

## **Research Policy**

**Purpose:** This policy document establishes the research environment in the University within which academic staff and students carry out their research. It also provides a framework for the development and implementation of research management at Shoolini University of Biotechnology and Management Sciences.

**Research Philosophy:** Shoolini University, in pursuit of its vision, 'To be in the top 200 global universities by 2022,' and in the quest for creating knowledge, endeavors to move into the club of internationally reckoned centers of research and education. The University has, therefore, adopted a research-driven model which seeks to blend expertise in life sciences and engineering with the principles and practices of business management so that cutting-edge technologies and exceptionally skilled human capital could be generated. The six faculties of the university, viz., Agriculture, Applied Sciences and Biotechnology, Sciences, Engineering and Technology, Management Sciences and Liberal Arts, and Pharmaceutical Sciences have been unified by a trans-disciplinary research model primarily focusing on United Nations Sustainable Development Goals (SDGs).

Universities have a unique and critical role in helping the world to achieve SDGs through their research, teaching, operations, and community leadership. Shoolini University aims to contribute to the SDGs and highlight the importance of the sector in local, national, and international implementation. By framing research around the SDGs, we aim to create a global future that is inclusive, equitable and just, and which provides prosperity, all within environmental limits.

### **Research on SDGs at Shoolini University focuses on:**

1. Providing the necessary knowledge, evidence base, solutions, technologies, pathways, and innovations to underpin and support the implementation of the SDGs by the global community through both traditional disciplinary approaches and newer interdisciplinary, transdisciplinary, and sustainability science approaches.
2. Providing capacity-building for developing countries in undertaking and using research; collaborating with and supporting innovative companies to implement SDG solutions.
3. Improving diversity in research and training students for sustainable development research.

Since the University is located in the lap of a benign Himalayan ecosystem, the research agenda is focused on the economic and sustainable development of the Himalayan region. Shoolini University's research philosophy, therefore, essentially rests upon three verticals that is 1) Harnessing Himalayan biodiversity, its conservation, and sustainable management; 2) Development of cutting-edge technologies to meet current industrial and societal needs; 3) Establishment of Centres of Excellence in areas relevant to the university's research goals and inter-institutional Collaborations for Research and Development. The University is aligning its research goals with emerging challenges in health care, food, energy conservation, sustainable management of bio-resources, and clean development along with stimulating jobs and economic development with its focus on specific needs of the Himalayan region. The research programs are therefore designed to provide such interdisciplinary solutions as are replicable, techno-commercially feasible, and could be scaled up. Based on the three verticals of the University's research philosophy, the thematic areas of the research programs have been prioritized as under:

#### **1. Harnessing Himalayan Biodiversity, its Conservation and Sustainable Management**

Himalayan ecosystem being a colossal reservoir of biological and geological wealth in the form of forest cover, plant diversity, macro and microflora and fauna, water, snow, and glaciers, offers on one hand an opportunity to develop new bio-products as well as monitor climate change. On the other, it is a challenge to conserve and sustainably manage the Himalayan resource base. Shoolini University has undertaken this gigantic task of harnessing Himalayan bio-resources through the convergence of emerging technologies emanating from various disciplines such as Biotechnology, Pharmaceutical Sciences, Bioinformatics, Proteomics, Food technology, Nanotechnology, Computer sciences, Electronics, and almost the entire range of Basic and Social sciences. Himachal Pradesh contributes about 7.5% of the total biodiversity of India and needs to cash upon the biotechnology boom for its socio-economic development. The Himalayan flora and fauna have not been systematically recorded and there is a need to create a database covering the genetic and phytochemical diversity through clinal variation. The university is also focusing its research efforts on studying plants for their medicinal properties in priority health areas like cancer, infectious diseases, neglected diseases, and diseases specific to the region. The Himalayas have emerged as a major production area for fruits, vegetables, and flowers. Shoolini University envisions to be a center of excellence in the

study of plant diseases, devising technologies for processing food produced in the region, increasing its nutritional value and shelf life.

The engineering needs of the Himalayan region need to be addressed to match the unique character of the region. The University aims to focus its efforts to develop tools and technologies which would help in the sustainable development and conservation of biodiversity while allowing the people of the region to compete with the economic and social development of other regions of the world.

The University also endeavors to study the socio-economic aspects of the region and devise strategies and solutions to meet its special requirements.

## **2. Development of Cutting Edge Technologies to Meet Industrial and Societal Needs**

Generation of cutting edge technologies and development of end products assumes interdisciplinary dimensions, integrating many disciplines, viz., biological, pharmaceutical, chemical, physical, engineering, social, and management sciences. The long-time research strategy of Shoolini University is to develop cutting-edge technologies by the interface of two or more disciplines. Therefore, the University's research-driven model is founded on the integration of concepts, theories, techniques, and perspectives from across the disciplines, seeking solutions that are beyond the scope of a single discipline.

Biotechnology itself being an interdisciplinary science integrates biological sciences with Biochemistry, Physics, and Mathematics. It finds application in sectors such as food and agriculture, health and environment, as well as a number of industries. The University has already formulated innovative research projects by converging biotechnology, nanotechnology, and pharmaceutical sciences. An interface between Biotechnology, Nanotechnology, Bioinformatics, and Pharmaceutical Sciences would open new vistas in drug development, healthcare, and nutrition, and other industries. Similarly, engineering and technology interface with material and management sciences would lead to the development of renewable energy technology and incubation of the same, scaling it up for business ventures.

## **3. Establishment of Centers of Excellence for Research and Development**

The university has developed detailed project proposals for setting up the "Center of Research on Himalayan Sustainability and Development" (CRHSD). The purpose of setting up the research centers is to promote interdisciplinary collaborative research, within the University as well as with researchers from other institutions in India and abroad. The centers would not

essentially exist as separate entities but will follow a flexible model with researchers working in the labs/field spread over the Schools of the University, contributing to the mission and vision of the respective centers. Thus, the centers will be modeled to facilitate collaboration and resource-sharing between different researchers and to promote projects which have clearly defined deliverables that impact society.

The following centers have already been established in the University

1. Research Center on Nanotechnology
2. Research Center in Omics
3. Research Center in Renewable Energy
4. Research Center in Automobile Engineering
5. Research Center in Yoga
6. Research Center in Disaster Management
7. Research Center in Data Analytics

The university will adopt and implement the following research policy in a phased manner to maintain the highest standards of research and ensure the implementation of research ethics and integrity.

### **Policy Content and Guidelines**

#### **1. Requirements for Research**

- a. All faculty members are expected to conduct research and publish their findings only in SCOPUS-indexed journals after ensuring intellectual property protection.
- b. All faculty members should, where appropriate, seek extramural research funds to support their research.
- c. The requirement to undertake research is a career expectation and will be balanced with the other obligations of faculty, including teaching and administrative responsibilities.
- d. Nothing in this policy is to be construed to prevent Heads of School from being allocated teaching and other responsibilities in the pursuit of research goals.

#### **2. Statutory Obligations**

- a. Faculty and students are required to carry out their research in compliance with all the University's obligations under legislation, following any ethical and contractual obligations.
- b. Research projects that involve human or animal subjects must be approved in advance (see the ICMR Ethical Guidelines for Biomedical Research on Human Participants ([http://icmr.nic.in/human\\_ethics.htm](http://icmr.nic.in/human_ethics.htm)), Indian National Science Academy Guidelines for Care and Use of Animals in Scientific Research

([http://icmr.nic.in/animal\\_ethics.htm](http://icmr.nic.in/animal_ethics.htm)) and CPCSEA Guidelines for Laboratory Animal Facility ([http://icmr.nic.in/bioethics/final\\_CPCSEA.pdf](http://icmr.nic.in/bioethics/final_CPCSEA.pdf))

- c. The research conduct policy (Code of ethics on academic research: Shoolini University) of the University should be strictly adhered to in all the publications, dissertations, project proposals, and other documents of the university.
- d. In case of a report of research misconduct by any of the university researchers, the university shall constitute a committee to investigate the misconduct. The committee would submit the recommendations to the Vice-Chancellor for necessary action so that the highest standards of research integrity are maintained. Confidentiality of the process and the whistle-blower would be ensured in the whole process. The process would be completed within four weeks.
- e. In case of conflict of interest, the university shall constitute a committee to review and resolve the conflict. The committee would submit the recommendations to the Vice-Chancellor for necessary action.
- f. All issues will be dealt with as per the guidelines of the University's Code of Ethics on academic research.

### 3. Definitions

For purposes of this policy, unless otherwise stated, the following definitions and abbreviations shall apply:

VC  
Academic Staff

PBRF  
Research

Vice-Chancellor

Includes all staff that have a contractual obligation to teach or carry out research  
Performance-Based Research Fund

Research is original investigation undertaken in order to contribute knowledge and understanding and, in the case of some disciplines, cultural innovation or aesthetic refinement. It typically involves enquiry of an experimental or critical nature driven by hypotheses or intellectual positions capable of rigorous assessment by experts in a given discipline. It is an independent\*, creative, cumulative and often long-term activity conducted by people with specialised knowledge about the theories, methods and information concerning their field of enquiry. Its findings must be open to scrutiny and formal evaluation by others in the field, and this may be achieved through publication or public presentation.

In some disciplines, the investigation and its results may be embodied in the form of artistic works, designs or performances. Research includes contribution to the intellectual infrastructure of subjects and disciplines (e.g. dictionaries and scholarly editions). It also includes the experimental development of design or construction solutions, as well as investigation that leads to new or substantially improved materials, devices, products or processes (PBRF definition).

\* The term 'independent' here will not exclude collaborative work.

Research Grant	It is the funding received for carrying out research from the university, extramural funding from research agencies, industry and other sources, to be used for the purpose for which it is granted.
JRDAC	Joint Research and Development Advisory Committee
RDC	Research and Development Committee
FLSBMS	Foundation for Life Sciences and Business Management Solan
SURF	The Shoolini University Research Fund is a part of the research investment made by the University.

#### **4. Research Management**

Policy and advice in research matters are coordinated through a number of bodies and committees:

- a. Joint Research and Development Advisory Committee (JRDAC), chaired by the Vice-Chancellor or an eminent scientist appointed by him. The Vice-Chancellor is Co-Chairman; in case the Chairman is appointed from outside the University. Other members of the committee are as follows:

- i. President, Foundation of Life Sciences and Business Management.
- ii. Registrar, All Deans and Heads of School (if in the rank of Professor).
- iii. All Professors
- iv. Five external Eminent Scientists/Engineers as appointed by the Vice-Chancellor.
- v. Vice-Chancellor may also nominate up to three faculty members other than Professors for one year as per the need.
- vi. Dean, Research and Development is the Member Secretary.

It advises Academic Council on research strategies to be pursued, develops policy (including strategic and scholarships policy for research students) and reviews progress in these areas.

- b. Faculties and Schools are required to establish research and development committees (RDC) to support the research activities of their staff and postgraduate thesis students. Both committees are expected to comply with and oversee the implementation of university-wide research policies. Faculty research committees are chaired by the Dean Research and Development and has two external members (outside the university) from academia, one member from industry, all professors' /associate professors in the faculty, and two assistant professors (by rotation). A member secretary will be appointed from amongst the internal members. The RDC advises the JRDAC and their own faculties on research matters.
- c. The Research Office provides research services for staff and students. This support includes but is not limited to:



- i. Assisting JRDAC with coordinating the activities of its subcommittees and monitoring external research policy developments
- ii. Managing the Shoolini University Research Fund (SURF)
- iii. Managing the internal administration of the Performance-Based Research Fund
- iv. Securing and supporting external research funding from the public and private sectors
- v. Monitoring and reporting on externally funded research grants
- vi. Providing professional development opportunities for staff to enhance their research performance.
- vii. Keeping track of individual researchers and the research performance of the University in light of the vision of the University.
- viii. Providing necessary common facilities to conduct research like access to research journals, Plagiarism-checking software, data analytics, and statistical software, Scientific writing support, etc.
- d. Shoolini Life Sciences Ltd. is the University's commercial arm through which the management and commercialization of University Intellectual Property is conducted.

## **5. Resources in Support of Research**

- a. Shoolini University Research Fund (SURF)
  - i. The general principle governing the allocation of all research funding in the University is that it is an investment intended to maximize the range of outcomes that the University expects to result from staff and student research. The Allocations and Investment Subcommittee of the JRDAC allocates grants from this fund.
  - ii. A portion of the SURF supports early-career researchers and staff new to Shoolini University and is allocated by a subcommittee of the Allocations and Investment Subcommittee of the JRDAC.
- b. Faculty and School Research Grants
 

Faculties and Schools may allocate research funding according to their internal processes.
- c. External contracts/external research provisions and obligations
  - i. All applications for external research funding are to be submitted through the Research Office in the name of Shoolini University.
  - ii. The Research Office provides the contract, financial, and non-financial management services for the University's grant management process.
- d. Academic staff is expected to comply with the Management of External Research, Consultancy, and Related Contracts Policy in the costing and pricing of external research and consultancy. They may also do research or consultancy under the Entitlement to Undertake Private Work Policy and are required to report such activity to their Head of School. Staff doing private work under the entitlement of this policy may manage their funds through the FLSBMS using the Guidelines for Independent Work in the FLSBMS.

- e. Academic staff is eligible to apply for leave in support of their research including Research and Study Leave, Overseas Conference Leave, Indian Conference Leave, and Exchange Leave. Faculty committees recommend the award of such academic leave to their Faculty Deans for approval.

## **6. Research Planning**

Each Faculty (and its constituent academic units) is required to develop and implement its own research plan.

## **7. Evaluation and Monitoring of Performance**

- a. The relevant Dean will monitor the performance of schools and research centers on the basis of agreed criteria and will advise the Dean (Research and Development) on the outcome of this process.
- b. The research performance of individual staff will be monitored and evaluated by their Head of School, Dean, or VC/PVC as part of the staff Performance Development and Career Planning (PDCP) process.
- c. Staff will be required to participate in the external assessment of performance such as the Performance-Based Research Fund as directed by their Dean.
- d. Staff is required to supply full and accurate details of their research outputs on an annual basis to their Head of School who will supply the information to the Research Office. The Research Office will publish an annual list of staff and student publications in the categories outlined.

## **8. Recruitment and Staff Development**

- a. The appointment of new academic staff must give appropriate consideration to the quality of their research record or research potential commensurate with the requirements of the position. Responsibility for oversight of this rests with the relevant Dean. There is also a provision of providing seed money up to Rs 2.0 Lacs (80% to be used for project-specific consumables and analysis and 20% to be used for members of academic bodies, patent filing, etc.) to the new faculty members to support their research work and lab.
- b. Academic staff is required, as part of the annual PDCP process, to prepare a research plan and to review that plan annually in consultation with their Head of School or Dean. Consultation should include a review of research objectives, anticipated applications for external research funds, opportunities for collaboration, timelines and expected outputs. It should also reflect any special agreements reached regarding teaching, administration, research duties and research training and/or development opportunities for research according to the career stage of the staff member.
- c. Academic staff is also motivated to apply for higher education opportunities across the globe and University has provision to grant extraordinary leave for the duration of a program like Ph.D. / Postdoc etc.
- d. All the faculty members actively engaged in research are motivated to initiate interdepartmental / Inter-institutional / International research collaborations for



high-end research. Office of International Affairs, Shoolini University, will help the faculty members by introducing them to researchers in their field.

- e. In addition to the extramural research funding, all the faculty members are motivated to undertake consultancy activities by prior intimation to the registrar.
- f. Heads of School are required to consider workload issues in the distribution of supervisory responsibilities before approving enrolment proposals by postgraduate research students.
- g. Heads of School should ensure that newly-appointed staff are familiar with research evaluations, research training and funding opportunities and the importance of publishing in suitable venues, both within the University and external to it.

## **9. Student Research**

- a. Dean Academic Affairs, Deans, and Heads of Schools are responsible for ensuring that the management of research degrees complies with the relevant University Statutes, policies, and procedures.
- b. Deans are responsible for ensuring that faculties and schools make appropriate budgetary provisions for the support of postgraduate student research.

## **10. Publication and Intellectual Property**

- a. University expects that all research outputs will be publicly available.
- b. This expectation is subject to any considerations that justify either restricted publication or delayed publication, including the need to observe any contractual, confidentiality or privacy obligations entered into in respect of the research and resultant intellectual property, and the need to protect the value of potentially commercialisable intellectual property as required by the University's Intellectual Property Policy.
- c. In an effort to achieve international standards, the university mandates all publications from the research work conducted at Shoolini University should be published in SCOPUS listed journals only. This would ensure that the quality of the research is of high standard and the publications undergo a stringent peer-review process before coming into the public domain. Research students from the university are also required to publish at least three research papers in order to be eligible to submit the research dissertation (Ph.D.). The plagiarism policy of the University should be strictly adhered to and researchers are expected to follow research ethics in spirit and word.
- d. The faculty is required to comply with the University's Intellectual Property Policy.
- e. **Ph.D. Research Thesis Evaluation:** The thesis is evaluated by two independent reviewers. The University mandates that one of the examiners for the Ph.D. thesis evaluation should be from outside India from a reputed Institute/University, with significant expertise in the area of research presented in the thesis.

- f. **Patents:** The University endeavors to protect the intellectual property generated by the researchers from the University and makes efforts that such discoveries are translated into useable products and technologies. To ensure the success of this endeavor the University mandates recording and proper maintenance of all research done in the University in the University Lab notebook. The University also encourages the faculty members and students to file patents. All support with respect to patent drafting and filing is provided to researchers by Shoolini University.

## **11. Research Awards:**

University provides awards to the faculty members involved in quality research at various levels once every year.

- i. Award towards Field Weighted Citation Impact (FWCI): University provides cash awards and recognition to all those faculty members who maintain FWCI of more than 2.
- ii. Awards towards quality publications: University provides cash awards and recognition to all the faculty members who publish quality SCOPUS indexed research papers in the following categories
  1. Publications in Journals with Impact Factor 5-10
  2. Publications in Journals with Impact Factor 10-20
  3. Publications in Journals with Impact Factor 20-30
  4. Publications in Nature / Science and any other journal of similar or higher Impact factor
- ii. Awards towards research projects: University provides cash awards and recognition to all the faculty members who have and will secure competitive research grants and consultancies from National / International funding agencies (Govt. or private both).
- iii. Recognition for patents: University provides recognition to all the faculty members who are prolific patent filers.

## **12. Research Centers and Institutes**

- g. Characteristics of Research Centers and Institutes
- i. The University establishes research centers to raise the research profile of the University, focusing on areas where there is (or the University wishes to develop) a concentration of research excellence, including areas of applied research, and to maximize external research funding. Research centers help to position and promote the University's areas of research excellence and build its research reputation. They also serve as vehicles for engaging with other research institutions and industries and facilitate interdisciplinary and multidisciplinary relationships.
- h. Centers and Institutes are:

- i. Consistent with the strategic interests of the University
  - ii. Central to the University's Research Strategy
  - iii. Aligned to the priorities of research funders and competitive with other bidders for that funding
  - iv. Of a high standard
  - v. Substantial (in both finance and research)
- i. Institutes and centers are approved by Council. The title "center" or "institute" is only to be used after approval. Research groupings not so approved should use other general identifiers such as "project" or "unit".

### **13. Legislative Compliance**

Though the University is required to manage its policy documentation within a legislative framework, there is no specific legislation directing this policy.

  
Registrar  
Shoolini University of Biotechnology  
& Management Sciences  
Solan (H.P.)