreciate the importance of uncertainty in life, the basic concept

of probability and its calculation will be incorporated. Students will be introduced to the applications of MS Excel appropriate for the course. Course will be complimented with necessary in-house practical

Course Content:

Unit- A: Grouping and Displaying Data to convey Meaning

- Overview of data, its types and statistical analysis
- Tabular and graphical presentation of data through Pie chart, Histograms, Frequency Curve, Bar graph and Line Chart etc.

Unit- B: Measures of central tendency

- Measures of central tendency
- Arithmetic Mean, Geometric Mean, Median, and Mode

Unit- C: Measures of dispersion

- Ranges
- Dispersion
- Coefficient of variation.
- Descriptive statistics using MS EXCEL

Unit- D: Introductory ideas of Probability

- Basic concept of Probability

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Realize the importance of data presentation
- Describe various types of graphical presentations like Pie chart, Bar graph etc.
- Define averages and dispersion for ungrouped and grouped data

- Understand the concept of uncertainty and axioms of probability
- Explain type of events and compute probability of such events

2. Skill Outcome:

- Making of charts and graphs on MS Excel
- Computation of means and deviation manually and through MS Excel formulae
- Apply event specific formula to calculate probabilities

Course Name : Organizational Behaviour

Course Code : MST514

Course Instructor : Ms. Pooja Verma

Hours: 2+2

Credits: 2

Course Description:

The course introduces the fundamental concepts, models and frameworks of organizations at – individual, group and organizational levels. The course aims to develop among students, a sound decision making approach indicative of good leadership traits to meet the future demands of business optimally.

Course Content:

Unit-A:

- Introduction: Meaning and importance of organization behavior. Contributing disciplines to OB. Different models of OB. Challenges and Opportunities of OB.

Unit-B:



- The individual behavior: Attitude and job related attitude. Personality and two models (MBTI & Big five Model). Perception and common shortcuts. Motivation and its theories.

#### Unit-C:

- The Group behavior: Group dynamics: group properties and formation. Leadership styles and theories. Conflict management techniques.

#### Unit-D:

- The Organizational system: Organization structure: Structure elements and common organizational structure designs. Stress management techniques.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding individual behavior and attitude at a workplace.
- Identify different personality types based on Big five model and MBTI.
- Study the relationship between motivation and performance.
- Identify common errors in perception.
- Understand how groups are formed and work in an organization.
- Address to the different leadership styles, conflict management techniques and stress management process.
- Knowledge of different organizational designs and its elements.

##### 2. Skill Outcome:

- Identify personalities of individual using models like MBTI and Big five model.
- Avoid biasness and other perceptual errors while decision making processes.
- To motivate one's subordinates and employees.
- To lead successfully and handle groups for higher returns.
- Effectively handle conflict and stress at work place.
- Construct an organizational structure.

Course Name : Marketing Management-I

Course Code : MST515

Course Instructor : Dr. Kuldeep Chand Rojhe

Hours: 2+2

Credits: 2

Course Description:

This course aims at introducing the basic concepts of marketing in order to build a strong foundation for advance marketing concepts. The course builds practical skills in introducing marketing management, marketing environment, buying behavior, marketing mix concept & sales management.

Course Content:

Unit-A: Understanding the Marketing Process

- Core concepts – Needs, wants, demands, product, exchange, philosophies
- Marketing environment
- Consumer behavior

Unit-B: STP

- Segmentation
- Targeting ...3
- Positioning

Unit-C: Marketing Program

- Marketing mix
- Sales Management

Unit-D: Sales Management

- Sales Management

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in marketing
- Become aware of marketing as open system
- Understand the complexities of human behavior in marketing
- Know how target markets are selected & positioned
- Realize the basic pillars on which marketing is built

## 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior
- Develop target markets & facilitate sales

Course Name : Social Project-I

Course Code : MST517

Course Coordinator : Individual Faculty

Hours: Throughout the Quadmester - I

Credits: 1

Course Description:

This course is designed to provide students hands on experience on doing a socially impactful work. Topics of projects could resemble the topics as given underneath.

Sr. No Topics of the Projects

- 1 Plastic free campus and surroundings & other School.
- 2 Upliftment of Primary School Manjholi.
- 3 Disaster management awareness & preparedness at Shoolini.
- 4 Creating role model - Agri farms.
- 5 Substance Abuse (awareness & prevention).
- 6 Water recycling & rain water harvesting



Course Name : SPRINT-I

Course Code : MST518

Course Coordinator : Ms. Poonam Nanda

Hours: Around 40 hours of training in a Quadmester

Credits: 2

#### Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

#### Course Content:

##### Foundation Setting

- Usage of MS-Excel & IT skills in Management
- Presentation skills
- Writing reports, Stock Trading & Business Plans

##### Primer Courses

- Introduction to Finance
- Operation Management Overview

- Marketing Management
- Human Resource Management
- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.



Course Name : Writing Seminar-I

Course Code : MST516

Course Instructor : Prof. Narinder Verma, Dr. Kuldeep C Rojhe

Hours: Around 15 hours of Workshop in a Quadmester

Credits: 1

Course Description:

The course is designed to inculcate thinking in MBA students and enable them to communicate it through reading, reasoning and writing effectively. The course focuses on skills that are critically required to learn, carefully examine texts and data given in the form of governmental or non-

governmental reports on issues of national and international importance. WS-I will focus on developing the basic ideas about reading, interpreting and reproducing topics of managerial importance. The course will help students to read between the lines and thereby reason rightly to communicate it lucidly through ppt or other form of presentation and in form of a project report. In due course, student will gain an ability to ask right question and engage with other voices to ultimately become a better thinker.

#### Course Content:

The course includes following broad topics:

1. Art of introducing oneself
2. Preparation and articulation of elevator pitch
3. Reading and reasoning project reports/ articles/ research papers
4. Presenting project reports/ articles/ research papers as a Group Task with a goal to write a thesis later
5. Writing of reports in a concise manner
6. Feedback

#### Course Outcome:

The student will learn following things:

- Reading comprehension
- Basics of Good Presentation
- Basics of Good Presentation
- Information search and evaluation
- Writing of smaller versions of reports
- Team spirit and member's roles
- Confidence building
- Facing the stage
- Time management skills

#### Methodology:

- Two-day workshop
- Individual and group assignments
- Group presentation

- Reading, Reasoning and Writing

#### Grading:

i.	Attendance	5%	
ii.	Introduction and Elevator Pitch	20%	
iii.	Team Presentation	-	60%
a.	Presentability	15%	
b.	Communication Skills	20%	
c.	Content	15%	
d.	Question and Answers	10%	
iv.	Thesis/Report	15%	

#### Required Books and Materials:

1. Gene Zelazny, "Say it with Charts- The Executive Guide to Visual Communication", Mc Graw-Hill New Delhi.
2. Gene Zelazny, "Say it with Presentations-How to Design and Deliver Successful Business Presentations", Tata Mc Graw Hill New Delhi.
3. Barbara Minto, "The Pyramid Principle- Logic in Writing and Thinking", FT Prentice Hall-Financial Times, An Imprint of Pearson Education, New Delhi.

#### Supplementary Material:

1. World-Economic-Forum-Global-Risk-Report-2016
2. Making Public Investment More Efficient
3. MGI\_Big\_Data\_Full\_Report
4. Urban-World-Global-Consumers-Full-Report
5. World Bank Mid Year Review 2016
6. World Economy and Financial Report World Bank
7. 2011\_Publ\_En\_Grc\_OECD\_Future\_Global\_Shocks\_LR

8. Economic Survey of Himachal Pradesh, India
9. RBI-Gold Loans By NBFCs
10. Women in Financial Services\_2016

## SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

### MBA PROGRAM

### SCHEME OF COURSES

#### QUADMESTER-II

S. No.	Course Code	Hours (L+T)	Credits	Faculty
1	Macro Economics	MST521	2+2	2 Dr. Kesari Singh
2	Cost Accounting	MST522	2+2	2 Mr. Chander Mohan Gupta
3	Statistics for Management-II	MST523	2+2	2 Mr. Amar Rao
4	Marketing Management-II	MST524	2+2	2 Dr. Kuldeep Chand Rojhe
5	Business Research Methods	MST525	2+2	2 Prof. Narinder Verma
6	Social Project-II	MST527	Whole Quad	1/0% Individual Faculty
7	SPRINT-II	MST528	Once a Quad	2 Ms. Poonam Nanda
	TOTAL		13	

Total Credits = 13

Note: %-Students who satisfactorily pass the course will get 1(one) credit, rest will get (Zero) credit

Course Name : Macro Economics

Course Code : MST 521

Course Instructor : Dr. Kesari Singh

Hours: 2+2

Credits: 2

Course Description:

This course is designed to provide students a sound understanding of macroeconomic environment in which firms have to make decisions. Course provides an understanding of key macroeconomic concepts like GDP, inflation, unemployment, business cycles, interest rates and the monetary system. Focus will be on how macroeconomic policies (fiscal & monetary) affect the functioning of the economy. Case studies will be used to make students understand the impact of policy interventions as well as fluctuations on the overall wellbeing of the economy.

Course Content:

- Macroeconomics - nature and scope and circular flow model of the economy.
- National income – concept and measurement
- Theory of National income determination, consumption and investment
- Unemployment
- Economic Growth
- Business fluctuations and cycles – concept and theories
- Inflation – causes and cures
- Monetary and fiscal policies
- International trade, exchange rate theory
- Balance of payments

Unit-A: Macroeconomics- An Overview

- Nature and Scope
- National Income- Concepts and Measurement
- Determination of national income

#### Unit-B: Macroeconomic Issues

- Unemployment
- Money
- Inflation
- Economic growth
- Business cycles

#### Unit-C: Macroeconomic Policy Framework

- Fiscal Policy
- Monetary Policy
- Expansionary and Contractionary policies

#### Unit-D: Trade and Balance of Payment

- International Trade
- Exchange rate
- Balance of payment

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the measurement of macroeconomic aggregates such as GDP - real and nominal, national income, economic growth, inflation and business cycles.
- Understand the concept of Balance of payments and explain the measurement of a country's balance of payments
- Describe the phases of business cycles and their impact on business
- Analyze the effect of macroeconomic policies with regard to real GDP growth, unemployment rate and the rate of inflation.

- Illustrate the effect of implementing expansionary and contractionary monetary and fiscal policies during recession or inflation in the economy.
- Understand better the basics of international trade.

## 2. Skill Outcome:

At the end of the course, the student should be able to:

- Convert nominal variables to real variables.
- Evaluate current economic issues and their impact on business activities
- Understand and discuss the impact of inflation and recession
- Understand and critique macroeconomic policy initiatives
- Understand and interpret discussions on macroeconomic issues in electronic and print media.

Course Name : Cost Accounting

Course Code : MST 522

Course Instructor : Mr. Chander Mohan Gupta

Hours: 2+2

Credits: 2

## Course Description:

This course enables students to develop statements of cost and management accounting. The course should develop the student's understanding, skill, and analytical ability in management accounting where he can function effectively as a professional Management accountant in industry, public accounting, management consulting, government, or personal business management. It further explores production and costing concept of the firm, with a relation of cost and profit. Along with, it would be forecasting the firm's position and preparation of budgets for the firm at different level of production process.

## Course Contents:

### Unit-A: Cost Sheet

- Introduction, usage and preparation of Cost Sheet

### Unit-B: Control

- Material Control, labor Control and Process Costing

### Unit-C: Budget

- Job Costing, Budget (Cash, flexible and Master Budget)

### Unit-D: Overheads

- Overhead Classification
- Break- even Point( PV ratio, contribution)

## Course Objective:

### Knowledge Outcome

At the end of the course, the student should be able to:

- Understand what cost accounting is all about.
- Usage of cost accounting in production and cost control.
- For control cost control material and labor.
- Understand what Job and Process costing.
- Preparation of budget and calculation of Break-even Point.

### Skill Outcome

- Prepare a cost sheet on actual basis(either of lunch, Marriage, function)



- Prepare Budgets and forecast expenses
- Predict the sales, purchase and different ordering levels.
- Construct relationship between cost, sales and profit.

Course Name : Statistics for Management-II

Course Code : MST 523

Course Instructor : Mr. Amar Rao

Hours: 2+2

Credits: 2

Course Description:

The course aims to train students on applications of correlation and regression analysis in areas like Finance, Marketing, operations and academic research. The course is designed to provide a sound conceptual base of sampling distributions of mean and proportion. The course will give an insight into choosing an appropriate sampling technique like non-probabilistic and probabilistic sampling techniques. The course introduces Z-Test, 't'- test, Chi Square, F- test and ANOVA to carry out hypothesis testing to interpret data to help managerial decision making. Appropriate cases studies and or problems will be discussed to complement learning.

Course Content:

UNIT A- Regression

- Simple regression
- Concept of dependent and independent variables
- Use of regression in time series analysis

UNIT B: Correlation and coefficient of determination

- Concept of correlation
- Coefficient of determination
- Coefficient of correlation

UNIT C: Sampling theorem and distribution

- Sampling theory

- Central Limit Theorem
- Sampling distributions

#### UNIT D: Hypothesis testing

- Introduction to hypothesis
- Testing of hypothesis
- Theory of estimation
- Chi square test, t-test, one way ANOVA
- Use of MS Excel and SPSS

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Application of correlation and regression in  $\beta$  calculation etc
- Understand Probabilistic and non-probabilistic sampling through simple random sampling, systematic sampling, stratified sampling, cluster sampling, quota sampling judgmental sampling and snowball sampling etc.
- Estimate population mean and standard deviation
- Use Central Limit Theory to fit Normal distribution for testing
- Calculate sample size, use of Chebyshev's inequality
- Formulate hypotheses, carry out testing and interpret it

##### 2. Skill Outcome:

- Correlation and regression analysis through MS Excel and SPSS
- Calculation of sample size
- Calculation of standard error and confidence interval (producer's risk)
- Statistical analysis on MS Excel and SPSS
- Embedding table and charts from MS Excel/SPSS to PPT etc.

Course Name : Marketing Management-II

Course Code : MST 524

Course Instructor : Dr. Kuldeep Chand Rojhe

Hours: 2+2

Credits: 2

**Course Description:**

This course aims at building strategic skills in marketing with in-depth understanding of concepts in marketing mix. It aims at equipping the students with knowledge of marketing mix with special focus on product, price, place & promotion. The course will also equip students with knowledge of brand management.

**Course Content:**

#### Unit-A: Product Decisions

- What is product, Levels of product, Product Classification
- Product Hierarchy, Line Stretching, Product Mix Pricing, Co-Branding, Fifth P
- New market offering, NPD Process

#### Unit-B: Pricing Decisions

- Price Meaning
- Steps in setting price
- Pricing Methods

#### Unit-B: Place Decisions & Integrated marketing communications

- Marketing Channel, Channel Functions, Channel Levels
- Designing Marketing Channel System, Channel Management Decisions
- Retailing & whole selling, Logistics

#### Unit-D: Promotion Mix & Brand Management

- Marketing Communications, Micromodels of Communications, Steps in effective communications
- Advertising, Media Types, Sales Promotion, Public Relations
- Brand Management

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand concepts in marketing mix
- Develop insight of Logistics & marketing communications.
- Understand the concept & practices in brand management.
- Gain knowledge about practical solution to marketing problems.

##### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Develop appropriate mix of product, pricing, place & promotion
- Use concepts in brand management
- Assist in development of independent marketing strategy.

Course Name : Business Research Methods

Course Code : MST 525

Course Instructor : Prof. Narinder Verma

Hours: 2+2

Credits: 2

#### Course Description:

The objective of this course is to help MBA students understand how complex problems related to business or otherwise can be solved by applying critical reasoning skills in breaking them down to their smallest or fundamental elements by techniques such as why-why analysis, root cause technique, fishbone diagram, logic/issue trees and hypotheses of solutions etc. The course will provide an understanding of how to identify and formulate a problem at hand, design and conduct an investigation, and present the research findings as a report. The course will use in-house practicals to demonstrate the use of appropriate and applicable reasoning approaches, methods and techniques for different problems.

#### Course Content:

##### Unit-A: Language of Reasoning

- Arguments vs other language forms
- Criticality vs un-criticality
- Critical thinking and its indicators
- Elements, standard and traits of critical thinking
- Classical model of Critical Thinking
- Types of reasoning and its identification

##### Unit-B: Identifying the Problem

- Defining the problem
- Classifying the problem
  - o Simple Problems
  - o Customary problems
  - o Introspective Problems
  - o Complex Problems
- Tools for problem identification:
  - o Why-why analysis
  - o What if analysis
  - o Root Cause Technique (RCT)
  - o Cause and Effect diagram

- o Pareto Analysis, etc.
- Problem formulation principle

#### Unit-C: Breaking up of Problem

- Identifying components of problem
- o Making logic trees
- o Constructing issue maps
- o Constructing mind maps
- o Priority matrix, etc.
- o Use of MECE concept

#### Unit-D: Decision Making

- Measuring the impact of problem
- Reverse cause and effect analysis
- Creating hypotheses
- Developing research instrument
- Introduction to researching
- Preparing a project report

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Identify a critical thinker
- Describe tools for identifying problems
- Use the MECE (Mutually Exclusive and Collectively Exhaustive) approach
- Understand issue tree approach to formulate a problem
- Describe Fishbone analysis
- Describe issue tree approach
- Understand types of research and data



## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Critically examine claims encountered in daily life
- Compose effective arguments
- Describe tools for identifying problems
- Use Issue Tree Approach for problem formulation
- Use a Fishbone Diagram for cause and effect analysis
- Apply MECE and CRAP to find solution to a problem
- Write a research proposal

Course Name : Social Project-II

Course Code : MST527

Course Coordinator : Individual Faculty

Hours: Throughout the Quadmester - II

Credits: 1

Course Description:

This course is designed to provide students hands on experience on doing a socially impactful work. Topics of projects could resemble the topics as given underneath.

Sr. No Topics of the Projects

- 1 Plastic free campus and surroundings & other School.
- 2 Upliftment of Primary School Manjholi.



Course Name : SPRINT-II

Course Code : MST528

Course Coordinator : Ms. Poonam Nanda

Hours: Around 40 hours of training in Quadmester-II

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management

- Presentation skills
- Writing reports, Stock Trading & Business Plans

#### Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.

SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

MBA PROGRAM

SCHEME OF COURSES

QUADMESTER-III

S. No.	Course Code	Hours (L+T)	Credits	Faculty
1	Financial Management-I	MST531	2+2 2	Prof. Narinder Verma
2	Managerial Computing	MST532	2+2 2	Mr. Devesh Kumar
3	Legal Aspects of Business	MST533	2+2 2	Ms. Prachi Kapil
4	Human Resource Management-I	MST534	2+2 2	Dr. Dipanker Sharma
5	Social Project-III	MST535	Whole Quad 1	Ms. Poonam Nanda
6	SPRINT-III	MST536	Once a Quad 2	Ms. Poonam Nanda
7	Marketing Research-I	MST537	2+2 2	Mr. Shivender Gupta
8	Writing Seminar - II	MST526	15 Hrs 1	Prof. Narinder Verma/Prof. Kuldeep Rojhe
TOTAL			14	

Total Credits = 14

Course Name : Financial Management-I

Course Code : MST531

Course Instructor : Prof. Narinder Verma

Hours: 2+2

Credits: 2

Course Description:

This course of financial management will help in knowing the theories of modern finance and develop the familiarity with the analytical techniques helpful in financial decision making. This course will broadly deal in concepts and application of time value of money, capital budgeting techniques, and cost of capital. The course is designed to provide a foundation of financial concepts to students from varied backgrounds. Clarification of theoretical concepts and jargons marks the initial stages of the course. As financial decision-making involves usage of concrete mathematical operators and techniques, the module ascribes due weightage to these practical concepts.

Course Content:

Unit-A: Nature and scope of financial management

- Financial Decisions in a firm

- Goal of financial management
- Forms of organization

#### Unit-B: Time Value of Money

- Future value of a single cash flow
- Future value of multiple cash flows
- Present value of a single cash flow
- Present value of multiple cash flows
- Intra-year compounding and discounting
- Understanding the use and application of the discounting factor

#### Unit-C: Capital Budgeting

- Theoretical concepts and applications
- Payback Period Method
- Accounting Rate of Return
- Net Present Value
- Internal Rate of Return
- Profitability Index
- Terminal Value Method

#### Unit-D: Cost of Capital

- Cost of Debt
- Cost of Preference
- Internal and External cost of Equity
- Application of Capital Asset Pricing Model (CAPM)
- Weighted Average Cost of Capital
- Floatation costs and their adjustments

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the nature and scope of financial management (Why do we need financial management; Wealth maximization Vs. Profit maximization)

- Understand the significance of the concept of time value of money
- Understand the types and characteristics of major financial instruments (shares, debentures, bonds)
- Assimilate the basics behind tools of financial decision making such as capital budgeting and cost of capital

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others
- Calculate the present and future values of cash flows using formulae for time value of money.
- Assist in realizing the underlying factors such as uncertainty, inflation, opportunity cost)
- Calculation of non-discounted and discounted techniques of capital budgeting: Pay-back method, Average rate of return method, NPV method, IRR method, Profitability index and MIRR.
- Assist in understanding project feasibilities
- Compute specific elements of cost of capital: Cost of debt, Cost of equity plus the usage of CAPM & WACC models

Course Name            Managerial Computing

Course Code            : MST 532

Course Instructor      : Mr. Devesh Kumar

Hours: 2+2

Credits: 2

### Course Description:

This course introduces students to the most important concepts in modern IT. This course is intended to provide basic computing skills and knowledge for management students. This course



covers all the essential concepts of computers like basics of IT, networking, internet, security management and current trends. The course will also provide students hands-on experience in working on office automation software like MS Office.

Course Content:

Unit-A: Basics of IT

- Hardware, software, operating system, networking and communication

Unit-B: Office automation software

- Word, Excel, PowerPoint, Access, Outlook, Web browsers

Unit-C: Privacy, security and ethics

- threats from viruses, hacking, etc. and security techniques like encryption, firewalls

Unit-D: Current trends

- e-commerce, mobile computing, cloud, social networks

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basic components of a computer system
- Understand importance & functionality of operating system
- Understand basics of data communication, computer networks and business applications of these technologies
- Understand ethical and security issues involved in e-business environment and learn about various methods for providing computer security.
- Know and acquire basic understanding about latest trends in computing world like cloud computing, mobile computing and social networks and business implications these trends.

2. Skill Outcome:

- Creating, formatting, and sharing documents in MS Word
- Data entry in Excel Worksheet, formatting worksheets and data, using formulas and functions and creating charts
- Creating presentation using PowerPoint
- Working with and using Outlook

- Creating a simple database using MS Access

Course Name : Legal Aspects of Business

Course Code : MST 533

Course Instructor : Mr. Chander Mohan Gupta

Hours: 2+2

Credits: 2

Course Description:

The course provides an understanding of the legal framework governing organisations with particular focus on the registered company with application in all sectors; its theme relates closely to the Corporate Governance and imparts the basic knowledge of the provision of the Companies Act 1956.

Course Content:

Unit A: Corporate Introduction, features, Incorporation and Management

- Company – features and characteristics
- Concept of lifting up of corporate Veil
- Types of Companies
- Formation of Company
- Share Capital
- Members, Shareholders and Directors
- Meetings

Unit B: Oppression & Mismanagement, Investigation (Section 397 – 408, Section 235-251)

- Concept of Oppression and Mismanagement.
- Prevention of Mismanagement.
- Inspection and Investigation - necessity
- Power of registrar to call for inspection and investigation
- Protection of Minority interest

Unit C: Corporate Liquidation

- Modes of Winding up
- Official Liquidators and their role
- General Powers of the Tribunal
- Contributory

Unit D: Corporate Governance and Social Responsibility

- Concept of Corporate Governance and its elements.
- CSR and its Impact.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand what legal Aspects of business are and answer the basic questions on the subject.
- Understand the initial requirement to step up a business
- Have an insight on what are the documents to be issued and what are the procedure to get a company registered.
- Have working knowledge of how shares are issued
- The process of winding up of the company.
- Have a working knowledge of the company law board and its powers and procedures of working.

2. Skill Outcome:

- Will be able to explain the procedure and requirement of establishing a company.
- Will be able to draft legal documents such as AOA, MOA and prospectus.
- Have knowledge of how meeting are done and the procedure of holding of meetings.
- Practical knowledge of keeping minutes of the meeting.
- The requirement of CLB and powers of CLB.
- Have a brief idea of how a company is wound up and the documents required for.

Course Name : Human Resource Management

Course Code : MST534

Course Instructor : Dr.Pooja Verma

Hours: 2+2

Credits: 2

#### Course Description:

HRM is the strategic and coherent approach to the management of an organization's most valued assets; the people working there, who individually and collectively contribute to the achievement of the objectives of the business. The goal of HRM is to help an organization to meet strategic goals by attracting and maintaining employees and also managing them effectively.

#### Course Content:

- Human Resource Management
- Human resource planning- meaning and process
- Job Analysis and job design
- Recruitment and selection
- Induction and Orientation

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.
- Understand the significance of induction and orientation programs

## 2. Skill Outcome:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing induction and orientation programs.
- Effectively run a recruitment and selection program.

Course Name : Marketing Research-I

Course Code : MST537

Course Instructor : Shivender Gupta

Hours: 2+2

Credits: 2

## Course Description:

Marketing research is a critical function for every business enterprise. In today's competitive and dynamic business environment, marketing research has become an increasingly important part of a business operation. This course teaches the value of the information generated from marketing research for users of such information who make critical decisions about the future direction of their businesses and supporting investments. Considering the dynamics of the environment in which businesses operate, and the many variables at play, decision making must be founded on and supported with research about the target market. This course provides a comprehensive introduction to this interesting branch of strategic planning and marketing within the field of business management. The course structure includes detailed study of concepts and cases as well as other examples. The course is divided in two parts. This part i.e. Marketing Research-I includes significant coverage of basic concepts like

marketing research process, problem identification, research design, qualitative & quantitative research, measurement & scaling and sampling. This course will also include one research project which will provide students the opportunity to apply some of the concepts learned in marketing research.

Course Contents:

Unit-I: Introduction to marketing research

- Introduction to Marketing Research
- The marketing research process
- Defining Marketing research problem & Developing approach

Unit-II: Research Design

- Research design
- Exploratory research design
- Qualitative research
- Descriptive & causal research design

Unit-II: Measurement and Scaling

- Measurement and scaling: Fundamentals and comparative scaling
- Measurement and scaling: Non-comparative scaling techniques
- Questionnaire designing

Unit- IV: Sampling

- Sampling: Design and procedure
- Sampling: Sample size calculation

Course Outcome:

1. Knowledge Outcome: At the end of the course students should be able to understand:

- The concept, role, scope and process of marketing research
- How to define marketing research problem and develop an approach
- How to formulate research design
- How to design a questionnaire
- How to select a sample and determine sample size

2. Skill Outcome:

At the end of the course, student should be able to:

- identify marketing problems faced by companies
- plan appropriate research design
- design questionnaire and draw an appropriate sample for data collection



## MBA PROGRAM

### SCHEME OF COURSES

#### QUADMESTER-IV

S. No.	Course Code	Hours (L+T)	Credits	Faculty	
1	Financial Management-II	MST541	2+2	2	Prof. Narinder Verma
2	Human Resource Management-II	MST542	2+2	2	Dr. Dipanker Sharma
3	Management of Investment (AMFI)	MST543	2+2	2	Mr. Amar Rao
4	Business Analytics	MST544	2+2	2	Mr. Devesh Kumar
5	Social Project-IV	MST545	Whole Quad	1	Ms. Poonam Nanda
6	SPRINT-IV	MST546	Once a Quad	2	Ms. Poonam Nanda
7	Marketing Research- II	MST547	2+2	2	Mr. Shivender Gupta
	TOTAL		13		

Total Credits = 13

Course Name : Financial Management–II

Course Code : MST544

Course Instructor : Mr. Narinder Verma

Hours: 2+2

Credits: 2

#### Course Description:

This course of financial management will help in knowing the theories of modern finance and develop the familiarity with the analytical techniques helpful in financial decision making. This course will broadly deal in Dividend policies, Capital structure and working capital management. It lets students understand how decisions today affect the timing of and uncertainty about future flows of income and how capital structure and dividend decisions effect the valuation of firm.

#### Course Content:

Unit A: Dividend policy models: Walter model, M.M. Model and Gordon model.

Dividend policies in practice.

Unit B: Bonus shares, stock splits and share buybacks.

Income approach, MM approach, PBIT-EPS and ROI-ROE Analysis.

Unit C: Capital structure planning and capital structure policies in practice.

Unit D: Working capital policy&financing

Course Outcome:

### 1. Knowledge Outcome

At the end of the course, the student should be able to:

- To understand the impact of dividend theory and policy on valuation of firm and its application in industry.
- To understand the impact of capital structure on the risk and return aspect of shareholders based on the view that capital structure influences the value of a firm.
- To understand the sources of finance, cash management, Accounts receivable and inventory management.
- To understand the application of financial ratios and use of break even analysis for profit planning.

### 2. Skill Outcome

- Interpret financial statements and suggest decisions based on them.
- Create a financial plan with the use of MS Excel.

Course Name : Management of Investment

Course Code : MST 543

Course Instructor : Amar Rao

Hours: 2+2

Credits: 2

Course Description:

The examination seeks to create a common minimum knowledge benchmark for all persons involved in selling and distributing mutual funds including Individual Mutual Fund Distributors, Employees of organizations engaged in sales and distribution of Mutual Funds and Employees of Asset Management Companies especially persons engaged in sales and distribution of Mutual Funds. The certification aims to enhance the quality of sales, distribution and related support services in the mutual fund industry

Course Content:

- Concept and Role of a Mutual Fund
- Fund Structure and Constituents
- Legal and Regulatory Environment
- Offer Document
- Fund distribution and Channel Management Practices
- Accounting Valuation and Techniques
- Investor Services,
- Return, Risk & Performance of Funds
- Selecting the Right investment Products for Investors
- Helping Investors with Financial Planning
- Recommending Model Portfolios and Financial Plans

Unit A: Mutual funds and their structure

- Concept and Role of a Mutual Fund
- Fund Structure and Constituents
- Legal and Regulatory Environment

Unit B: Accounting terms and management practices

- Offer Document
- Fund distribution and Channel Management Practices
- Accounting Valuation and Techniques
- Investor Services,

Unit C: Choose right fund based on parameters

- Return, Risk & Performance of Funds
- Selecting the Right investment Products for Investors

Unit D: Financial planning and plans

- Helping Investors with Financial Planning
- Recommending Model Portfolios and Financial Plans

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Use offer documents to understand details of a mutual fund
- Helping Investors with Financial Planning
- Describe tools for selecting a mutual fund

2. Skill Outcomes:

- Selecting the Right investment Products for Investors
- Write a detailed financial plan
- Recommending Model Portfolios and Financial Plans

Course Name : Business Analytics

Course Code : MST544

Course Instructor : Mr. Devesh Kumar

Credit Hours: 2+2

Credits: 2

Course Description:

Business intelligence systems and analytical applications provide organizations with information from the enormous amount of data hidden in their various internal systems, and equip the organizations with abilities to influence the business direction. This course is intended to provide an introductory knowledge on business intelligence to students. It covers the complete life cycle of BI/analytical application development project right from-collecting & integrating data from various sources□ data modeling□ performance management□Enterprise reporting. A brief description about current trends in business analytics area is also provided in this course.

Course Contents:

Unit A: Introduction about Business Intelligence & Business Analytics.

Unit B: Types of digital data and introduction to OLTP & OLAP

Unit C: Basics of Data integration and Multidimensional data modeling

Unit D: Performance management measures & Enterprise reporting,

BI Road ahead

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the concept of business analytics and its importance in business
- Understand the value chain of data, information, knowledge and insight
- Understand the data warehousing and data mining principles
- Understand reporting and visualization techniques

2. Skill Outcome:

- Apply Business analytics to solve practical problems
- Performing data integration and doing analysis using MS Excel

Generating reports on the analyzed data using MS Access

Course Name : Marketing Research-II

Course Code : MST547

Course Instructor : Mr. Shivender Gupta

Credit Hours: 2+2

Credits: 2

#### Course Description:

Marketing research is a critical function for every business enterprise. In today's competitive and dynamic business environment, marketing research has become an increasingly important part of a business operation. This course teaches the value of the information generated from marketing research for users of such information who make critical decisions about the future direction of their businesses and supporting investments. Considering the dynamics of the environment in which businesses operate, and the many variables at play, decision making must be founded on and supported with research about the target market. This course provides a comprehensive introduction to this fascinating branch of strategic planning and marketing within the field of business management. The course structure includes detailed study of concepts and cases as well as other examples. The course is divided in two parts. This part i.e. Marketing Research-II includes significant coverage of basic concepts like data collection, data preparation, basic techniques in quantitative data analysis and report preparation. This course will also include one research project which will provide students the opportunity to apply some of the concepts learned in marketing research.

#### Course Contents:

##### Unit-I: Data collection and data preparation

- Fieldwork
- Data preparation
- Selecting a data analysis strategy

##### Unit-II: Basic data analysis techniques

- Frequency distribution and associated statistics
- Hypotheses testing
- Analysis of variance and covariance

##### Unit-III: Basic data analysis techniques contd.

- Correlation and regression
- Factor analysis
- Introduction to few additional data analysis techniques

#### Unit- IV: Using SPSS for data analysis & Report preparation

- SPSS: some basic data analysis using SPSS
- Report preparation
- Oral presentation
- Research follow-up
- Ethics in marketing research

#### Course Outcome:

1. Knowledge Outcome: At the end of the course students should be able to understand:

- Data collection process
- Data preparation for further analysis
- Basic data analysis techniques
- How to write report and presentation

2. Skill Outcome:

At the end of the course, student should be able to:

- identify marketing problems faced by companies and provide solutions that are supported by good marketing research methodology
- conduct marketing research projects from their inception to end
- make use of statistical packages like SPSS for data entry & data analysis for research problems

## SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

### MBA PROGRAM

### SCHEME OF COURSES

#### QUADMESTER-V

S. No. Course Code Hours Credits Faculty

#### Compulsory courses

1	Strategy	MST551	2+2	2	Prof. Narinder Verma
2	SPRINT-V	MST552	Once a Quad	2	Ms. Poonam Nanda
3	Research Project-Part I	MST553	Whole Quad	s/us	Prof. Kuldeep Rojhe

Major Specialization (Any one of Finance, Marketing and Human Resource)

#### Finance

4	Security Analysis and Valuation	MST(F)551	2+2	2	Prof. Narinder Verma
5	Capital Markets & Institutions	MST(F)552	2+2	2	Mr. Amar Rao

#### Marketing

6	Retail Marketing	MST(M)552	2+2	2	Dr. Dipanker Sharma
7	Sales Management	MST(M)553	2+2	2	Mr. Kamal Kant Vashishth

#### Human Resource

8	Organizational Development & Change Management	MST(HR)552	2+2	2	Ms. Prachi Kapil
9	Human Resource Planning & Recruitment	MST(HR)553	2+2	2	Dr. Dipanker Sharma

Minor Specialization (Any one of non-major specialization as mentioned above, Information Technology(IT), Biotechnology and Pharmaceutical & Health Care)

#### Digital & Analytics(IT)

1	AI & Business Applications	MST(AI)551	2+2	2	Dr. Devesh Kumar
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#### International Business

1	International Trade and Policy	MST(IB)551	2+2	2	Prof. Narinder Verma
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TOTAL 10



Total Credits = 10

Course Name : Strategy

Course Code : MST551

Course Instructor : Prof. Narinder Verma

Hours: 2+2

Credits: 2

### Course Description:

This course is designed to be a conceptual work that builds on the practice of strategic management, where in corporate leaders, practitioners, researchers and students try to find the answer to the most fundamental question 'How does a company become successful and stay successful?'. The aim of this course on strategy is to train the students to develop an understanding of strategic processes and their impact on organizations. The course introduces to the basics of strategy and the various strategic alternatives available to enable its learners to comprehend and practice strategic management in challenging business situations.

### Course Content:

#### Unit-A: Introducing Strategy

Introduction, Strategy, Environment, Strategic capability, Strategic purpose Strategic management.

#### Unit-B: Business Level Strategy

Identifying SBU, Competitive advantage, sustaining competitive advantage, competitive strategy.

#### Unit-C: Corporate Level Strategy

Corporate level strategy, strategic directions, reasons of diversification, portfolio matrices, International Strategy.

#### Unit-D: Strategic Methods & Development Process

Methods of pursuing strategies, strategy evaluation, strategic choices

Intended strategy development, emergent strategy development, patterns of strategy development, challenges for managing strategy development.

### Course Outcomes:

#### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the model of strategy and its component
- Describe PESTEL, SWOT, BCG and Porter's 5-Force model
- Explain different strategic gaps and potential opportunities or threats
- Describe company's business model and assess its corporate culture
- Describe strategy clock to understand bases of achieving competitive advantage

- Explain growth strategies for product and geographic diversity
- Describe relationship between strategy and technology
- Understand strategy planning cycle to manage change
- Develop strategy- programs, budgets, procedures and checks

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify some common triggering events that act as stimuli for strategic change
- Conduct industry analysis to understand industry competitive forces
- Scan functional resources to determine best strategic fit
- Identify competitive and cooperative strategies
- Analyze Porter's Diamond Model for national advantage
- Carry out stake holder mapping for the expectations and output of the strategy
- Carry out strategic audit

Course Name : SPRINT-V

Course Code : MST552

Course Coordinator : Ms. Poonam Nanda

Hours: Around 40 hours of training in a Quadmester

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management
- Presentation skills
- Writing reports, Stock Trading & Business Plans

Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy

- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

#### NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.

Course Name : Security & Financial Analysis

Course Code : MST(F)551

Course Instructor : Prof. Narinder Verma

Hours: 2+2

Credits: 2

Course Description:

The course will deal with security analysis, relative and fundamental valuation of Securities. This will involve micro, macro and industry life cycle analyses. The course introduces the theory and application of fundamental and technical analysis. Valuation is both an art and science. The Science is to use the finance theory correctly and the art is to project in the future as best as possible. The Analysis would involve the application of knowledge from Corporate Finance and Basic Finance courses. The most important parameter in any valuation is the growth estimate and a lot of time will be spent on estimating growth correctly. Relevant caselets and problems will be discussed to set in conceptual clarity and contextual familiarity.

Course Contents:

Unit-A: Investment Alternatives and Securities Market

Defining investment, difference between investing, speculating and gambling, Investment Alternatives, Fixed and Variable Income Securities, Government Securities, Non-Security Forms of Investment, Real Estate Investment, Investment Instruments of the Money Market.

#### Unit-B: Stock Market and its Indices

Operations of Indian Stock Market, New Issue Market, Markets and Brokers, Introduction to Stock Market Indices.

#### Unit-C: Valuation of Debt and Equity

Types and features of debt instruments, bond pricing and yield, rating of debt securities, equity valuation through zero growth, constant growth and dividend discount models.

#### Unit-D: Fundamental and Technical Analyses

Macroeconomic analysis, industry analysis and company analysis, equity research in India, defining technical analysis, charting techniques, technical indicators, testing and evaluation of technical analysis.

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Differentiate between investment, speculation and gambling.
- Describe various investment alternatives.
- Explain the functioning of stock market in India
- Describe the distinctive features of NSE and BSE
- Describe bond pricing and various measures of yield
- Explain factors that determines interest rates for bonds
- Describe various models of equity valuation
- Understand how macroeconomic variables affect the stock market
- Distinguish technical analysis from fundamental analysis
- Understand usefulness of technical analysis

##### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Compare various investment alternatives.

- Identify different types of financial markets.
- Read stock market quotations and describe the construction of stock market indices
- Estimate bond price and yield to maturity
- Analyse methods of finding intrinsic value of equity
- Carry out company and industry analyses
- Use charting techniques to identify, buy, and sell opportunities
- Assess the technical conditions through the indicators of breadth and market sentiments



Course Name : Capital Markets and Institutions

Course Code : MST(F)552

Course Instructor : Mr. Amar Rao

Hours: 2+2

Credits: 2

#### Course Description:

My objective for this course is for you to learn the business and the economics of money and capital markets. To that end, we will analyse the structural interrelationships among the important participants in the Indian financial markets. The course topics include flows of funds, determinants of interest rates, monetary policy and interest rates, money and capital market instruments:

- Why private sector financial institutions exist, i.e., the purpose they serve and how they arose.
- The key private sector financial institutions—banks, brokerage houses, exchanges, etc.
- Why government financial regulatory institutions exist, i.e. the purpose they serve and how they arose.
- The key government financial regulatory institutions—RBI, SEBI
- Money, inflation, economic growth, the business cycle and the conduct of monetary policy.
- Interest rates and their role in valuation.
- Why interest rates change.
- How risk and term structure affect interest rates.
- The banking industry and its structure; financial innovation and competition.
- The management of financial institutions.
- The stock market, money market, bond market, mortgage market, mutual funds, etc.
- The foreign exchange market and interest arbitrage.
- Investment banks, security brokers and venture capital firms.
- Why financial crises exists and why they are so damaging to the economy.

#### Course Contents

Unit A: The Role and Importance of Financial Institutions

- Financial Management Models and their Applications in Financial Institutions
- Flow of Fund Analysis
- Interest Rate Analysis; Interest Rates in the Financial System
- Yield Curve; Risk and Inflation
- Financial Management of Commercial Banks
- Credit and Monetary Planning; Insurance Companies

#### Unit B: Role of Development Banking in Industrial Financing in India

- Capital Adequacy and Capital Planning
- Financial Planning of Financial Institutions
- Working and Organization of Different Financial Institutions in India like IFCI, CIOT, IDBI, UTI, LIC
- Mutual Funds
- International Aspects of Financial Institutions.

#### Unit C: Money Market in India; Banking System in India:

- Restructuring Process; Working Capital Control
- Banking Policy in India
- Instruments of The International Money Market
- Managing Short-term International Transactions.
- Foreign Exchange Market. Mechanism;
- International Banks
- Non-Banking Financial Service Firms

#### UNIT: D World's financial markets concepts

- Stock Markets
- Export Management; Licensing
- Securities firm and Investment Banks

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the Indian financial system and the role of regulatory bodies

- How banks manage their capital.
- The types of equity securities that companies can use to raise equity capital
- Understand the characteristics of different types of debt securities
- Reading, interpreting and transposing FX quotations.

## 2. Skill Outcome:

- Demonstrate an understanding of the working of financial markets.
- Critically analyse choices of financing available to individuals, small business and corporations. Apply event specific formula to calculate probabilities.
- Critically analyse the mechanisms that operate within the India and International capital and financial markets.
- Apply problem solving methodology to the operation of equity, debt markets and forex markets and demonstrate how conditions and prices are determined in major financial markets.
- Major financial systems and practices adopt in international finance

Course Name : Retail Marketing

Course Code : MST(M)552

Course Instructor : Dr. Dipanker Sharma

Hours: 2+2

Credits: 2

## Course Description:

The course places emphasis upon individual coaching and is unique in catering specifically for the retail sector. It offers a unique combination of general management skills and retail-specific specializations. This course was developed to meet the needs of retail managers and others servicing the retail industry.

## Course Content:

### Unit A:

Introduction to Retail Marketing: retail environment, importance of retail, Retail Operations: Retail & marketing, strategic approach, marketing & selling, environment, business philosophies, marketing orientations.

### Unit B:

Management of services & quality in retailing: what constitutes retailing, service product concept, intangible – tangible product continuum, classification of product & quality, service management, quality control, quality auditing. Retail Marketing Mix & retail product: marketing mix, target markets, retail product, store layout.

### Unit C:

Merchandise Management: planning & calculating, inventory levels, category management, range planning, space allocation, negotiating the purchase. Retail Pricing: Price sensitivity, factors influencing pricing, pricing retail product, markdown policy considerations.

### Unit D:

Retail communications & Promotions: Communication affects, advertising, sales promotion, relationship marketing, personal selling, public relations, other tools. Retail distribution & supply chain management: Channels & channel flows, channel relationship & partnership, distribution logistics & stock control, retail logistics, CRS, internet & direct distribution systems.

## Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Define retailing
- Understand what retail marketing means to business executives and academics
- Understand the ways that retailers use marketing tools and techniques to interact with their customers.
- Assimilate the concept of Supply chain
- Infer the role and importance of internet in the distribution system

### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Carrying out a practical exercise to demonstrate the understanding of retail marketing its application within a particular retailing scenario
- Formulate creative yet feasible solution for retail strategies
- engaging with complex and/or unpredictable situations in retail contexts
- acquire research and investigative skills

Course Name : Sales Management

Course Code : MST(M) 562

Course Instructor : Mr. Kamal Kant Vashisth

Hours: 2+2

Credits: 2

Course Description:

The basic objective of this course is to distinguish sales from marketing. The course places emphasis upon individual coaching and is unique in catering specifically for the sales sector. It offers a unique combination of general management skills, personal selling skills and sale specific specializations. This course is developed to meet the needs of retail managers and others servicing the sales industry.

Course Content:

Unit –A: Personal Selling and Marketing Strategy

Sales Management and its Objectives; Coordination and Control; Sales Management, Personal Selling and Salesmanship; Theories of Selling; Prospecting; Sales Resistance and Closure; Determining Market Potential through Sales forecasting; Formulating Sales Policies.

Unit –B: Organizing the Sales Effort

The Effective Sales Executive; High Trust Selling, Relationship Selling; The Sales Organization; Distributive Network Relations.

Unit –C: Sales Force Management

Personnel Management in the Selling Field, Recruiting and Selecting Sales Force; Planning, Executing and Evaluating Sales Training Program; Motivating Sales Personnel, Compensation and Expense management; Sales Meeting and Contests;

Unit –D: Controlling the Sales Effort

Evaluation and Supervision of Sales Force; Sales Budget; Quotas and Sales Territories; Sales Control and Cost Analysis.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand of the concepts, attitudes, techniques and approaches required for effective decision making in the area of Sales.
- Emphasize on the practicing manager's problems and dilemmas.
- Develop skills critical for generating, evaluating and selecting sales strategies.

- Understand the importance of relationship selling and high trust selling.
- Market share vs wallet share.

## 2. Skill Outcome:

- Become a great sales person.
- Become a high trust/relationship selling expert.
- Create and manage an effective sales organization.

Course Name : Organization Development & Change Management

Course Code : MST(HR)552

Course Instructor : Ms. Prachi Kapil

Hours: 2+2

Credits: 2

#### Course Description:

The basic objective of this course is to provide participants with an integrated and comprehensive view of the field of Organizational Development. The course aims to present, in a clear and organized manner, the newest approaches, concepts, and techniques of this emerging discipline. Organizations' always aim to increase the effectiveness and efficiency of their actions & everybody has to accept by now that change is unavoidable if they are really working for excellence. But still the resistance to change is on the top of the list of organizational problems. So, the priority is to understand change in the organizations. Organizational development facilitates the process of planned change. The objective of the course is to enhance understanding of the students about the process of change and development within an organization.

#### Course Contents:

##### Unit-A: Introduction to Organizational Development

- Definition, Field and History of Organization Development
- Assumptions and beliefs in O.D., Foundation of O.D
- Managing O.D. Process, Action Research and O.D.
- O.D. Interventions-An Overview.

##### Unit-B: OD Interventions

- Meaning, Types of interventions
- Sensitivity Training, Life and Career Planning



- Role Analysis Techniques, Coaching and Mentoring
- MBO, Quality Circles
- Managerial Grid, Team building
- Likert Systems, Process Consultation
- Survey Feedback
- Team interventions
- Inter- group and Third-Party Peacemaking Interventions
- Comprehensive OD Interventions.

#### Unit-C: Management of Change

- Characteristics of Transformational Change
- Organizational Culture
- Dimensions of change, Change process
- Change agents
- Consultant-Client Relationships
- Implementation of Organizational Change Strategies.

#### Unit-D: Organizational Effectiveness

- Concept, Approaches and its determinants
- Organizational Diagnosis methods
- Methods of Collecting data
- Feeding back diagnostic information
- Organizational stress- causes, effects and coping strategies.

#### 1. Knowledge outcome:

At the end of the course, the student should be able to:

- Understand OD through an experiential learning approach.
- To develop an understanding of the nature, functioning and design of an organization as a social unit.

- Develop theoretical and practical insights and problem-solving capabilities for effectively managing the organizational processes.
- To examine the relationship between the organizational characteristics (for example: structure, strategies, systems etc.) and managerial behavior.
- Have a clear understanding of change as an integral part of development.

2. Skill outcome:

The student would be able to:

- Apply behavioral science knowledge to improve organizational performance.
- Understand theoretical concepts but apply it for research perspectives.
- Managing change in turbulent environments and increased competition.
- Help an organization become technologically, strategically and culturally healthy and viable.

Course Name : Human Resource Planning and Recruitment

Course Code : MST(HR)553

Course Instructor : Mr. Pradeep Sharma

Hours: 2+2

Credits: 2

Course Description:

The course aims at understanding the Human recourse planning and recruitment concepts required by organizations to plan their workforce in order to have a strategic impact on improving organizational performance. The course emphasis on need to map and match specific

executive perspectives and competencies to the future needs of the business to become strategic management tools. The course introduces the business processes for ensuring that an organization has suitable access to talent to ensure future business success. The course aims at getting the right number of qualified people into the organization at the right time. It involves assessing current manpower, estimating the supplies and demand for labour and matching demand with current supplies of labour through effective recruitment process.

Course Content:

Unit-A

- Definition, Need and Importance of Human Resource Planning
- Shortage and Surplus of Human resource
- Factors affecting HR Planning
- Levels of HR Planning
- HR Planning Models : Supply, Demand, Gap and Solution analysis
- Process of HR Planning
- HR Forecasting: Introduction, factors affecting and techniques

Unit-B:

- Projecting Workforce supply
- Methods of forecasting demand and supply
- Implementation of HR Plan
- Succession Planning
- Control and evaluation of HR Planning and Manpower wastage

Unit-C:

- Requisites of successful HR Planning
- Legal aspects and Role of government in HRP success
- Barriers to HR planning
- Workforce turnover and stability Index

- Contemporary issues and scope of HRP
- Introduction to Recruitment, Objective and Importance
- Factors governing Recruitment and stages of Recruitment

#### Unit D:

- Sources of Recruitment : Internal and External
- Distinction between Recruitment and Selection
- Evaluation and Control
- Philosophies of Recruitment – RJP and JCQ
- Contemporary issues of recruitment
- E-recruitment

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand HRP and its importance.
- Understand the process of HRP.
- Delineate the methods of Forecasting and application
- Assimilate the recruitment process, evaluate and control.

##### 2. Skill Outcome:

- Assess HR requirements using different techniques.
- Effectively implement manpower Plan for the future business success
- Effectively run a recruitment program.
- Conduct interviews and test as a part of selection process

Course Name : AI & Business Applications

Course Code : MST(AI)551

Course Instructor : Dr. Devesh Kumar

Hours: 2+2

Credits: 2

Course Description:

In this course, we do processing tasks which are suitable for artificial intelligence approaches, we determine an architectural structure for large systems. We visualize a three-layer architecture of private applications, mediating information servers, and an infrastructure which provides information resources.

The base information resources are likely to use algorithmic techniques, since they will deal with many similar base objects.

Course Content:

## Unit-A: Introduction

Introduction – Definition - Future of Artificial Intelligence – Characteristics of Intelligent Agents – Typical Intelligent Agents – Problem Solving Approach to Typical AI problems

## Unit-B: Knowledge Representation

First Order Predicate Logic – Prolog Programming - Unification -Forward Chaining -Backward Chaining - Resolution –Knowledge Representation

## Unit-C: Machine Learning

Probability basics - Bayes Rule and its Applications - Bayesian Networks – Exact and Approximate Inference in Bayesian Networks - Hidden Markov Models - Forms of Learning - Supervised Learning - Learning Decision Trees

## Unit-D: Applications

AI applications – Language Models - Information Retrieval - Information Extraction – Natural Language Processing

## Course Outcomes:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- To understand the basics of artificial intelligence
- Knowledge representation of the machine as well as human beings

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Design the various algorithms for sorting algorithms.
- How to teach an artificially designed machine.

## Methodology:

- 23 participative lectures to set in conceptual clarity
- 7 Tutorials
- Problems and case studies to fix contextual clarity of concepts as applied
- Assignments

- Quizzes /surprise test
- Anything that is relevant for the course

#### Grading:

Internal assessment	- 50%
i. First Sessional	20%
ii. Attendance	5%
iii. Seminar/Term Paper/ Project	10%
iv. Quizzes/surprise test	7%
v. Assignments	8%
End Term Exam	- 50%

#### Required Books and Materials:

##### Text Book:

1. S. Russell and P. Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall, 3rd Edition, 2009

##### Reference Book:

1. I., Prolog Programming for Artificial Intelligence (International Computer Science Series), Addison-Wesley Educational Publishers Inc; 4th edition, 2011.
2. David L. Poole, Alan K. Mackworth, Artificial Intelligence: Foundations of Computational Agents, Cambridge University Press, 2010.
3. M. Tim Jones, Artificial Intelligence: A Systems Approach (Computer Science), Jones and Bartlett Publishers, Inc; 1 edition, 2008
4. Ethem Alpaydin, Introduction to Machine Learning (Adaptive Computation and Machine Learning series), The MIT Press; second edition, 2009
5. Nils J. Nilsson, the Quest for Artificial Intelligence, Cambridge University Press, 2009.
6. William F. Clocksin, and Christopher S. Mellish, "Programming in Prolog: Using the ISO Standard, Fifth Edition, Springer, 2003.

Course Name : International Trade & Policy

Course Code : MST(IB)551

Course Coordinator : Prof. Narinder Verma

Hours: 2+2

Credits: 2

Course Description:

The purpose of this course is to make the students realize the challenges posed by the dynamic international business environment and to acquaint them with the knowhow of dealing and coping with the variations in the international environment and to enable the business to adapt and adjust to the required changes for its survival & growth.

Course Content:

Unit-A: International Business: Introduction & Comparative Environment

- International Business- An Overview
  - o Economic
  - o Political
  - o Cultural
  - o Legal

Unit-B: Global Trade and Investment

- International Trade Theories
  - o Free Trade Theories
  - o New Trade Theories



- o Tariff and Non-Tariff Trade Barriers
- Foreign Direct Investment
- WTO

#### Unit-C: Regional Economic Integration

- Levels of economic integration
- Major trading blocs in world economy:
  - o NAFTA
  - o EU
  - o ASEAN

#### Unit- D: World Financial Environment

- Foreign Exchange Market Mechanism
- Determination of Exchange rate
- IMF & World Bank

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Know how domestic business differs from international business
- Explain why companies opt for international business
- Identify different modes of entering into international business
- Describe and understand the factors which need to be considered while initiating the international business
- Evaluate the impact of world economy on international business

##### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Do country analysis in terms of business performance
- Act and negotiate in a cross-cultural business context
- Prepare themselves to work efficiently in Multinational Corporations

Methodology:

- 23 participative lectures to discuss the theoretical concepts with 7 tutorial
- Case studies & practical exercises to understand the application of microeconomic concepts by the firms
- Discussions on relevant topics/issues
- 3 Assignments
- 3 Quizzes based on subject matter

Grading:

Internal assessment – assignments/quizzes/attendance	-	50%
xxxi. Assignments		8%
xxxii. Quizzes		7%
xxxiii. Attendance		5%
xxxiv. Mid Term Examination		20%
xxxv. Classroom Discussion		10%
End Term Examination	-	50%

Text Book:

1. International Business by Charles W.L. Hill & Arun K. Jain, The McGraw-Hill Companies

Reference Book:

1. International Business by John D.Daniel, Lee H. Radebaugh & Daniel P. Sullivan, Pearson.

SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

MBA PROGRAM

## SCHEME OF COURSES

### QUADMESTER-VI

S. No. Course Code Hours (L+T) Credits Faculty

#### Compulsory courses

1	Basics of Banking & Insurance	MST561	2+2	2	Dr. Dipankar Sharma
2	Research Project-II	MST572	Whole Quad V,VI,VIIS/US		Prof. Kuldeep Rojhe
3	SPRINT-VI	MST563	Once a quad	2	Ms. Poonam Nanda

#### Major Specialization (Any one of Finance, Marketing and Human Resource)

##### Finance

4	Portfolio and Wealth Management	MST(F)561	2+2	2	Prof. Narinder Verma
5	Financial Derivatives	MST(F)563	2+2	2	Mr. Amar Rao

##### Marketing

4	Digital Marketing	MST(M)562	2+2	2	Dr. Kuldeep Chand Rojhe
5	Service Marketing	MST(M)564	2+2	2	Dr. Kamal Kant Vashisth

##### Human Resource

4	Training and Development	MST(HR)561	2+2	2	Ms. Pooja Verma
5	Global HRM	MST(HR)562	2+2	2	Ms. Pooja Verma

Minor Specialization (Any one of non-major specialization as mentioned above and subjects mentioned below:

##### Digital & Analytics(IT)

6	Customer Analytics	MST(AI)561	2+2	2	Dr. Devesh Kumar
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##### International Business

6.	FOREX Management	MST(IB)561	2+2	2	Mr. Amar Rao
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TOTAL 10

Total Credits = 10

Course Name : Basics of Banking & Insurance

Course Code : MST561

Course Instructor : Dr. Dipanker Sharma

Hours: 2+2

Credits: 2

Course Description:

This course aims at building knowledge and skills in Insurance and Banking with in-depth understanding of concepts in especially in Life Insurance. It aims at equipping the students with knowledge of Life Insurance necessarily required from LI agency point of view. The course will also help students understand the various LI products, premium pricing, underwriting process and claims. The students will get acquainted with the Insurance terminologies and legal aspects. The students will also understand the evolution and basics of Banking along with permissible and prohibited business and functions of Bank. The Students will also be acquainted with the Banking regulation act 1949 and RBI working and functions. The course also covers the type of Banks: The public sector and Co-operative Banks

Course Content:

Unit-A: Basics of Insurance and Legal Aspects

- Introduction to Insurance
- What Life Insurance Involves
- Legal Principles of Life Insurance
- Financial Planning
- Life Insurance Products

Unit-B: Product and Pricing

- Life Insurance Products
- Pension and Annuities
- Application of Life Insurance
- Pricing and Valuation in Life Insurance
- Documentation – Proposal Stage

Unit-C: Underwriting and Policy Conditions

- Documentation – Policy Condition
- Underwriting
- Payments Under a Life Insurance Policy
- Regulatory Aspects
- Life Insurance Selling Process
- Customer Service

## Unit-D: Basics of Banking

- History and Introduction to Banking
- Concepts and significance of Banks
- Permissible and Prohibited business
- Types of Banks and their functions
- Introduction to Banking regulation act 1949 and RBI – Working and Functions

### Course Outcome:

#### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand fundamental principles of Life Insurance
- Develop insight on elements of individual financial planning
- Understand the concept of product, pricing and valuation.
- Gain knowledge on the Life Insurance products
- Understand the proposal and policy stage documentation.
- Gain knowledge on the Underwriting and claim process
- Acquaint with the Legal and regulatory aspects of banking and Insurance
- Customer service.
- Understand the Banking evolution and significance in India
- Gain Knowledge on various types of Banks operating in India and their functions
- Develop knowledge on prohibited and permissible business in India

#### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- conducting the financial planning for individuals
- Processing the proposal and claim
- Approaching the right redressal forum in times of grievance
- Effective customer service delivery

- Insights on working and functions of Banks
- The legal framework the Banks work under.

Course Name : SPRINT-VI

Course Code : MST563

Course Coordinator : Ms. Poonam Nanda

Hours: Around 40 hours of training in Quadmester-VI

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management
- Presentation skills
- Writing reports, Stock Trading & Business Plans

Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management

- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

#### NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.



Course Name : Portfolio Management

Course Code : MST(F)561

Course Instructor : Prof. Narinder Verma

Hours: 2+2

Credits: 2

Course Description:

The fundamental objective of the course is to understand the process of portfolio management and wealth planning for not only individuals but also for investing companies and mutual funds, hedge funds, etc. Major topics will include asset pricing models, equity and bond portfolio management, performance evaluation and new developments in professional asset management. The course will also provide practical applications of planning and managing a set of securities for all such investors especially in dynamic financial markets. In addition to providing in-depth discussions of portfolio construction, monitoring and evaluation, it will allow students to gain hands-on experience through case study and portfolio simulation.

## Course Contents:

### Unit-A: Investment - Return and Risk

- Measures of Return
  - o Holding period return (HPR)
  - o Equivalent Annual Return (EAR)
  - o Arithmetic and Geometric Mean (CAGR)
- Measures of Risk
  - o Standards Deviation
  - o Beta
- Risk adjusted returns

### Unit-B: Portfolio Theory

- An Optimum Portfolio Selection Problem
- The Nature of Investment Risk
- Markowitz Portfolio Theory
- Portfolios of Two Risky Securities
- Tracing the Efficient Frontier - The Unleveraged and Leveraged Portfolio
- 'n' Security Portfolio
- Constructing the optimum portfolio
- Sharpe's Single Index Model

### Unit-C: Capital Asset Pricing Model (CAPM)

- Characteristic Lines- SML and CML
- Capital Asset Pricing Model
- Arbitrage Pricing Theory
- Application of Market Model in Portfolio Construction

### Unit-D: Wealth Management and Investment Strategy

- Portfolio Performance Evaluation
  - o Treynor's measure
  - o Sharpe's measure

- o Jensen's measure
- o M2 measure
- Wealth Management in India
- o Behavioural Portfolio
- o Emotional and Social Influences
- Investment Strategy
- o Utility functions and indifference curves
- o Investment Objectives
- o Strategic Asset Allocation
- o Mutual Fund

#### Course Outcomes:

##### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe various concepts of return and risk
- Explain the basic portfolio theories and their implications.
- Construct a portfolio model
- Describe the efficiency of portfolio
- Describe difference between SML and CML
- Explain Capital Asset Pricing Model
- Describe multifactor and Arbitrage Pricing Theory
- Understand how performance is evaluated
- Compare portfolio performances
- Understand modern portfolio practices in India and abroad

##### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify parameters of risk and return related to a portfolio.

- Calculate return and risk
- Compare various investment alternatives.
- Apply CAPM and APT
- Construct efficient market hypothesis
- Design an optimum portfolio
- Compare Indian and foreign practices

Course Name : Financial Derivatives

Course Code : MST(F)563

Course Instructor : Mr. Amar Rao

Hours: 2+2

Credits: 2

Course Description:

A derivative is any financial instrument, whose payoffs depend in a direct way on the value of an underlying asset at a time in the future. Usually, derivatives are contracts to buy or sell the underlying asset at a future time, with the price, quantity and other specifications defined today. This course places emphasis on market operations and the valuations of forward, futures, swaps, and options contracts and their interrelations. Major topics of trading strategies include hedging, arbitrage and speculation, and of market operations on stock index, interest rate instruments, and foreign currencies. Binomial and Black-Sholes option pricing models as well as recent innovations in derivative markets are discussed.

Course Content:

Unit-A: Introduction to derivatives

- Exchange trade markets, OTC markets
- Future & Forward contracts
- Options
- Swaps
- Indian derivatives market

Unit-B: Mechanics of future markets

- Background

- Contract specification
- Regulation

#### Unit-C: Determination of forward and future prices

- Investment assets v/s consumption assets
- Forward and future contracts on currencies
- Interest rate futures

#### Unit-D: Mechanics of options market

- Types of options
- Option positions
- Underlying assets
- Regulation

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Various theories on valuations of financial derivatives
- The relationships of financial derivatives with other financial instruments
- The uses and market functions of financial derivatives
- Concepts of hedging, arbitrage, and management of financial risks

##### 2. Skill Outcome:

- Use various financial functions and models in financial calculations
- Use statistical and mathematical concepts in developing derivative strategies
- Use option pricing models in pricing and identifying profit opportunities in financial instruments
- Formulate hedging, arbitrage, and speculative strategies with derivatives
- Apply derivative pricing models to evaluate performances of financial assets and positions

- Compare relative performances of various financial instruments and investment strategies
- Evaluate the effects of derivative regulations and market (in)efficiencies

Course Name : Digital Marketing

Course Code : MST(M)562

Course Coordinator : Dr. Kamal Kant Vasisth

Hours: 2+2

Credits: 2

Course Description:

The course on digital marketing is intended to develop skills in online marketing. The course provides knowledge on aspects of various online platforms and introduces learners to key concepts of website development, SEO, analytics, content marketing, running a social media campaign and online public relations. The course will give insight into practical features through hands on experience and helping to comprehend how to design, develop and implement strategy for digital marketing.

Course Content:

Unit-A: Digital marketing strategy

- Evolution of digital marketing
- Technology behind digital marketing
- Why you need digital marketing strategy
- Your business & digital marketing
- Understanding digital consumer

Unit-B: Effective Website & Search

- Building an effective website
- Choosing domain name
- Hosting website
- Arranging information & effective web content
- Search engines & SEO

Unit-C: Analytics

- Measuring digital marketing success
- How information is measured
- Measuring what is important
- Testing, investing, tweaking & reinvesting
- Action stations

Unit-D: Art of email marketing, social media & online customer engagement

- What is email marketing
- Planning your campaign
- Forms of social media
- Rules of engagement

- Online PR & reputation management

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain digital marketing landscape
- Describe ingredients of digital marketing
- Understand website, SEO, content and social media
- Analyze performance through analytics
- Discuss PR mix in digital marketing

2. Skill Outcome:

At the end of the course, the student should be able to:

- Develop strategy for marketing online
- Create effective website
- Develop skills in search engine optimization
- Successfully run social media campaign to engage customers
- Develop and implement online PR strategy



Course Name : Services Marketing  
Course Code : MST(M)564  
Course Instructor : Kamal Kant Vashisth

Hours: 2+2

Credits: 2

Course Description:

This course aims at building knowledge and skills in Services Marketing with in-depth understanding of concepts in especially in context to Indian market. It aims at equipping the students with knowledge of Services Marketing necessarily required from consumer as well as organizational point of view. The course will also help students understand the various Designs, Strategies, Standards and Gap Models related to the subject. The students will get acquainted with the criticality of delivering and performing services towards success of any organization. The students will also understand the financial and economic effects of Services Marketing.

Course Content:

Unit-A: Introduction to Services and Customer orientation

- Introduction to Services
- Service Marketing Mix
- Consumer Behavior in Services
- Understanding Customer Expectations and Perceptions
- Building Customer Relationships
- Service Recovery

Unit-B: Service Design, Strategy and Standards

- Service Development and Design

- Customer Defined Service Standards
- Physical Evidence and the Servicescape

#### Unit-C: Delivering and Performing Service

- Employees' Roles in Service Delivery
- Customers' Roles in Service Delivery
- Delivering Service through Intermediaries and Electronic Channels
- Managing Demand and Capacity

#### Unit-D: Managing Service Promises and Closing the Gaps

- Integrated Services Marketing Communication
- Pricing of Services
- The Financial and Economic Effect of Services
- The Integrated Gaps Model of Service Quality

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the difference between product and services marketing
- Develop insight on the consumers' point of view regarding services
- Understand the customers' expectations and perceptions regarding services
- Gain knowledge on building customer relationships and service recovery
- Understand the importance of aligning strategy, service design and standards
- Gain knowledge on the delivery of services through various mediums
- Acquaint with the financial and economic effect of service
- Customer service.
- Understand the various models of gap analysis with respect to services

## 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Conduct market research to understand customers' expectations and perceptions
- Build customer relationships
- Execute service recovery
- Design a standardized customer defined service
- Deliver services effectively to the customers
- Perform a Gap analysis of the service offered and offer solutions for he same

Course Name : Training and Development

Course Code : MST(HR)561

Course Coordinator : Ms. Pooja Verma

Hours: 2+2

Credits: 2

Course Description:

The main objective of the course is to know how to develop successful training programs which reinforce the company's mission and goals. The course examines the design, operation, and evaluation of training and development activities in organizations. It also reviews the legal forces influencing training in organizations.

Course Content:

Unit-A: Employee training and Management Development

- Concept and scope of training
- Identification of training needs
- Employee training concept, need, process, methods of training and its evaluation.
- Management development concept, objectives and different approaches.
- Issues and controversies in MD.

Unit-B: Potential appraisal and Career planning

- Career Planning & Development: Concept, Objectives, Process, Benefits, Limitations of Career Planning & Development.
- Potential Appraisal and Succession Planning: Potential Attributes and Appraisal of human resources, steps in Succession Planning, Benefits and Limitations

Unit- C: Modern performance appraisal techniques

- Assessment and Development Centre (ADC): Concept and Need, Pre-requisites for ADC, Design of the ADC, ADC process, Success, Failures and future of ADCs.
- 360 Degree Feedback: Concept, Need, Steps involved in the comprehensive 360 degree feedback process, Pitfalls of 360 degree feedback and Success of 360 degree feedback.
- Other modern performance appraisal methods

Unit- D: Quality of Work life and contemporary issues

- Quality of Work Life (QWL): Concept, Measures of QWL, Barriers of QWL and Strategies for Improving QWL.
- Outsourcing HR activities – Nature, Scope, Benefits and Hazards.
- HR Knowledge Management-Concept, Challenges, and Opportunities.
- e-HRM- concept and techniques, future of e-enabled HR activities.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the training and development techniques in an organisation.
- Detail the process how the training and development can be conducted.
- Understand various concepts of career planning, potential appraisal and succession planning.
- Demonstrate how modern techniques of performance appraisal are used in effective handling of employee's performance.
- Discuss the important tenets of contemporary issues.

2. Skill Outcome:

At the end of the course, the student should be able to:

- To prepare a training and development detailed plan.
- To identify the different training and development needs and develop its objectives accordingly.
- Articulate the career management techniques in detail.
- To clarify different related contemporary issues.

Course Name : Global Human Resource Management

Course Code : MST(HR)562

Course Coordinator : Ms. Prachi Kapil

Hours: 2+2

Credits: 2

Course Description:

The main objective of the course is to know how to implement human resource policies in a strategic manner to best align with the organisations goals and objectives. The course examines how human resource management techniques can be used in a best effective manner to gain competitive advantage.

Course Content:

Unit-A:

- Introduction to strategy
- Meaning and importance of strategic human resource management
- Employee resourcing strategy
- Components of employee resourcing strategy

Unit-B:

- Talent management strategy
- Learning and development strategy
- High performance strategy
- Organisation development strategy

Unit-C:

- Employee engagement strategy
- Knowledge management strategy

- Reward strategy
- Corporate social responsibility strategy
- Employee relation strategy

Unit- D:

- Introduction to the concept of International HRM
- Concept of expatriates and different HR issues at international level

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Explain the human resource strategies in an organisation.
- Detail the process how employee resourcing strategy can be conducted.
- Understand various concepts of talent management, employee engagement and knowledge management.
- Demonstrate how modern strategies of human resource management effect at international level.
- Discuss the important tenets of other contemporary issues in strategic HRM.

2. Skill Outcome:

At the end of the course, the student should be able to:

- To prepare a detailed strategic human resource plan.
- To able to perform human resource audit to develop an effective talent pool.
- Articulate the strategic human resource management techniques in detail.
- To clarify different related contemporary issues.





Course Name : Customer Analytics  
Course Code : MST(AI)561  
Course Instructor : Dr. Devesh Kumar Sharma

Hours: 4

Credits: 2

#### Course Description:

The everyday interactions with your customer generates a high amount of valuable data. The customer analytics is the best solution to transform these data into real knowledge. The goal of this course is to give students a precise view of customers, identify the most profitable groups of customers and send them the most appropriate marketing messages. The SPSS program offers a comprehensive customer analytics tool – the Direct Marketing module. With this tool students can conduct powerful analyses without being an expert in statistics and data analysis. Successful completion of this course would enable students to get insights from customer data, understand customers deeply and target the right customers with the right products.

#### Course Contents:

- Introduction to Customer Analytics and RFM Analysis
- Segmenting customers and generating customer profile
- Identifying top responding postal codes and estimating buying probabilities
- Comparing campaign effectiveness

#### Knowledge Outcome:

At the end of the course, the student should be able to:

Learn how to get insights from customer data, understand customers deeply and target the right customers with the right products.

#### Skill Outcome:

- Perform RFM analyses (recency, frequency, monetary value)
- Perform complex market segmentations using an advanced clustering method
- Generate profiles of the customers who responded to the past offers

- Identify the top responding geographical areas (postal codes)
- Estimate the contact probability of purchase and select the contacts with the greatest probabilities
- Predict the probability of purchase for new customers
- Compare campaign effectiveness (in terms of response rate)

Methodology:

- 18 participative lectures to discuss and demonstrate the basic concepts and tools used in Customer Analytics
- Practical exercises based on SPSS
- Assignment
- Quizzes based on subject matter

Grading:

Internal assessment	-	50%
i. Assignments		10%
ii. Quizzes		5%
iii. Attendance		5%
iv. In-house Practical		10%
v. Mid-term exam		20%
Final exam	-	50%

Required Resources/material for this course:

- “Customer Analytics in SPSS” , online course (MOOCs) available at : <https://www.udemy.com/course/customer-analytics-ome-spss/>

Reference Books:

- Advanced Customer Analytics: Targeting, Valuing, Segmenting and Loyalty by Mike Grigsby, Kogan Page Publishers
- Customer Analytics for Dummies by Jeff Sauro, John Wiley and Sons

Course Name : Forex Management

Course Code : MST(IB) 561

Course Instructor : Mr. Amar Rao

Hours: 2+2

Credits: 2

#### Course Description

This course is designed to understand how the foreign exchange market operates and to understand the use of hedging techniques in case of International Business. This course will make students understand about the working for currency markets with special focus to Indian financial markets. To develop an understanding of: international financial instruments, markets, and institutions; international trade and capital flows; foreign exchange risks and their management; direct and portfolio investment; implications for the conduct of global business.

#### Course Outcome:

- Understand foreign exchange markets, international financial markets and their functions & needs.
- Analyze foreign exchange risks and risk management strategies
- Identify the key aspects of international trade and calculate its potential gains to participating nations.

- Describe the characteristics of foreign exchange markets, identify the different currency regimes, and measure the gains/losses from engaging in speculative and arbitrage activities.
- Judge whether international parity conditions are met and predict the impact of imbalances on foreign exchange markets.

#### Knowledge Outcome

- Know the international financial system and framework
- Understand the foreign exchange market transactions and role of the participants in the international market.
- Gain the knowledge on exchange rate determination and the techniques of risk management.
- Observe the MNCs' behavior in the global markets.
- Understand the international tax environment.

#### Skill Outcome:

- Calculate common measures of foreign exchange risk.
- Illustrate the use of currency derivatives to achieve a desired level of foreign exchange risk exposure.
- Identify the major elements of long-and short-term international capital movements.
- Evaluate cross-border investment opportunities, and describe a multinational firm's decision-making process for long-term capital budgeting, short-term cash-flow management, and the management of international taxation

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- Foreign Exchange, concepts, significance of foreign exchange- FOREX RESERVES- Exchange rates- inter banks and Merchant rates- spot and forward rates-TT rates- computations- FOREX Markets—derivatives in the FOREX markets- Futures, Swaps, Options and Arbitrage- Forex dealers and Speculators Organisations of the FOREX market.

#### Unit-B

- Exchange rate fixation- Purchasing Power Parity Theory- Interest Rate Parity Theory- Flow Model- Asset market models-forecasting of exchange rates Nominal Effective Exchange Rates and real Effective Exchange rates- Hedging against Exchange rate fluctuations.

#### Unit -C

- Forward Exchange Contracts-relevance-types- forward exchange rate computation – factors influencing forward RATES- extension and cancellation of forward contracts- Futures- features vs Forward Contracts-Options- types and Mechanisms-risk Management through

forward contracts. FOREX Risk management – transaction risk exposure risks- internal strategies- shifting of risk- sharing of risk- exposure netting and offsetting. External strategies – money market Hedge- currency swaps- interest rate

swaps- Economic consequences of exchange rate changes- Managing Risk

Unit-D

- FOREX Management in India- Fixed and fluctuating rates-rupee convertibility. NOSTRO-VOSTRO-LORO Accounts- Exchange control Measures- relevance, Foreign Exchange reserves of India- composition and Management- monetary and Fiscal policy and its impact on foreign exchange reserves in India.

Methodology:

- 23 participative lectures to discuss the theoretical concepts
- 7 tutorials for practical concepts
- 5 in-house practicas
- 3 Assignments based on subject matter/practical's
- 3 Quizzes based on subject matter/practical's

Grading:

Internal	–	50%
xxxvi. Assignments		10%
xxxvii. Quizzes		5%
xxxviii. Attendance		5%
xxxix. Case Discussion/Project/Practical's etc		10%
xl. Mid-term exam		20%
Final exam	-	50%

Required Books and Materials:

Textbook:

3. ABC of Foreign Exchange..... Clare C GumP
4. Guide to Foreign Exchange Regulations..... Krishnamoorthy S
5. Principles of Foreign Exchanger..... Chaterjee A K
6. Foreign Exchange Management..... RAjwadi

References:

1. Levi, Maurice, International Finance, New York, McGraw Hill Inc., 1996.
2. Eiteman, David K., Arthur Stonehill and Michael H. Moffett , Multinational Business Finance, Reading mass., Addison – Wesley Publishing company, 1998.
3. Shapiro, Allen C., Multinational Financial Management, New Delhi, Prentice Hall India Pvt. Ltd., 1995.
4. Apte P.G., Multinational Financial Management, New Delhi, Tata McGraw Hill, 1998.
5. Seth A.K., International Financial Management, New Delhi, Galgotia Publishing Company, 2000.
6. Errunza, V. R., Singh, D. and Srinivasan, T.S. 1994, International Business Finance, Global Business Press.

Any other Study Material:

- Articles from Journal of Finance
- Articles from International Journal -Finance
- India Business newspapers
- Yahoo finance (<http://finance.yahoo.com/>)
- Investopedia ([www.investopedia.com](http://www.investopedia.com))
- Google Finance ([www.google.com/finance](http://www.google.com/finance))

## SCHOOL OF BUSINESS MANAGEMENT AND LIBERAL ARTS

### MBA PROGRAM

### SCHEME OF COURSES

#### QUADMESTER-VII

S. No. Course Code Hours (L+T) Credits Faculty

#### Compulsory courses

1	International Business Environment	MST571	2+2	2	Ms. Prachi Kapil
2	Research Project	MST572	Started from Quad-VI	2	Dr. Kuldeep Chand Rojhe
3	SPRINT-V	MST573	Once a quad	2	Ms. Poonam Nanda

#### Major Specialization (Any one of Finance, Marketing and Human Resource)

##### Finance

4	Mergers and Acquisitions	MST(F)571	2+2	2	Mr. Amar Rao
5	Equity Research	MST(F)572	2+2	2	Mr. Amar Rao

##### Marketing

6	Brand Management	MST(M)571	2+2	2	Dr. Kuldeep Chand Rojhe
7	Customer Relationship Management	MST(M)572	2+2	2	Ms. Pooja Verma

##### Human Resource

8	Selection	MST(HR)571	2+2	2	Mr. Pradeep Sharma
9	Compensation Management	MST(HR)572	2+2	2	Mr. Manav Bansal

TOTAL 12 10

Total Credits = 10

Course Name : International Business Environment

Course Code : MST571

Course Coordinator : Dr. Kesari Singh

Hours: 3+1

Credits: 2

Course Description:

The purpose of this course is to make the students realize the challenges posed by the dynamic international business environment and to acquaint them with the knowhow of dealing and



coping with the variations in the international environment and to enable the business to adapt and adjust to the required changes for its survival & growth.

Course Content:

#### Unit-A: International Business: Introduction & Comparative Environment

- International Business- An Overview
  - o Economic
  - o Political
  - o Cultural
  - o Legal

#### Unit-B: Global Trade and Investment

- International Trade Theories
  - o Free Trade Theories
  - o New Trade Theories
  - o Tariff and Non-Tariff Trade Barriers
- Foreign Direct Investment
- WTO

#### Unit-C: Regional Economic Integration

- Levels of economic integration
- Major trading blocs in world economy:
  - o NAFTA
  - o EU
  - o ASEAN

#### Unit- D: World Financial Environment

- Foreign Exchange Market Mechanism
- Determination of Exchange rate
- IMF & World Bank

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Know how domestic business differs from international business
- Explain why companies opt for international business
- Identify different modes of entering into international business
- Describe and understand the factors which need to be considered while initiating the international business
- Evaluate the impact of world economy on international business

2. Skill Outcome:

At the end of the course, the student should be able to:

- Do country analysis in terms of business performance
- Act and negotiate in a cross-cultural business context
- Prepare themselves to work efficiently in Multinational Corporations

Course Name : Mergers and Acquisitions

Course Code : MST(F)571

Course Instructor : Mr. Amar Rao

Hours: 3+1

Credits: 2

### Course Description

This course covers the broad field of mergers, acquisitions, and divestitures. The primary objective of the course is for each student to gain a well-rounded understanding of the major strategic, economic, financial, and governance issues of mergers and acquisitions.

Takeovers and mergers are a daily fact of life and have evolved into a critical part of every CEO or manager's strategic toolbox. Every person who enters the corporate world will most likely be affected by a merger or acquisition at some point in their career. Students will apply learned content to real mergers and acquisitions and have the opportunity to present to the class their findings and conclusions.

### UNIT A: Introduction to mergers and acquisitions

- Discuss the form of mergers and acquisitions
- Highlight the real motives of mergers and acquisitions

### UNIT B: Value creation

- Show how mergers and acquisitions could help creating the value
- Illustrate the methodology for valuing mergers and acquisitions

### UNIT C: Terms and considerations in mergers and acquisitions

- Focus on the considerations that are important in the mergers and acquisitions negotiations
- Consider the issue involved in post-merger integration

### UNIT D: Implications of mergers and acquisitions

- Understand the implications and valuations of the leverage buy outs and disinvestment
- Legal framework for mergers and acquisitions in India

Course Outcome:

Knowledge Outcome

- Student to gain a well-rounded understanding of the major strategic, economic, financial, and governance issues of mergers and acquisitions.
- M&A plays in the contemporary corporate world, and its use as a strategic tool to provide growth, enhance competitive position, transform a company or industry, and create shareholder value
- Framework for analyzing transactions including understanding strategic rationale, valuation methodologies, deal structures, bidding strategies, and the need for a value proposition.

## 2. Skill Outcome:

- Popularity of acquisition strategies in firms competing in the global economy
- Attributes of effective acquisitions.
- Short- and long-term outcomes of the different types of restructuring strategies

Course Name : Equity Research

Course Code : MST(F)572

Course Instructor : Mr. Amar Rao

Hours: 3+1

Credits: 2

### Course Description

This course is about the analysis of financial information - particularly firms' financial reports - for making decisions to invest in businesses. The primary focus is on equity (share) valuation, with some attention given to credit analysis and the valuation of debt. The methods of fundamental analysis will be examined in detail and applied in cases and projects involving listed companies.

By the end of the course, the student should feel competent in writing a thorough, convincing equity research report.

The course is of interest to those contemplating careers in investment banking (particularly in equity research), security analysis, consulting, public accounting, and corporate finance. And it will also help with personal investing.

### Course Contents:

#### UNIT-A: Introduction to Equity Research, and Economic Analysis

Overview, market participants, types of research, role of an analyst, stocks and industry classification; Time value of money, future and present value, risk and return, types of risks, measurement, Beta, risk return trade off, quantitative and qualitative aspects, concept of intrinsic value; Economic analysis - Economic indicators, Gross domestic product, inflation, interest rates, credit policies, foreign direct investment, FIIs.

#### UNIT B: - Industry and Company Analysis

Industry analysis, life cycle of an industry, SWOT analysis, characteristics of industry analysis, Michael Porters five forces model; Company analysis - Non financial aspect, the management, general analysis of company, SWOT analysis, quality-price matrix; Company analysis – financial, analysis of financial statements; Ratio analysis – Activity, Solvency and Valuation Ratios and leverage analysis.

#### UNIT C: - Valuation of Stocks and Firms

Valuation concepts, time value of shares, share models, discount rate, and multiplier approach to share valuation, regression analysis, preferred stock; Valuation of firms, weighted average cost, cost of debt, cost of preferred stock, cost of equity, CAPM approach, discounted cash flow approach, discounted cash flow corporate valuation model, relative corporate valuation model, advantages and disadvantages of relative valuation.

#### UNIT D: - Report Writing and Presentation

Equity Research Report Writing – Information memorandum, format structure and content, Source of information and its validity, desk research, independent appraisal of management Information, expert / legal opinion.

#### Trading Simulation

Live trading simulation through simulation trading and portfolio management

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Students will learn about valuations concept for a company
- Magic of Equity and Investment Horizon
- What is Fundamental Analysis and Frameworks for Company Analysis
- Forecasting techniques to build revenue models
- What business activities determine value

##### 2. Skill Outcome:

- Know the basics of Indian Securities Markets and different terminologies used in equity and debt markets
- Understand about the Qualitative and Quantitative dimensions with regards to Company Analysis

Know about the Fundamentals of Risk and Return, Valuation Principles and the philosophy of various Corporate Actions

Course Name : Brand Management

Course Code : MST (M) 571

Course Coordinator : Dr. Kuldeep Chand Rojhe

Hours: 3+1

Credits: 2

Course Description:

To provide students with an understanding of the role of branding in the organization and the challenges faced by managers in this area. To equip students with the concepts, tools, methods, and approaches useful in the development and management of brands and the ways that brands acquire and sustain value in the marketplace. The course is embedded in sociological, anthropological, and psychological theories of consumer behavior and culture, and relies on these disciplines for insight into effective strategic management of the brand.

Course Content:

Unit-A: Brands & Brand Management

- Meaning of brand
- Challenges & opportunities
- Brand equity concept
- Strategic brand management process.

Unit-B: Planning Brand Marketing Programs

- Customer based brand equity
- Making a strong brand
- Creating customer value
- Brand Positioning
- Identifying & establishing brand positioning
- Positioning guidelines

- Brand mantras
- Brand audits

#### Unit-C: Implementing Brand Marketing Programs

- Criteria for choosing brand elements
- Options & tactics for brand elements,
- Designing marketing programs to build brand equity
- Product strategy, pricing strategy, channel strategy

#### Unit-D: Integrating marketing communications to build brand equity

- New media environment
- Developing integrated marketing communications program
- Leveraging secondary brand associations to build brand equity, country of origin, channels of distribution
- Co-branding, licensing, celebrity endorsement, other events.

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in Brand Management
- Become aware of brand elements and leveraging them for branding.
- Understand of marketing programs to develop brand.
- Realize key considerations in strategic brand management

##### 2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of branding for strategic brand management
- Take effective decisions in selecting & implementing brand elements
- Designing marketing programs to build brand equity
- Ability to leverage marketing communications to build brand equity



Course Name : Customer Relationship Management

Course Code : MST(M)572

Course Coordinator : Ms. Pooja Verma

Hours: 3+1

Credits: 2

#### Course Description:

The course introduces the fundamental concepts, models and frameworks of customer relationship management which is more relevant in the new customer-driven business era to meet the future demands of business optimally. It will discuss the latest developments in CRM, its industry application, role of people and employees in particular reference to CRM implementation in service sector also.

#### Course Content:

##### UNIT-A: Introduction to CRM:

- Relationships in business.
- Marketing phases.
- CLC and CLV
- CRM

UNIT-B: Customer management:

- Customer Retention
- Customer Recall management
- Customer Value: Cost-Benefit analysis
- Customer Loyalty Management

UNIT-C: Technical developments in CRM and Implementations:

- e-CRM
- Database in CRM
- Customer care management and Sales Force Automation
- CRM Implementations
- Customer expectations and customer perception

UNIT-D: Service sector and CRM:

- People factor in CRM
- Growth of services in India
- CRM in Indian service business
- CRM models: Historical and Modern

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding various dimensions of customer relation.

- Identify different customer management strategies.
- Study the customer life cycle.
- Understand how technology is used in customer relation management.
- Address to the different customer relation styles in service sector.
- Knowledge of customer relation models.

## 2. Skill Outcome:

- Provide information about the evolution of relationship as a marketing tool.
- Avoid mistakes in handling customer relations.
- To effectively motivate one's employees which in turn ensures successful customer relations.
- To use technologies successfully to handle customer groups for higher returns.
- Effectively retain the loyal customers.
- Construct a customer relation model.

Course Name : Labour Law and Employee Relations

Course Code : MST(HR)571

Course Instructor : Mr. Pradeep Sharma

Hours: 2+2

Credits: 2

Course Description:

The objective of this course program is to understand the scope and meaning of employee selection. It also encompasses the process and methods of selection and its dynamics. As significant advances and trends are evident over recent years, especially in the areas of applicant decision making and reactions, the use of the right type of selection test has thus become all the more imperative and fruitful for the person–team and person–organization fit, which is included in this course. The precautions in applying selection tests: validity and reliability for efficacy is explained in detail. The course also covers the types of interview methods, the process and barriers. The contemporary trends in employee selection are discussed for better exposure to students towards the dynamic nature of organizations.

#### Course Content:

Unit- A: Employee selection - meaning and process

Unit- B: Steps in Employee selection and types of tests used

Unit- C: Selection Interview method, guidelines and importance

Unit- D: Employee Selection process for competitive advantage for organization

#### Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the meaning and importance of Employee selection process
- Delineate steps in Employee Selection.
- Elucidate the Selection Interview and its importance.
- Learn the methods of employee selection process used by organizations to gain competitive advantage.

##### 2. Skill Outcome:

- Effectively conduct the employee selection process
- Conduct the Selection Interview, adhering to guidelines.
- Art of deciding the method of Selection and conducting it effectively to gain competitive advantage.

Course Name : Compensation Management

Course Code : MST(HR)572

Course Instructor : Ms. Pooja Verma

Hours: 3+1

Credits: 2

Course Description

The course leads to the fundamental concepts, models and frameworks of compensation management which is significant in effectively administering the compensation. It will discuss the challenges faced by the compensation strategy. It tries to bring out the importance of designing an effective compensation plan that takes care of legal stipulations, industry practices, employee expectations, competitive pressures etc. so as to attract and retain talent.

Course Content:

UNIT-A: Introduction to Compensation management and Job evaluation:

- Compensation: Purpose, objectives and types.
- Compensation management: Concept, need and importance.
- Job evaluation: Objectives, significance, limitations, program, principles and methods of evaluation.

UNIT-B: Anatomy of pay structure:

- Salary slip
- Challenges of pay structure
- Factors affecting pay structure-Internal and external

UNIT-C: Wage system:

- Time wage system: Concept, advantages and disadvantages.
- Piece wage system: Concept, advantages and disadvantages.
- ESOP: Concept, advantages and disadvantages.

UNIT-D: Incentives and fringe benefits:

- Incentives: Concept, requirements of sound Incentive wage system, Individual and group Incentive Plans
- Fringe Benefits: Meaning, need, importance and types of fringe benefits.

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding various dimensions of compensation.
- Identify different types of compensation strategies.
- Understand how internal and external environment affect pay structure.
- Address to the wage payment methods.
- Knowledge of various incentive and fringe benefits plans.

2. Skill Outcome:

- Provide information about different compensation tools.
- Avoid mistakes in compensation management.
- To effectively draw an effective pay structure.
- To use different compensation policies to effectively attract and retain human resource.
- Construct an effective compensation model.

**Program Name: MBA Executive**

The Program Specific Outcomes of the program are:

1. To develop the ability to solve complex business problems & independently pursue research and consultancy
2. To provide competencies to interpret the holistic view of business world & the broader environment
3. To instill knowledge, skills & attitude to develop successful leaders through innovation, risk taking capabilities and entrepreneurial way of thinking
4. To produce professionals with strong ethics, respect for personal & institutional integrity, team work & continuous learning

5. To generate ability to effectively present and communicate and be contented while contributing positively to the society

Program Outcomes of MBA Executive Program are given below:

1. Apply knowledge of management theories and practices to solve business problems.
2. Foster Analytical and critical thinking abilities for data-based decision making.
3. Ability to develop Value based Leadership ability.
4. Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.
5. Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
6. Knowledge, ability & attitude to become successful entrepreneurs and ability to innovate & think out of the box.
7. Ability to effectively present & communicate.
8. Ability to be content & happy.

## SEMESTER I

Course Name : Micro Economic Theory

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Hours: 2

Credits: 2

Course Outcome:

### 1. Knowledge Outcome:

At the end of the course the students are expected to:

- Use the concept of demand and supply to understand working of a market.
- Understand and use different cost and returns concepts to analyze behavior of the firms under different market conditions
- Demonstrate how competitive industries respond to changing market forces.

### 2. Skill Outcome:

At the end of the course the students should be able to:

- Predict the product demand in response to changes in different factors affecting demand



- Forecast demand for a product
- Use costs and returns concepts to find profitable level of output for a firm and also to estimate profits.

Course Name: Principles of Financial Accounting

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Hours: 2

Credits: 2

Course Objective:

1. Knowledge Outcome

At the end of the course, the student should be able to

- Understand different types of Accounts and differentiate in between.
- Understand Accounting Cycle □ Purpose of Trial Balance.
- Understand why Trading, Profit and Loss Account and Balance Sheet is made.
- Understand the movement of cash in a business

2. Skill Outcome

- Will be able to pass Journal entries as well as post them in their respective Accounts.
- Prepare subsidiary books, Trial Balance and final accounts.
- Will be able to predict cash flows of a company.
- Full knowledge of Accounting Standards of India.

Course Name: Principles of Statistics

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Hours: 2

Credits : 2

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Realize the importance of data presentation
- Describe various types of graphical presentations like Pie chart, Bar graph etc.
- Define averages and dispersion for ungrouped and grouped data

- Understand the concept of uncertainty and axioms of probability
- Explain type of events and compute probability of such events

**2. Skill Outcome:**

- Making of charts and graphs on MS Excel
- Computation of means and deviation manually and through MS Excel formulae
- Apply event specific formula to calculate

Course Name: Principles of Organizational Behaviour

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Hours: 2

Credits : 2

**Course Outcome:**

**1. Knowledge Outcome:**

At the end of the course, the student should be able to:

- Understanding individual behavior and attitude at a workplace.
- Identify different personality types based on Big five model and MBTI.
- Study the relationship between motivation and performance.
- Identify common errors in perception.
- Understand how groups are formed and work in an organization.
- Address to the different leadership styles, conflict management techniques and stress management process.
- Knowledge of different organizational designs and its elements.

**2. Skill Outcome:**

- Identify personalities of individual using models like MBTI and Big five model.
- Avoid biasness and other perceptual errors while decision making processes.
- To motivate one's subordinates and employees.
- To lead successfully and handle groups for higher returns.
- Effectively handle conflict and stress at work place.
- Construct an organizational structure.

Course Name: Introduction to Marketing Management-I

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Hours: 2

Credits : 2

Course Outcome:

**1. Knowledge Outcome:**

At the end of the course, the student should be able to:

- Understand core concepts in marketing
- Become aware of marketing as open system
- Understand the complexities of human behavior in marketing
- Know how target markets are selected & positioned □ Realize the basic pillars on which marketing is built

**2. Skill Outcome:**

The course will enable the students to develop practical skills in form of

- Use concepts of needs, wants & demand & chose appropriate marketing concept
- Take decisions with reference to environment
- Understand consumer behavior
- Develop target markets & facilitate

Course Name: SPRINT-I

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Hours:15

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management

- Presentation skills
- Writing reports, Stock Trading & Business Plans

#### Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management  
Communication & Current Affairs
- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.

## SEMESTER-II

Course Name: Macro Economic Theory

Hours: 2

Credits:2

Course Outcome:

### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the measurement of macroeconomic aggregates such as GDP - real and nominal, national income, economic growth, inflation and business cycles.
- Understand the concept of Balance of payments and explain the measurement of a country's balance of payments
- Describe the phases of business cycles and their impact on business
- Analyze the effect of macroeconomic policies with regard to real GDP growth, unemployment rate and the rate of inflation.
- Illustrate the effect of implementing expansionary and contractionary monetary and fiscal policies during recession or inflation in the economy.
- Understand better the basics of international trade.

### 2. Skill Outcome:

At the end of the course, the student should be able to:

- Convert nominal variables to real variables.
- Evaluate current economic issues and their impact on business activities
- Understand and discuss the impact of inflation and recession
- Understand and critique macroeconomic policy initiatives
- Understand and interpret discussions on macroeconomic issues in electronic and print media.

Course Name : Principles of Cost Accounting

Hours: 2

Credits:2

Course Objective:

**1. Knowledge Outcome**

At the end of the course, the student should be able to:

- Understand what cost accounting is all about.
- Usage of cost accounting in production and cost control.
- For control cost control material and labor.
- Understand what Job and Process costing.
- Preparation of budget and calculation of Break-even Point.

**2. Skill Outcome**

- Prepare a cost sheet on actual basis(either of lunch, Marriage, function)
- Prepare Budgets and forecast expenses
- Predict the sales, purchase and different ordering levels.
- Construct relationship between cost, sales and profit.

Course Name: Introduction to Marketing Management-II

Hours: 2

Credits:2

Course Outcome:

**1. Knowledge Outcome:**

At the end of the course, the student should be able to:

- Understand concepts in marketing mix
- Develop insight of Logistics & marketing communications.
- Understand the concept & practices in brand management.
- Gain knowledge about practical solution to marketing problems.

**2. Skill Outcome:**

The course will enable the students to develop practical skills in form of

- Develop appropriate mix of product, pricing, place & promotion
- Use concepts in brand management

- Assist in development of independent marketing strategy.

Course Name : Principles of Financial Management-I

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Hours: 2

Credits: 2

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the nature and scope of financial management (Why do we need financial management; Wealth maximization Vs. Profit maximization)
- Understand the significance of the concept of time value of money
- Understand the types and characteristics of major financial instruments (shares, debentures, bonds)
- Assimilate the basics behind tools of financial decision making such as capital budgeting and cost of capital

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others
- Calculate the present and future values of cash flows using formulae for time value of money.
- Assist in realizing the underlying factors such as uncertainty, inflation, opportunity cost)
- Calculation of non-discounted and discounted techniques of capital budgeting: Pay-back method, Average rate of return method, NPV method, IRR method, Profitability index and MIRR.
- Assist in understanding project feasibilities
- Compute specific elements of cost of capital: Cost of debt, Cost of equity plus the usage of CAPM & WACC models

Course Name : Human Resource Management-I

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Hours: 2

Credits: 2

Course Outcome:

## 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.
- Understand the significance of training, development and appraisal programs.

## 2. Skill Outcome:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.
- Effectively run a recruitment and selection program.

Course Name : SPRINT II

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Hours: Around 40 hours of training in Quadmester-II

Credits: 2

### Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

### Course Content:

#### Foundation Setting

- Usage of MS-Excel & IT skills in Management



- Presentation skills
- Writing reports, Stock Trading & Business Plans

#### Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus.  
The actual syllabus changes

### SEMESTER- III

Course Name : Introduction to Financial Management-II

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Hours: 2

Credits: 2

**1. Knowledge Outcomes:**

At the end of the course, the student should be able to:

- Understand the nature and scope of financial management (Why do we need financial management; Wealth maximization Vs. Profit maximization)
- Understand the significance of the concept of time value of money
- Understand the types and characteristics of major financial instruments (shares, debentures, bonds)
- Assimilate the basics behind tools of financial decision making such as capital budgeting and cost of capital

**2. Skill Outcomes:**

At the end of the course, the student should be able to:

- Find out which sources of finance to prefer over the others
- Calculate the present and future values of cash flows using formulae for time value of money.
- Assist in realizing the underlying factors such as uncertainty, inflation, opportunity cost)
- Calculation of non-discounted and discounted techniques of capital budgeting: Pay-back method, Average rate of return method, NPV method, IRR method, Profitability index and MIRR.
- Assist in understanding project feasibilities
- Compute specific elements of cost of capital: Cost of debt, Cost of equity plus the usage of CAPM & WACC models

Course Name : Introduction to IT Tools

---

Hours: 2

Credits: 2

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand basic components of a computer system
- Understand importance & functionality of operating system
- Understand basics of data communication, computer networks and business applications of these technologies
- Understand ethical and security issues involved in e-business environment and learn about various methods for providing computer security.
- Know and acquire basic understanding about latest trends in computing world like cloud computing, mobile computing and social networks and business implications these trends.

2. Skill Outcome:

- Creating, formatting, and sharing documents in MS Word
- Data entry in Excel Worksheet, formatting worksheets and data, using formulas and functions and creating charts
- Creating presentation using PowerPoint
- Working with and using Outlook
- Creating a simple database using MS Access

Course Name : Elements of Human Resource Management-II

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Hours: 2

Credits: 2

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand the importance and aspects of human resource in an organization
- Delineate process of job analysis and job design.
- Elucidate the process of human resource planning.
- Understand the concept of recruitment and selection.
- Understand the significance of training, development and appraisal programs.

2. Skill Outcome:

- Designing job and preparation of job description and job specification.
- Effectively handle human resource related issues.
- Assessing the future requirements of human resource.
- Constructing training and development programs for the employees.
- Effectively run a recruitment and selection program.

Course Name : SPRINT-III

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Hours: Around 40 hours of training in Quadmester-III

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills & capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management
- Presentation skills
- Writing reports, Stock Trading & Business Plans

Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy

- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

#### Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.

Course Name : Problem Solving

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Hours: 2

Credits: 2

Course Outcomes:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Identify a critical thinker
- Describe tools for identifying problems
- Use the MECE (Mutually Exclusive and Collectively Exhaustive) approach
- Understand issue tree approach to formulate a problem
- Describe Fishbone analysis
- Describe issue tree approach
- Understand types of research and data

2. Skill Outcomes:

At the end of the course, the student should be able to:

- Critically examine claims encountered in daily life
- Compose effective arguments
- Describe tools for identifying problems
- Use Issue Tree Approach for problem formulation
- Use a Fishbone Diagram for cause and effect analysis
- Apply MECE and CRAP to find solution to a problem
- Write a research proposal

Course Name : Principles of Marketing Research-I

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Hours: 2

Credits: 2

Course Outcome:

Knowledge Outcome:

At the end of the course students should be able to understand:

- The concept, role, scope and process of marketing research

- How to define marketing research problem and develop an approach
- How to formulate research design
- How to design a questionnaire

Skill Outcome:

At the end of the course student should be able to:

- Identify marketing problems faced by companies
- Plan appropriate research design

#### SEMESTER-IV

Course Name : Contemporary Legal System

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Hours: 2

Credits: 2

Course Outcome:

##### 1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand what legal Aspects of business are and answer the basic questions on the subject.
- Understand the initial requirement to step up a business
- Have an insight on what are the documents to be issued and what are the procedure to get a company registered.
- Have working knowledge of how shares are issued
- The process of winding up of the company.
- Have a working knowledge of the company law board and its powers and procedures of working.

##### 2. Skill Outcome:

- Will be able to explain the procedure and requirement of establishing a company.
- Will be able to draft legal documents such as AOA, MOA and prospectus.
- Have knowledge of how meeting are done and the procedure of holding of meetings.
- Practical knowledge of keeping minutes of the meeting.
- The requirement of CLB and powers of CLB.
- Have a brief idea of how a company is wound up and the documents required for.

Course Name : Principles of Marketing Research-II

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Hours: 2

Credits: 2

Course Outcome:

1. Knowledge Outcome: At the end of the course students should be able to understand:

- Measurement and scaling concepts
- Questionnaire design process
- Sampling design and procedure
- Data collection process
- Data preparation for further analysis
- Basic data analysis techniques
- How to write report and presentation

2. Skill Outcome:

At the end of the course, student should be able to:

- Identify marketing problems faced by companies and provide solutions that are supported by good marketing research methodology
- Conduct marketing research projects from their inception to end
- Make use of statistical packages like SPSS for data entry & data analysis for research problems

Course Name : SPRINT-IV

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Hours: Around 40 hours of training in Quadmester-IV

Credits: 2

Course Description:

SPRINT is inspired by Stanford's mini-MBA program; designed significantly to upgrade skills &

capabilities of students of Shoolini University. Led by top corporate & Industry Leaders, SPRINT involves exhaustive subject matter sessions on Key Management topics including business processes, finance, marketing, HR, operations, law & case study based highly interactive approach.

Course Content:

Foundation Setting

- Usage of MS-Excel & IT skills in Management
- Presentation skills



- Writing reports, Stock Trading & Business Plans

#### Primer Courses

- Introduction to Finance
- Operation Management Overview
- Marketing Management
- Human Resource Management
- Strategy
- Economics

#### Advanced Concepts

- Finance : Corporate finance, valuation & capital markets
- Marketing : Understanding customers, product, pricing & distribution
- HR : Organizational design , personnel management
- Operation Management : Inventory Management & supply chain management

#### Communication & Current Affairs

- Current affairs workshops
- Written communication workshops
- Spoken business communication workshops
- GD & Mock Interviews

Suggested Readings:

- 10 Day MBA by Steven Silbiger
- Say it with Charts by Gene Zelazny

NB:

As this course is ever evolving, so the syllabus given above is just a model syllabus. The actual syllabus changes every Quadmester to suite the latest and most urgent needs.

Course Name : Brand Management

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Hours: 2

Credits: 2

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understand core concepts in Brand Management
- Become aware of brand elements and leveraging them for branding.
- Understand of marketing programs to develop brand.
- Realize key considerations in strategic brand management

2. Skill Outcome:

The course will enable the students to develop practical skills in form of

- Use concepts of branding for strategic brand management
- Take effective decisions in selecting & implementing brand elements
- Designing marketing programs to build brand equity
- Ability to leverage marketing communications to build brand equity

Course Name : Conflict Management

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Hours: 1

Credits: 1

## Course Description:

This course will help students to examine the different types of conflict, how to understand and embrace the positive aspects of conflict, and how to successfully navigate conflict to positive resolution. Knowing how to listen and deploy appropriate communication tactics is determinative of whether a conflict will have a positive or negative resolution. The students will be able to use active listening skills when dealing with conflict, choose appropriate communication tactics when dealing with conflict and create a usable plan for managing conflict.

## Course Content:

### Unit-A: Types of Conflict

Defining Conflict, Different Types of Conflict, Positive Aspects of Conflict, Positive Ways of dealing with Conflict

### Unit-B: Conflict Resolution Skills

Active Listening Skills, Communication Problems and Skills, Usable Plan to resolve conflict

### Unit-C: Intercultural Communication and Conflict Resolution

Dimensions of Intercultural Interactions and Conflict, Analyze the Dynamics of Intercultural Interactions, Strategies for Success in Intercultural Interactions

Course Name : Mergers and Acquisitions

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Hours: 2

Credits: 2

## Course Outcome:

### 1. Knowledge Outcome

- Student to gain a well-rounded understanding of the major strategic, economic, financial, and governance issues of mergers and acquisitions.
- M&A plays in the contemporary corporate world, and its use as a strategic tool to provide growth, enhance competitive position, transform a company or industry, and create shareholder value
- Framework for analyzing transactions including understanding strategic rationale, valuation methodologies, deal structures, bidding strategies, and the need for a value proposition.

### 2. Skill Outcome:

- Popularity of acquisition strategies in firms competing in the global economy
- Attributes of effective acquisitions.
- Short- and long-term outcomes of the different types of restructuring strategies

Course Name : Compensation Management

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Hours: 2

Credits: 2

Course Outcome:

1. Knowledge Outcome:

At the end of the course, the student should be able to:

- Understanding various dimensions of compensation.
- Identify different types of compensation strategies.
- Understand how internal and external environment affect pay structure.
- Address to the wage payment methods.
- Knowledge of various incentive and fringe benefits plans.

2. Skill Outcome:

- Provide information about different compensation tools.
- Avoid mistakes in compensation management.
- To effectively draw an effective pay structure.
- To use different compensation policies to effectively attract and retain human resource.
- Construct an effective compensation model.

Course Name: Financial Technology (FinTech) Innovations

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Skill outcome

- Fintech Innovations: Series Map and Learning Goals
- Fintech Innovations: Series Introduction
- The Checking System and the Importance of Financial Intermediation
- Electronic Fund Transfers Using Automated Clearing House (ACH)
- Pure Digital Wallets
- From Pure Wallet to Payment Ecosystem

- Social-Network-Based Payment Innovations

Knowledge outcome

By the end of the course, you 'll be able to...

- Explain how current payment systems operate.
- Describe inefficiencies in current practices in the processing of payments.
- Apply new technological innovations to current inefficiencies.
- Produce value propositions for new technologies in the payment space.
- Explain how blockchain works.
- Describe the key technical aspects, such as decentralization and consensus algorithms.
- Describe the strengths and weaknesses of cryptocurrency as an asset and a payment mechanism.
- Evaluate the trade-offs of blockchain as a business solution.

M.Sc. Yoga Course out comes

Semester I

1. Course Name : Foundation of Yoga

Hours: 3+0+0

Credits: 3

Course Outcome:

I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- understand meaning of yoga and its various classical definitions
- understand about origin, history and development of Yoga
- understand about the insights of Indian philosophy (astika & nastika darshanas)
- understand Yoga according to various yogic texts
- assimilate the basics of yoga traditions and different streams.

II. Skill Outcomes:

At the end of the course, the student should be able to:

- express about the origin and history of yoga
- express in their own way about Yoga and its definitions
- explain about different streams of yoga

- know about different types of classical practices

2. Course Name : Hatha Yoga

Hours: 3+0+0

Credits: 3

Course Outcomes:

I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Introduce the different Hatha Yoga Texts and Hatha Yogi's.
- Describe the various Hatha Yogic Practices with Techniques, Benefits & Precautions
- Differentiate between Hatha Yoga and Raj Yoga.
- Understand the role of Hatha Yoga on spiritual pathway

II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the different Hatha Yogic Practices.
- Understand the Aim and Objective of Hatha Yoga
- Students will be understanding the significance of Hatha Yoga for Holistic Health.

3. Course Name : Fundamentals of Psychology

Hours: 3

Credits: 3

Course Outcome:

1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Comprehend the meaning of Psychology
- Acquire adequate knowledge of the basic concepts of psychology
- Properly define and discuss Psychological aspects.
- Implement basic methods of Psychology.
- Use analytical skills to understand human behavior and mental processes.

## 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Understanding of behavior, thoughts and emotions.
- Analysis of research and ideas.
- Development of reasoning and analytical skills.
- Apply the fundamentals of psychology in their daily affairs of their life.

4. Course Name : Human Biology I

Hours: 3+0+1

Credits: 4

Course Outcome:

### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand meaning of Anatomy and Physiology.
- Know the concept of Cytology
- Know the proper anatomy & physiology of different body systems.
- Understand the role of different body systems to maintain the metabolism.

### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Understand the Anatomy of few body systems
- Explain the Physiology of few body systems
- Understand the relation between Yoga practices and Human physiology.

5. Course Name : Diet and Nutrition

Hours: 3+0+0

Credits: 3

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Balanced diet.
- All the components of diet.
- Uses and need of protein, lipid, carbohydrates, fats in biological system.
- Diet used for various diseases.

II. Skill Outcome:

At the end the student will be able to:

- Give suggestion to the individual about yogic diet.
- Provide therapy through diet.

Semester II

1. Course Name : Indian Philosophy and Culture

Hours: 3+0+0

Credits:3

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- The concept of orthodox and heterodox philosophies the features of Indian Dharsan's and the differences between Eastern and Western philosophies.



- The explanation of consciousness with Shankya, Niyaya, Vaishasik, Yoga and Vedantic Philosophies, the dualistic and Non-dualistic concept, the defining of Bhramana's, Maya and intermediate qualifying concept of Ramanuja.
- The application of these philosophies to develop external and internal personalities.
- The rituals of different sixteen Samskara's (the tendencies), four gate Prusarth's (Dharma, Artha, Kama, Moshha) and the inheritance of different spirituals performances in Hinduism and Buddhism and Jainism.

## II. Skill Outcome:

At the end the student will be able to:

- Understand the complexity of Nature, body mind and pure consciousness.
- The teachings of Vedanta and the importance of ancient philosophies to bring harmony and peace to the modern mankind.

2. Course Name : Patanjali Yoga Darshana

Hours: 3+0+0

Credits: 3

## Course Outcomes:

### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the contribution of Maharshi Patanjali in the field of Yoga.
- Know the Concept of Chitta & Vritti.
- Describe the Application of Samprajnatah Samadhi
- Understand the role of Klesha on spiritual pathway.
- Explain the Concept of Ashtanga Yoga and Kriya Yoga.
- Understand the suitable practices for liberation.
- Understand the Introvert and Extrovert practices of Ashtanga Yoga.

### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Use the concept of Patanjali to achieve liberation.
- Identify the different stages of Samadhi
- Identify the appropriate action to achieve the state of samadhi.
- Identify the level of practitioner on spiritual pathway

3. Course Name : Abnormal Psychology

Hours: 3

Credits: 3

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Human behavior and performance; individual differences in ability, personality, and interests; learning and motivation; psychological research methods; and the assessment and treatment of behavioral and affective disorders.
- Mild as well as major mental disorders
- principles, methods, and procedures for diagnosis, treatment, and rehabilitation of physical and mental dysfunctions
- Different philosophical systems and religions which includes their basic principles, values, ethics, ways of thinking, customs, practices, and their impact on human culture.

II. Skill Outcome:

At the end the student will be able to:

- Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to mental problems.
- Understand the implications of new information for both current and future problem-solving and decision-making.
- Suggesting appropriate yogic techniques to deal with mental disorders, and other mental processes such as memory, learning, IQ development

4. Course Name : Human Biology II

Hours: 3

Credits:3

Course Outcome:

I. Knowledge Outcome:

At the end the student will gain understanding of:

- Nerves system types, the different part of the brain and functions. Classification and nature of spinal nerves, neutral spine cod, cerebrospinal fluid, nerve refluxes.
- The nature, classification and types of different hormones. Anatomy and physiology of thyroid, parathyroid, pancreas, adrenal gland, Gastric and placental hormones.
- The nature and functions of urinary bladder, kidneys and prostate glands, the mechanism urine formation and kidney stones. The concept of menstruation, ovulation, contraceptive , infertility and importance
- The details of gastrointestinal system, stomach peptic ulcers, liver, small intestine, colon, rectum, gastric enzymes and hormones.
- The functioning of vision hearing and skin, the details account of sense organs and their applied physiology.

## II. Skill Outcome:

At the end the student will be able to:

- To increase the awareness of neurological Anatomical and physiological concept with respect to spine, cranial nerves and brains parts.
- To understand the links between different body systems to have a homeostasis, neuromuscular conduction and hormonal regulation.
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5. Course Name : Naturopathy

Hours: 3+0+0

Credits: 3

Course Outcomes:

## I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Describe various Naturopathy Practices.
- Introduce the basics of Naturopathy.
- Describe the different Nature Cure Treatments.
- Explain the Techniques, Benefits & Precautions of Nature Cure Treatments.

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the different Practices of Naturopathy
- Identify the Diseases and its cure by Naturopathy
- Understanding the significance of Naturopathy for Health.

### Semester III

1. Course Name : Principle Upanishads

Hours: 3+0+0

Credits: 3

Course Outcomes:

#### I. Knowledge Outcome

At the end of the course, the student should be able to:

- Understand the role and scope of Upanishads.
- Understand the importance and classification of Upanishads.
- Understand the relation between Upanishads and Vedas.
- Relation between Yoga and Upanishads.

#### II. Skill Outcomes:

At the end of the course, the student should be able to:

- Know the real rituals of Indian Tradition.
- Linked Yoga with Upanishads.

2. Course Name : Methods of Teaching Yoga and Value Education

Hours: 3+0+0

Credits: 3

Course Outcomes:

#### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Explain various principles and methods of teaching yoga.
- Explain the importance of lesson planning in Yoga & Class management.
- Describe the different educational tools of Yoga teaching.
- Understand the concept of Value education

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Identify the suitable technique for teaching yoga
- Maintain the Yoga decorum in theory and practical class
- Identify the Yoga educational tools.

3. Course Name : Psychological Assessment and Diagnosis

Hours: 3

Credits: 3

Course Outcome:

### 1. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand individual differences
- Acquire adequate knowledge of the basic concepts of assessment
- Get acquainted with self assessment techniques
- Implementation of assessment techniques in research

### 2. Skill Outcomes:

At the end of the course, the student should be able to:

- Demonstrate competence in the selection, administration, and scoring of assessment measures
- Demonstrate competence in drawing inferences from the results within a hypothesis generating and hypothesis testing framework

- Draw connections between the impacts of history on contemporary Indigenous health outcomes.
- Fair judgments about performance
- Analysis of research and ideas.
- Development of reasoning and analytical skills.
- Application of assessment and testing in research.

4. Course Name : Disease Specific Pathology

Hours: 3+0+0

Credits: 3

#### I. Course Outcome

By the end of the course the students should be able to:

- Understand the root cause of different common disorders.
- Understand the differences between bacterial and viral infections.
- Role of Yoga technique to improve Immunity.
- Understand the Sign and symptoms of various common disorders.
- Role of Yoga Practices to manage common diseases.

#### II. Skill outcome

At the end of the course, the students should be able to:

- Identify the exact cause of common diseases.
- Prepare Yoga Protocol for particular disease.
- Application of Yoga to improve immunity.
- Understand the limitations of Yoga.

5. Course Name : Research Methodology

Hours: 3+0+0

Credits: 3

## I. Course Outcome

By the end of the course the students should be able to:

- Understand the concept and meaning of research methodology
- Application of research in yogic studies
- Various tools, techniques used in data collection and data analysis
- Application of different software used in data analysis
- Techniques of report writing.

## II. Skill outcome

At the end of the course, the students should be able to:

- Understand the methodology of research in yoga science
- Different techniques of data analysis for report writing
- Understanding various statistical software of scientific research in the field of yogic science

## Semester IV

1. Course Name : Yoga Therapy

Hours: 3+0+1

Credits: 4

Course Outcomes:

### I. Knowledge Outcomes:

At the end of the course, the student should be able to:

- Understand the scope and limitation of Yoga therapy.

- Understand the Principles of Yoga therapy.
- Understand the role of Yoga therapy for different stages of life.
- Know the Yogic management of common disorders.
- Know the role of Yoga therapy for psychological disorders.

## II. Skill Outcomes:

At the end of the course, the student should be able to:

- Designe a Yoga protocol for different disorders.
- Provide Yogic management for common disorders.
- Appropriate use of different Yogic practices as per requirement.

2. Course Name : Samkhya-Karika

Hours: 3+0+0

Credits: 3

Course Outcome:

## I. Knowledge Outcome:

At the end the student will gain understanding of:

- Indian Philosophies and especially the Samkhya philosophy.
- In-depth understanding of the 25 elements of Samkhya.
- The real meaning of world and the three sorrows.
- Linage of the philosophers of Samkhya philosophy.

## II. Skill Outcome:

At the end the student will be able to:

- Understand and recite Sanskrit shlokas.
- How to overcome from sorrows.

3. Course Name : Panchakarma Therapy

Hours: 3+0+1

Credits:4

Course Outcome:



## I. Knowledge Outcome:

At the end the student will gain understanding of:

- Basis of Ayurveda the historical and philosophical, the essential Anatomical and physiological on Ayurvedic principles. The role of bio-forces (Doshas), dushvya, the essence of Vatta, pitta, Kapha.
- Purification(Shodhan) and balancing (samna) preparation for punchakarma, introduction to various herbal oils and managing the care plan of different constitutions.
- Of different detoxification methods-Nasya, Vamana, Vasti(Nirhua, Anuvasna) Basti(kati, griva, Zanu) Rakthamoshana.
- Indication and contraindication, post-detoxification methods and follow-up after the different therapies. .

## II. Skill Outcome:

At the end the student will be able to:

- Identify the need of particular detoxification according to state of particular Dosha imbalance.
- To monitor and to perform preparatory measures like Abhyanga(Massage) and promotion of health and physical beauty.

4. Course Name : Dissertation/Field Work

Hours: 3+0+0

Credits:3

Course Outcome:

## I. Knowledge Outcome:

By the end of the course the students should be able to:

- Understand the concept of research methodology
- Application of research in Yogic studies
- Various tools, techniques used in data collection and data analysis
- Application of different software used in data analysis
- Techniques of writing scientific research papers.
- Understand the techniques of Yoga research.

## II. Skill Outcome:

At the end of the course, the students should be able to:

- Understand the methodology of research in Yoga science

- Different techniques of data analysis for report writing
- Understanding various statistical software of scientific research in the field of Yogic science.
- Techniques of writing scientific research papers.
- Technique to do different Yoga research.

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## Ph.D Yoga

Course Name: Yoga & Research

Program Objectives: The major objectives of the program are:

- To cultivate the sincere researchers.
- To undertake serious issues of the society and apply the concepts and theories for the attainment of solution.
- To understand the values and ethics of human beings.
- To make the students able to understand the concept of research and its methodology for carrying minor or major research projects.
- To understand various methodology of involve in research.

### 1. Course Outcome

By the end of the course the students should be able to:

- Understand the latest trends of yogic researches.
- Understand the thrust areas for yogic researches.
- Application of research in yogic studies
- Understand the IP clauses
- Understand the ethical issues of research.

### 2. Skill outcome

At the end of the course, the students should be able to:

- Understand the ethics and IP clauses of research.
- Write the review papers and thesis.
- Understanding the research gap under the thrust areas.