



# Panjab University Chandigarh

## Research & Development Cell



**Focus:** Strong commitment to research and innovation

**Vision:** Enhancing research productivity, collaboration, and accessibility to empower India's future

**Mission:** Robust research ecosystem aligned with NEP-2020, driving self-reliance and societal progress

## Panjab University Ranking

- Panjab University is accredited with an A++ grade by National Assessment and Accreditation Council (NAAC)
- In the Atal Ranking of Institutions on Innovation Achievements (ARIIA) 2021, Panjab University secured the first national rank among government and government - aided technical universities
- Under the National Institutional Ranking Framework (NIRF) 2023, Panjab University is ranked 44th among all academic institutions in India and 25th among the top 100 universities. The University Institute of Pharmaceutical Sciences is ranked eighth among pharmacy institutions in the country
- In the Centre for World University Rankings (CWUR) 2023 edition, Panjab University is placed 9th in India and 759th worldwide
- According to the US News - Best Global University Rankings 2022-2023, Panjab University is ranked 8th among the best global universities in India and 759th worldwide
- Panjab University holds the rank of 601-800 in the recent Times Higher Education World University Rankings
- In the recent QS World University Rankings, Panjab University is ranked #1001-1200



# Research Ecosystem and Programs

## FACULTY OF ARTS

- **Ancient Indian History, Culture and Archaeology:** Archaeology, Epigraphy, Paleography and Numismatics to reconstruct India's ancient heritage and culture
- **Centre for Human Rights & Duties:** Rights-based development, inclusive democracy, good governance, and human rights across socio-cultural and politico-economic issues
- **Centre for Police Administration:** Police Administration, Crime in India, Juvenile Delinquency, Police Reforms, and Forensic Science
- **Centre for Social Work:** Catering to socially marginalized people and creating job creators through partnerships between various sectors
- **Centre for the Study of Social Exclusion and Inclusive Policy:** Understanding and addressing discrimination and exclusion based on caste, ethnicity, and religion
- **Centre for Women's Studies and Development:** Interdisciplinary courses focusing on gender-responsive approaches and addressing challenges faced by women
- **Communication Studies:** Print Media, Advertising, Public Relations, and Media Management.
- **Defence and National Security Studies:** National and international security issues and conducts research on emerging security dimensions
- **Economics:** Agricultural Economics, Industrial Economics, International Economics, Development Economics, and more
- **Gandhian and Peace Studies:** Life and work of Mahatma Gandhi, peace studies, rural development, and disaster management
- **Geography:** Population Geography, Settlement Geography, Agricultural Geography, and Disaster Management
- **Guru Nanak Sikh Studies:** Life, works, and teachings of Guru Nanak Dev Ji and other gurus, along with Sikh literature, art, and history
- **History:** North-Western Region's polity, economy, society, and culture from a pan-Indian perspective.
- **Institute of Social Sciences Education & Research:** Socio-cultural, politico-economic, and policy issues of the north-western region, national and global concerns
- **Interdisciplinary Centre for Swami Vivekananda Studies:** Indian culture and traditions and propagates the values of exemplary personalities like Swami Vivekananda
- **Library and Information Science:** RFID, Scientometrics, Digital Library, Scholarly Communication, and more
- **Philosophy:** Indian Philosophy, Ethics, and Social & Political Philosophy
- **Political Science:** Indian Politics, International Relations, and Geo-Politics
- **Psychology:** Organizational Psychology, Cognitive Psychology, Health Psychology, and Clinical Psychology
- **Public Administration:** Public Policy, Human Resource Management, Financial Administration, and Sustainable Development.
- **Sociology:** Sustainable Development, Family and Gender Studies, and Social Control and Deviance

## FACULTY OF BUSINESS MANAGEMENT AND COMMERCE

### UNIVERSITY BUSINESS SCHOOL

- **MBA: General management education, equipping graduates with skills and knowledge to lead across various business functions**
- **MBA-International Business (IB): Focuses on managing businesses in a globalized market, with expertise in international trade, finance, and marketing**
- **MBA-Human Resource Management (HR): Specializes in managing people within organizations, covering talent acquisition, employee relations, and training & development**

### UNIVERSITY INSTITUTE OF APPLIED MANAGEMENT SCIENCES

- **Focus on social responsibility and ethical leadership: Training future managers to be impactful and ethical contributors to society**
- **Unique blend of theory and practice: Combining strategic thinking and decision-making with real-world application and industry relevance**
- **Specialized sectorial expertise: Dedicated to teaching and research across various industry domains**

### UNIVERSITY INSTITUTE OF HOTEL AND TOURISM MANAGEMENT (UIHTM)

- **Culinary Expertise: Food & Service Production, Food and Beverage Service**
- **Hospitality Management: Accommodation Operation**
- **Travel & Tourism: Tour Operations**
- **Event Management: MICE (Meetings, Incentives, Conferences, Exhibitions)**

## FACULTY OF DESIGN AND FINE ARTS

### DEPARTMENT OF ART HISTORY & VISUAL ARTS

- **History of Indian Art: Traditional, Contemporary and Architecture; Iconography**

### DEPARTMENT OF INDIAN THEATRE

- **Artistic curiosity, experimentation, risk-taking, creative collaboration research extension and innovative projects across disciplines**

### DEPARTMENT OF MUSIC

- **Classical Music**

## FACULTY OF EDUCATION

### DEPARTMENT OF COMMUNITY EDUCATION AND DISABILITY STUDIES

- **Ensure education for all: Reach marginalized groups, those with disabilities, and girls**
- **Integrate with support: Students with disabilities into mainstream classrooms**
- **Empower through education: Train teachers, update curriculum, and leverage technology**
- **Partner with communities: Work together to tailor education and build strong networks**
- **Invest in the future: Prioritize early childhood education and relevant skills training**

### DEPARTMENT OF EDUCATION

- **Building well-rounded individuals grounded in ethical values and sustainable thinking**

- Understanding the diverse needs and contexts of learners for impactful guidance and support
- Leveraging technology and research to continuously improve teaching and learning practices
- Creating inclusive and equitable educational opportunities for all students
- Developing effective leadership and research methods to advance the field of education

#### **INSTITUTE OF EDUCATION TECHNOLOGY AND VOCATIONAL EDUCATION**

- Perspectives of Education (Philosophical, Psychological, Sociological)
- Educational Technology
- Life Skills
- Pedagogical skills and school based experience

#### **DEPARTMENT OF LIFE LONG LEARNING AND EXTENSION**

- Computer Literacy
- Life Long Learning and Awareness Generation
- Vocational Courses in Fashion Designing
- Life Skill Education and Family Life Education
- Skill Generation
- Research, Training and Extension

#### **DEPARTMENT OF PHYSICAL EDUCATION**

- Sports Training and Pedagogic Techniques in Physical Education and Sports,
- Sports Biomechanics,
- Exercise Physiology and Sports Medicine,
- Research Methodology in Physical Education, Measurement and Evaluation in Physical Education and Sports,
- Sports Sociology, Kinanthropometry, Sports Management, Sports Psychology and Yoga

## **FACULTY OF ENGINEERING AND TECHNOLOGY**

#### **UNIVERSITY INSTITUTE OF ENGINEERING & TECHNOLOGY**

- **Design & Manufacturing:** Innovative methods and materials for product development
- **Traffic & Information Tech:** Optimizing transportation systems and data analysis
- **Medical Devices & Technologies:** Improving healthcare through advanced devices and techniques
- **Energy Technologies:** Sustainable solutions for harvesting and managing energy
- **Image Processing & Networks:** Advancing computer vision and communication infrastructure
- **Nano-Materials & Stem Cells:** Cutting-edge research in material science and regenerative medicine
- **Stem Cells, Wireless Communications, Power Systems, Composite Materials, New Physics Searches with Collider Experiments at LHC, CERN and KEK, Japan etc**

#### **UNIVERSITY INSTITUTE OF CHEMICAL ENGINEERING & TECHNOLOGY**

- **Agro Waste & Food Processing:** Upcycling agricultural waste and optimizing food production
- **Carbon Technology:** Exploring carbon-based materials and applications for a greener future
- **Environmental Engineering:** Developing solutions for environmental protection and resource management
- **Biomaterials, Biopolymers, Nanomaterials and their applications**

## FACULTY OF LANGUAGES

- **Chinese and Tibetan Languages:** Chinese Language and Literature, Tibetan Language and Literature, Buddhist Studies
- **English and Cultural Studies:** Cultural Studies, Postcolonial Literature, World Literature, English Language Communication Studies, Feminist Studies, Translation Studies, Comparative Indian Literature and Aesthetics, Film and Adaptation Studies, New Media Writing, Science Fiction and Cli-Fi Studies
- **French:** Francophone Studies, French Language and Literature
- **German:** German Language, Literature and Culture
- **Hindi:** Hindi Language and Literature, Translation and Hindi Journalism, Bhakti Literature, Ramcharitmanas Studies, Hindi Folk literature
- **Punjabi:** Punjabi Language and Literature, Punjabi Lexicography, Sufism, Punjabi Folk, Punjabi Theatre, Study of Guru Granth Sahib, Punjabi Diasporic Literature
- **Russian:** Russian Language and Literature, Translation
- **Sanskrit:** Vedas and Vedic Literature, Indian Philosophy, Indian Aesthetics, Sanskrit Grammar, Ramayana Studies, Kalidas Studies and Gita Studies
- **Urdu:** Urdu Language and Literature, Classical Persian and Arabic Literature, Islamic Mystical Literature, Comparative Study on Urdu, Punjabi and Persian Literature, Urdu Mass Media
- **Vishveshvaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies:** Classical Sanskrit, Indological Studies and Vedic Studies

## FACULTY OF LAWS

### DEPARTMENT OF LAWS, UNIVERSITY INSTITUTE OF LEGAL STUDIES

- Constitutional and Administrative Law
- Corporate law
- Cyber Law
- Environmental Law, Family Law
- Human Rights
- Intellectual Property Rights
- International Law
- Jurisprudence

## FACULTY OF MEDICAL SCIENCES

### DR. HARVANSH SINGH JUDGE INSTITUTE OF DENTAL SCIENCES & HOSPITAL

- Dental Sciences Institute & Hospital encompasses, a total of 18 departments (9 dental and 9 medical) with 8 clinical and 11 pre-clinical and para-clinical laboratories
- Clinical and basic research
- Educating dental professionals of the highest calibre
- Patient care, Outreach activities,
- Providing good and affordable dental treatment

## FACULTY OF PHARMACEUTICAL SCIENCES

### UNIVERSITY INSTITUTE OF PHARMACEUTICAL SCIENCES

- **New Chemical Entities:** Identifying promising drug candidates from nature, lab benches, & semi-synthesis
- **QbD-based Drug Delivery:** Building quality into novel nanocarriers for precise medication delivery
- **Advanced Pharmacokinetics:** Simulating drug behavior in the body for better design & optimization
- **Crystal Engineering:** Tailoring the physical form of drugs for improved properties & delivery
- **Advanced Pharmacology:** Unraveling drug mechanisms & interactions for enhanced discovery & development
- **Herbal Standardization:** Establishing quality standards for herbal medicines for safe & effective use
- **Novel Herbal Formulations:** Developing innovative herbal medicines with improved delivery & efficacy

## FACULTY OF SCIENCE

- **ANTHROPOLOGY:** Paleoanthropology, Molecular Anthropology, Human Ecology
- **BIOCHEMISTRY:** Cellular and Molecular Causes of Diseases, Natural Products for Treatment, Biosensors for Diagnostics, Cancer Biology, Neurobiology, Drug Discovery
- **BIOTECHNOLOGY:** Molecular Epidemiology, Microbial Biotechnology, Plant Biotechnology, Recombinants, Glycobiology of Infectious Diseases
- **BOTANY:** Taxonomy of lower and higher plants, Plant Physiology, Plant Ecology, Plant Biotechnology, Plant Biochemistry, Plant Molecular Biology
- **CHEMISTRY:** Synthetic Chemistry, Heterocyclic Chemistry, Natural Product Chemistry, Green Chemistry, Nanotechnology, Nuclear Chemistry, Theoretical Computational Chemistry
- **COMPUTER SCIENCE AND APPLICATIONS:** Distributed Artificial Intelligence, Educational Technologies, Computer Graphics, Semantic Web Applications, Software Engineering, Designing and developing software systems. Computer Network Security
- **ENVIRONMENTAL STUDIES:** Environmental Pollution, Biodiversity Assessment, Bioprospecting for Medicinal and Aromatic Plants, Evaluation of Natural Plant Products for Agricultural Applications
- **GEOLOGY:** Paleontology, Stratigraphy
- **HUMAN GENOME STUDIES:** Molecular Biology, Functional Genomics, Proteomics
- **MATHEMATICS:** Algebra, Continuum Mechanics, Analysis, Optimization
- **MICROBIOLOGY:** Medical Microbiology, Food Microbiology, Industrial Microbiology, Environmental Microbiology, Immunology, Microbial Physiology and Biochemistry, Genetic Engineering
- **PHYSICS:** Nuclear Physics, Particle Physics, Condensed Matter Physics, Astrophysics, Planetary Sciences, Molecular Spectroscopy
- **STATISTICS:** Multiple Comparison Procedures, Reliability and Survival Analysis, Statistical Inference

## CENTRE OF EXCELLENCE AND COLLABORATIONS

- **Bio-Nest CENTRE: a bio-incubation space**
- **CENTERS OF EXCELLENCE: Research Projects (CAS, DRS, SAP, FIST) supported by renowned funding agencies like the UGC, DBT, DST, ICMR, , FIST and PURSE programs in many departments**
- **CENTRE FOR HUMAN RIGHTS & DUTIES**
- **CENTRE FOR INDUSTRY INSTITUTE PARTNERSHIP PROGRAMME (CIIPP)**
- **CENTRE FOR POLICE ADMINISTRATION**
- **CENTRE FOR SKILL DEVELOPMENT AND ENTREPRENEURSHIP**
- **CENTRE FOR SOCIAL WORK**
- **CENTRE FOR THE STUDY OF SOCIAL EXCLUSION AND INCLUSION POLICY**
- **CENTRE FOR WOMEN'S STUDIES AND DEVELOPMENT: Interdisciplinary courses focusing on gender-responsive approaches and addressing challenges faced by women.**
- **DESIGN INNOVATION CENTRE**
- **DST-CENTRE FOR POLICY RESEARCH**
- **DST-DPIIT-IPR CHAIR**
- **DST-SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY**
- **DST-TECHNOLOGY ENABLING CENTRE (TEC)**
- **ENERGY RESEARCH CENTRE**
- **INCUBATORS AND PRE-INCUBATORS (Biological, Chemical, Pharmaceutical and Social Sciences) sanctioned under RUSA grant from the government**
- **INSTITUTE OF SOCIAL SCIENCES EDUCATION & RESEARCH**
- **INSTITUTIONAL INNOVATION COUNCIL**
- **INTERDISCIPLINARY CENTRE FOR SWAMI VIVEKANANDA STUDIES**
- **MUSEUMS OF PANJAB UNIVERSITY (ANTHROPOLOGY, ART HISTORY & VISUAL ARTS, BOTANY, GEOLOGY, ZOOLOGY)**
- **POPULATION RESEARCH CENTRE**
- **SCIENCE AND TECHNOLOGY REGIONAL CLUSTER: an initiative of the Government of India, to strengthen its ties with industry and promotes start-up growth in the northern region, collaboration with IIT-Ropar (PI: RAHI)**
- **TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP)**
- **UGC has also recognized the University as the "University with Potential for Excellence in Biomedical Sciences" in the fields of 'Stem Cell Research', 'Drug Development' and 'Application of Nano Materials, Nano Particles and Nano Composites'**
- **PU is a part of Chandigarh Region Innovation and Knowledge Cluster' (CRIKC) – a conglomerate of nearly 30 institutes in and around Chandigarh**

**Research students: ~3523 (as on 31.12.2023)**

**Total ongoing Research Projects (UGC, DST, DBT, ICMR, ICSSR, Govt. of India etc.): 276**

**Research Publications: Average 1700 per year**

**Current h-index: 117**

**Patents published/awarded: 152 during the last five years**

**MOUs with Various Universities, Industries: 181, during the last five years**

## **ACHIEVEMENTS AND RECOGNITIONS**

**The research endeavours have gathered numerous distinctions, awards, and recognitions, fellowships, research projects for the university faculty, including the prestigious distinction of being listed among the top scientists of the world by Stanford University (USA) research team. The university has consistently excelled in all national and international rankings in research, a testament to its unwavering commitment to scientific advancement.**

**The university's pursuit of academic excellence has been recognized with the A++ ranking by the National Assessment and Accreditation Council (NAAC), a rare distinction that speaks volumes about its commitment to fostering a vibrant and stimulating learning environment.**

**Panjab University in Chandigarh is a shining example of research excellence, its dedication to scientific exploration and societal impact paving the way for a brighter future**

**Prof. Harsh Nayyar**

**Director, Research and Development Cell, Panjab University, Chandigarh**