X. FACULTY OF SCIENCE

DEPARTMENT OF ANTHROPOLOGY

ABOUT THE DEPARTMENT

The Department was established in 1960. During the last more than six decades, the Department has not only grown in terms of personnel, equipment and laboratories, and library, it has contributed significantly to the furtherance of anthropological teaching and research in the country. Infrastructure and Laboratory facilities for teaching and research are available in Osteology, Serology and Bio-chemical Anthropology, Palaeoanthropology and Prehistoric Archaeology, Socio-Cultural Anthropology, Dermatoglyphics, Forensic Anthropology, Molecular Anthropology. The unique 'S.R.K. Chopra Museum of Man' in the Department has a Gallery of Fossil Apes, Primates and Man which includes life-size models, and an Ethnographic Gallery which includes items of material culture. Fieldwork is organized by the Department where students are given instructions in the field and research methods and based on empirical work they write progress reports. The Department was recognized as one of the centers under U.G.C. Programme of Special Assistance and Departmental Research Support in 1988, this programme was extended up to 2009.

The Department has also been selected for support under UGC assistance for strengthening of the infrastructure of the Humanities & Social Science (ASIHSS) Programme in Anthropology for a period of five years i.e. 1.4.2005 – 31.3.2010. From2010-2011, the Department has been granted DST - FIST and is also a UGC Centre for Advanced Studies (CAS) in Anthropology (2011-2016). The Department has been awarded CAS-II by the UGC from April 2018 to March 2023.

The faculty of the Department has been handling various research & consultancy projects from prestigious National / State funding agencies. Recently, the faculty has published in the most coveted and high impact factors journals such as *The Lancet & Nature*. Climacteric, PLOS-ONE, American Journal and Physical Anthropology.

FACULTY:

Designation	Name	Field of Research Specialization
Professors	Abhik Ghosh	Social Anthropology
	Kewal Krishan	Physical Anthropology
Associate Professors	Maninder Kaur	Physical Anthropology
	Jagmahender Singh Sehrawat **(Chairperson)**	Physical Anthropology

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
B.Sc.(Hons.) in Anthropology as per NEP 2020 under the framework of Honours School System	30 + 3 NRI + 8 Foreign National	4 years	Passed 10+2 class with 50% marks with English, Physics, Chemistry, Mathematics/ Biology from recognized Board / CBSE	Based on PU-CET (UG) Academics: 25% PU-CET (UG): 75%
M.Sc. with Research M.Sc	23 + 3NRI + 6 Foreign National	2 years	Passed the B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian / Foreign University or Institute. OR Bachelor's Degree in any Stream with 50% marks from Panjab University or any other recognized Universities, and must have studied Science Subjects at (10+2) level.	Based on Merit
Diploma in Forensic Science & Criminology	20 + 2** + 2 NRI + 5 Foreign National	1 year	Bachelor's Degree of P.U. subject to having +2 with Science or any equivalent exam **OR** an equivalent examination of any other University recognized by Syndicate as equivalent to (a) above with 50 % marks	Based on Merit
Ph.D.	Subject to availability	3-6 Years	See Ph.D. Prospectus 2026	

*5 % Concession is admissible in eligibility marks to SC/ST/BC/PwD Candidates

** For Govt. Sponsored in service Police Personnel

Note: Science Departments having Honours School Shall fill the vacant / left over seats of B.Sc. (HS) alongwith M.Sc. (HS). Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seat and reservation be followed as per rules **(Syndicate Para 6, 25.03.2023)**

TITLES OF SYLLABI: Detailed syllabus available at http://puchd.ac.in/syllabus.php

B.Sc. (Hons.) in Anthropology as per NEP 2020 under the framework of Honours School System

SEMESTER-I		SEMESTER-II	
Core Subject: (Theory & Practical)		Core Subject: (Theory & Practical)	
ANTH-DSC-1	Introduction to Biological Anthropology	ANTH-DSC-2	Introduction to Socio-Cultural

			Anthropology
ANTH-M-1	Introduction to Anthropology	ANTH-M-2	Biological Anthropology
ANTH-IDC-1	Physiological Anthropology	ANTH-IDC-2	Anthropology of Heath
ANTH-VAC-1	Tribal Development and Applied Anthropology	ANTH–VAC-2	Nutrition and Community Health
ANTH-SEC-1	Research Methods	ANTH-SEC-2	Data Collection
ENG-AEC-1	English	ENG-AEC-3	English
PUN-AEC-2/ HIN-AEC-2/ URD-AEC-2	Punjabi Hindi Urdu	PUN-AEC-4/ HIN-AEC-4/ URD-AEC-4	Punjabi/ Hindi/ Urdu
SEMESTER-III		**SEMESTER-IV**	
ANTH-DSC-3	Tribes and Peasants in India	ANTH-DSC-5	Theories of Culture and Society
ANTH-DSC-4	Paleoanthropology	ANTH-DSC-6	Human Growth and Development
ANTH-M-3	Field methodology	ANTH-DSC-7	Biological Diversity in Human Populations
ANTH-IDC-3	Human Genetics	ANTH-M-4	Human Growth & Human Genetics
ANTH-SEC-3	Applied Forensic Archaeology		
SEMESTER V		**SEMESTER VI**	
ANTH-DSC-8	Human Population Genetics	ANTH-DSC-11	Forensic Anthropology
ANTH-DSC-9	Anthropology in Practice	ANTH-DSC-12	Anthropology of India
ANTHDSC-10	Introduction to Archaeological Anthropology	ANTH-DSC-13	Visual Anthropology
ANTH-M-5	Fundamentals of Palaeoanthropology	ANTH-M-6	Museum Studies
ANTH-VAC-3	Research Methods	Internship INT 1	Internship
SEMESTER-VII (with Research) (Theory & Practical)		**SEMESTER-VIII (with Research) (Theory & Practical)**	
ANTH-DSC-14	Looking into the Past- An Introduction to Archaeological Anthropology and Paleoanthropology.	ANTH-DSC-17	Anthropological Methods & Techniques
ANTH-DSC-15	Human Variability and Biological Anthropology	ANTH-DSC-18	Human Genetics & Molecular Anthropology
ANTH-DSC-16	Social-Cultural Anthropology	ANTH-DSC-19	Paleolithic Cultures & Paleoanthropology
Synopsis + Paper (Theory) (with research)	Research Methodology and Basics of Research	Dissertation (with research)	Dissertation
ANTH-Minor-M-7	Human Auxology	ANTH-Minor-M-8	Anthropology of SIA
SEMESTER-VII (with Course Work) (Theory & Practical)		**SEMESTER-VIII (with Course Work) (Theory & Practical)**	
ANTH-DSC-14	Looking into the Past- An Introduction to Archaeological Anthropology and Paleoanthropology.	ANTH-DSC-17	Anthropological Methods & Techniques
ANTH-DSC-15	Human Variability and Biological Anthropology	ANTH-DSC-18	Human Genetics & Molecular Anthropology
ANTH-DSC-16	Social-Cultural Anthropology	ANTH-DSC-19	Paleolithic Cultures & Paleoanthropology
ANTH-DSC 20 A** (with coursework)	Disease, Health & Illness-An Anthropological Approach.	ANTH-DSC 20 B** (with coursework)	Ecological Anthropology and Development
ANTH-Minor-M-7	Human Auxology	ANTH-Minor-M-8	Anthropology of SIA

M.Sc.(Hons.)

SEMESTER-I *(with Research)* (Theory & Practical)		**SEMESTER-II *(with Research)* (Theory & Practical)**	
PG-ANTH-DSC-101	Archaeological Anthropology and Paleoanthropology	PG-ANTH-DSC-201	Anthropological Methods & Techniques
PG-ANTH-DSC-102	Biological Anthropology	PG-ANTH-DSC-202	Human Genetics
PG-ANTH-DSC-103	Social-Cultural Anthropology	PG-ANTH-DSC-203	Museum Studies
PG-ANTH-DSE-101 A OR PG-ANTH-DSE-101 B	Human Growth, Development and Nutrition OR Medical Anthropology	PG-ANTH-DSE-201 A OR PG-ANTH-DSE-201 B	Prehistoric Archaeology and Palaeoanthropology-Concepts and Palaeolithic cultures OR Ecological Anthropology and Development
PG-ANTH-DSE-102	Field Methodology	PG-ANTH-DSE-202	Anthropology of SIA

SEMESTER-III (Theory & Practical)		SEMESTER-IV (Theory&Practical)	
ANTH-C301	Anthropological Theories	ANTH-C401	Demography and Biostatistics
ANTH-C302	Human Ecology and Adaptation	ANTH-C402	Applied Anthropology
ANTH-C303	Anthropology of India	ANTH-C403	Dissertation and viva-voce
DSE-5 OR DSE-11	Human Biological Variation OR Symbolic Anthropology	DSE-10 OR DSE-20	Anthropology of Food OR Forensic Anthropology
SEC-3	Documentation of Heritage Intangible Cultural		

Diploma in Forensic Science & Criminology

DFSc1.1	Fundamentals of Forensic Science-I	DFSc 2.1	Fundamentals of Forensic Science-II
DFSc1.2	Forensic Anthropology-I	DFSc 2.2	Forensic Anthropology-II
DFSc1.3	Forensic Physical Sciences-I	DFSc 2.3	Forensic Physical Sciences-II
DFSc1.4	Criminology and Criminal Law-I	DFSc 2.4	Criminology and Criminal Law-II
DFSc1.5	Practical in Forensic Science-I	DFSc 2.5	Practical in Forensic Science-II

THRUST AREAS: Palaeoanthropology and Molecular Anthropology; Human Ecology in North-West India: Continuity & Change; and Bio-cultural Correlates of Health and Disease.

PLACEMENTS: Our students have worked for companies like Boeing and Nokia. They have worked as Director of Forensic Science Institute & ICMR and leading Departments in PGIMER & GMCH-32, Chandigarh. Many have gone aboard and are working in premier institutes and universities there. We are attempting to contact other organizations where high level placements may be provided in the future. We are attempting to get our students placed through individual's efforts and through the University Placement Cell. During the last one year, our students received employment as Assistant Professors in the Universities and Institutions; Research Officer in Tribal Development (H.P.), Assistant Anthropologist in Anthropological Survey of India; Research Officer in Indira Gandhi National Centre for the Arts. Our students have been admitted in advanced Masters" courses in USA / Canada on the basis of their post-graduation in Anthropology from this Department.

ALUMNI ASSOCIATION: We have an Alumni Association, though in a very nascent stage. Prestigious alumni sometimes come to the Department and at that point an interaction is organized with the faculty and students. The last such interaction was with Dr. Ramesh Zimboo from Thailand, on 11.05.2023. Alumni of the Department deliver special lectures to the students of the Department. In 2021, two prominent alumni were honored at an online function. Prof. Shalina Mehta and Prof. M.P. Sachdeva were felicitated by Panjab University Alumni Association in Global Alumni Meet 2003. Prof. Rajan Gaur and Ms Harvinder Kaur Dogra were felicitated by Panjab University Alumni Association in Global Alumni Meet 2025.

DEPARTMENT OF BIOCHEMISTRY

ABOUT THE DEPARTMENT

Department of Biochemistry was started in 1962 and has grown steadily and is now recognized as an important centre of research and teaching in the country. Our teaching oriented Department provides many opportunities for prospective students who can acquire thorough training and degree in contemporary Biochemistry through our honors program: B.Sc., M.Sc. and Ph.D. Our Department attracts the best students and provides an excellent foundation for future, be it in research, academics or industry.

The department has qualified, regular and competent faculty with Ph.D. from various institutes of national and international repute. The faculty members of the department are engaged in the research in the areas of Biosensors, Cancer Biology, Industrial biotechnology, Immunology, Membrane Biology, Microbial Biochemistry Neurobiology (fields in the order of Alphabets). The Department is recognized for funding under the Special Assistance Programme of the University Grant Commission and by DBT under DBT-BUILDER program to boost University Interdisciplinary Life Science Departments for education and research programme. The Department has several sophisticated instruments such as State of the Art inhalation toxicology laboratory having sophisticated facilities such as InExpose Inhalation system, Plethysmograph and rodent anesthesia system, Multiplex Immunoassay System, RT-PCR thermocycler, chemidoc gel Documentation system, GC-MS, High Speed Centrifuges, UV-Vis Spectrophotometers, Tissue homogenizer, Thermocycler, Gel-Doc, Lyophiliser, Spectrofluorophotometer, HPLC, Ultracentrifuge, Cell Culture facility and flowcytometer for enhancing research facilities.

The opportunities for Ph.D. are varied and designed to provide solid training as an independent and research scientist, both, in academic as well as industrial settings. Our alumni occupy important positions in India and abroad.

FACULTY

Designation	Name	Field of Research Specialization
Emeritus Professor	Akhtar Mahmood	Membrane Transport
Professors	Archana Bhatnagar	Immunology
	Rajat Sandhir	Neurochemistry
	Navneet Agnihotri	Cancer Biology
	Amarjit S. Naura **(Chairperson)**	Lung & Molecular Immunology
	Dipti Sareen	Microbial Biochemistry
Associate Professor	Nirmal Prabhakar	Analytical Biochemistry

COURSES OFFERED (SEMESTER SYSTEM) :

Course	Seats	Duration	Eligibility*	Admission Criteria
B.Sc. (Hons.) in	25+4NRI+6	4 Years	A candidate should have passed 10+2 examination	Based on PU-CET

Biochemistry as per NEP 2020 under the framework of Honours School System	Foreign National		with atleast 50% marks with English, Physics, Chemistry, Mathematics / Biology from recognized Board / CBSE	(UG) Academics: 25% PU-CET (UG): 75%
M.Sc. with Research/ M.Sc	25+4NRI+6 Foreign National	2 Years	(i) Passed the B.Sc. (3 years) degree with at least 50% marks in the framework of NEP 2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC – recognized Indian / Foreign University or Institute. (ii) The candidate must have studied Biochemistry as major discipline OR one of the major disciplines / subjects OR a minor / additional course with at least 24 credits under NEP 2020 OR Generic Elective (GE) / Additional course under CBCS system in the B.Sc., Degree.	After admitting all the ongoing students of B.Sc (Hons) 3rd year of FYUP, vacant seats will be filled with candidates on the basis of the criteria mentioned below: Academics: 40% PU-CET (PG): 60%
Ph.D.	Subject to availability	3-6 years	See Ph.D. Prospectus 2026	

*5% concession is admissible in eligibility marks to SC/ST/BC/PwD Candidates
Student of B.Sc. (MLT) departments are not eligible.
Note: Departments having Honours School shall fill the vacant / left over seats of B.Sc. (Hons.) alongwith M.Sc. (Hons) under NEP. Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seat and reservation be followed as per rules **(Syndicate Para 6, 25.03.2023)**
Vacant seats will be declared after admitting all the ongoing students of B.Sc. 3rd year.

Title of Syllabi: Detailed course curriculum is available at https://puchd.ac.in/syllabus.php

B.Sc (Hons) in Biochemistry as per NEP 2020 under the framework of Honours School System

Semester	Major	Minor	*Inter/Multi-disciplinary	#Ability Enhancement Courses (languages)	Skill Enhancement Courses/ Internships/ Dissertation	#Common Value Added Courses
I	BCH-DSC-1: Biomolecules **(4+2 Credits)**	BCH-M-1: Molecules of Life **(4+2 Credits)**	BCH-IDC-1: Introduction to Biochemistry **(2+1 Credits)**	AEC-1 **English (2 Credits)** AEC-2 **MIL (2 Credits)**	BCH-SEC-1: Cell Biology & its Tools **(3+0 Credits)**	VAC-1 **(2 Credits)**
II	BCH- DSC-2: Membrane Biology & Bioenergetics **(4+2 Credits)**	BCH-M-2: Proteins and Enzymes **(4+2 Credits)**	BCH-IDC-2: Introduction to Biochemistry **(2+1 Credits)**	AEC-3 **English (2 Credits)** AEC-4 **MIL (2 Credits)**	BCH-SEC-2: Basic Biochemical Techniques **(3+0 Credits)**	VAC-2 **(2 Credits)**
III	BCH-DSC-3: Structure & Metabolism of Carbohydrates (**4+2 Credits)** BCH-DSC-4: Nitrogenous Compounds: Structure & Metabolism I (**4+2 Credits)**	BCH-M-3: Metabolism of Carbohydrates & Lipids **(4+2 Credits)**	BCH-IDC-3: Introduction to Biochemistry **(2+1 Credits)**		BCH-SEC-3: Advanced Biochemical Techniques **(3+0 Credits)**	
IV	BCH- DSC-5: Lipids: Structure & Metabolism **(4+2 Credits)** BCH- DSC-6: Nitrogenous Compounds: Structure & Metabolism II **(4+2 Credits)** BCH-DSC-7: ENZYMES & Enzyme kinetics **(4+2 Credits)**	BCH-M -4: Metabolism of Nitrogenous Compounds **(4+2 Credits)**				

V	BCH-DSC-8: Immunology **(4+2 Credits)** BCH- DSC-9: Molecular Biology: From Genes to Proteins **(4+2 Credits)** BCH- DSC-10: Physiological Biochemistry **(4+2 Credits)**	BCH-M-5: Basic Molecular Biology **(3+1 Credits)**				VAC-3 **(2 Credits)**
VI	BCH-DSC-11: Nutritional Biochemistry **(4+2 Credits)** BCH-DSC-12: Regulation of Gene expression and Development (**4+2 Credits)** BCH-DSC-13: Neurobiology **(4+2 Credits)**	BCH-M-6: Advanced Molecular Biology **(3+1 Credits)**			Internship (BCH-INT-1) **(2 Credits)**	
VII	BCH-DSC-14: Clinical Biochemistry **(4+2 Credits)** BCH-DSC-15: Application of Biochemistry to Biotechnology **(4 Credits)** BCH-DSC-16: Swayam I **(4 Credits)** BCH-DSC-20 A**: Plant Biochemistry **(4+2 Credits)**	BCH-M-7: Tools & Techniques in Biochemistry **(3+1 Credits)**			*Research Project# Advanced Molecular Techniques **(4 Credits)** + Synopsis **(2 Credits)** (DISSERTATION)	
VIII	BCH-DSC-17: Endocrinology **(4+2 Credits)** BCH-DSC-18: Molecular Cell Biology **(4 Credits)** BCH-DSC-19: Swayam II **(4 Credits)** BCH-DSC-20 B**: Biochemical Toxicology **(4+2 Credits)**	BCH-M-8: Clinical Biochemistry **(3+1 Credits)**			Research Project# **(6 Credits)** (DISSERTATION)	

* SWAYAM VII & VIII semester subjects are to be selected by the students from the pool of subjects available on "Swayam", free education portal (https://swayam.gov.in/) as recommended by UGC under guidance of SWAYAM coordinator of the department. Courses delivered through SWAYAM are available free of cost to the learners, however students wanting certification shall be registered, shall be offered a certificate on successful completion of the course, with a little fee. At the end of each course, there will be an assessment of the student through proctored examination and the marks/grades secured in this exam could be transferred to the academic record of the student. UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising the universities to identify courses where credits can be transferred on to the academic record of the students for courses done on SWAYAM.

***** Only those students will be allowed to do research who will have more than 75% CGPA till 6th semester. For Sem VII, a theory paper of 4 credits will be taught to the project holders on 'Research Methodology and basics of research'. The student will submit a report on the literature survey and synopsis of the proposed research work, that will fulfill 2 credits. For semester VIII, the student will be engaged in the research work and will submit a dissertation/project report (6 credits) for the same.

** This paper is meant for those students who have less than 75% CGPA till 6th Semester and are not allowed to opt for research project.

M.Sc. (Hons.) Research : Post Graduate Programme under NEP

SEMESTER-I		SEMESTER-II	
1.	PG-DSC-101:Clinical Biochemistry **(4 Credits)**	1.	PG-DSC-201: Endocrinology **(4 Credits)**
2.	PG-DSC-102: Application of Biochemistry to Biotechnology **(4 Credits)**	2.	PG-DSC-202: Molecular Cell Biology **(4 Credits)**
3.	PG-DSC-103: Combined Practical I **(4 Credits)**	3.	PG-DSC-203: Combined Practical II **(4 Credits)**
4.	PG-DSE-104: Plant Biochemistry **(4 Credits)**	4.	PG-DSE-204: Biochemical Toxicology **(4 Credits)**
5.	PG-DSE-105: Swayam I **(4 Credits)**	5.	PG-DSE-205: Swayam II **(4 Credits)**
SEMESTER III		**SEMESTER IV**	
1.	PG-DSC-301: Genomics and Bioinformatics **(4 Credits)**	1.	PG-DSC-401: Seminar on Advanced Topics in Biochemistry **(4 Credits)**
2.	PG-DSC-302: Comprehensive Examination (Based on UGC/CSIR Syllabus) **(4 Credits)**	2.	PG-DSC-402: Research Work (Thesis) **(8 Credits)**
3.	PG-DSC-303: Paper Presentation on Recent Research Topics in Biochemistry **(4 Credits)**	3.	PG-DSC-403: Research Work (Viva-voce) **(4 Credits)**
4.	PG-DSC-304: Synopsis of Proposed Research Work **(4 Credits)**	4.	PG-DSE-404: Swayam III **(4 Credits)**
5.	PG-DSE-305: Computational Techniques & Biostatistics **(4 Credits)**		

*SWAYAM I, II & IV semester subjects are to be selected by the students from the pool of subjects available on "Swayam", free education portal (https://swayam.gov.in/) as recommended by UGC under guidance of SWAYAM coordinator of the department. Courses delivered through SWAYAM are available free of cost to the learners, however students wanting certification shall be registered, shall be offered a certificate on successful completion of the course, with a little fee. At the end of each course, there will be an assessment of the student through proctored examination and the marks/grades secured in this exam could be transferred to the academic record of the student. UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising the universities to identify courses where credits can be transferred on to the academic record of the students for courses done on SWAYAM.

** Research Work: Research Supervisor will be allotted to the student in Semester III. The work can be carried out on the following:

- Immunology
- Neuroscience
- Cancer Biology
- Microbial Biochemistry
- Biosensors
- Bioinformatics

SYLLABI OF CORE COURSE OF READING (Pattern of instructions for Paper Setter)

Question papers will have FOUR sections. Examiner will set a total of Nine questions comprising TWO questions from each SECTION and ONE compulsory question of short answer types covering the whole syllabus. Students will attempt FIVE questions in all, including ONE question from each SECTION and the compulsory question. All Questions will carry equal marks, unless specified.

THRUST AREAS: Research in the department covers a spectrum of topics in modern Biochemistry. These are (i) Analyzing diseases at cellular and molecular level such as: Autoimmune diseases, Cancers, Pulmonary disorders, Central nervous system disorders, etc. (ii) Assessing natural products as therapeutics (iii) Biochemical Toxicology (iv) Biosensors in diagnostics (v) Microbial Biochemistry.

PLACEMENTS: As a scientific discipline, biochemistry lies at the interface between biology, chemistry, pharmacology & medicine. This opens up a variety of career paths such as: Bioanalyst, R & D researcher, Ph.D. programs at premier institutes of India and abroad, teacher, scientist, food & drug analyst, pharmaceutical industry, etc.

ALUMNI RELATIONS: The alumni network of the department is well connected and is growing stronger every year. The members are spread both nationally and internationally. Their contributions have been acknowledged by various organizations and institutions. The department organizes Alumni meet so the current students can interact with their seniors and learn from them.

DEPARTMENT OF BIOPHYSICS

ABOUT THE DEPARTMENT

Biophysics has in recent times emerged as an important interdisciplinary subject in Life Science and primarily deals with the structure, bioenergetics, dynamics and function of the biomolecules. Over the years, the discipline of biophysics has played a significant role in the growth of critical areas, which include molecular biophysics, physiological biophysics, medical physics, radiation physics, gene and protein engineering, computational Biophysics, neuro degenerative disorders and membrane biophysics. Advances in these areas have paved newer initiatives for the designing and development of drugs and medical technologies.

The Department of Biophysics was established in 1964 and ever since is the only department in the country which offers both undergraduate and postgraduate courses in the discipline of Biophysics (Hons.). The department also offers excellent research opportunities leading to the award of Ph.D. degree. The courses being offered to the three year B.Sc.(Hons.) and two year M.Sc.

students in Biophysics are planned in a way, so as to provide a broad base in the subject and are accepted in the diverse fields of biomedical sciences. Alumni from this department have been always suitably employed and many of them have occupied coveted positions in the academia, industry, medical institutions, national laboratories and prestigious research institutions in India and abroad.

The department has been given special assistance grants under UGC-SAP program, Phase DSA-I from April 2015-2020. The department is also recognized under DST-FIST Programme. For more details see the website http://biophysics.puchd.ac.in

FACULTY

Designation	**Names**	**Field of Research Specialization**
ICMR Emeritus Scientist	Dr. Manoj Raje	Exploiting a non-classical micronutrient trafficking pathway for targeted delivery of therapeutic agents against M.tb and other pathogenic bacilli
Professors	Ashwani Koul	Chemical Carcinogenesis and phytomedicine
	Avneet Saini	Peptide Design & Characterization
Associate Professors	Sarvnarinder Kaur	Reproductive Biologgy, Chemical carcinogenesis and phytomedicine
	Tanzeer Kaur **(Chairperson)**	Neuropathology
	Simran Preet	Anti-Microbial and Anti-cancer peptides
Assistant Professors	Pavitra Ranawat	Phytomedicine, molecular carcinogenesis, andrology
	Naveen Kaushal	Cell Biology & Molecular Immunology
(UGC-FRP)	Ravi Pratap Barnwal	Structural Biology, Neuroscience, Drug Discovery and RNA Therapeutics

COURSES OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission Criteria**
B.Sc. (Hons.) in Biophysics as per NEP 2020 under the framework of Honours School System	25 +4 NRI +6 Foreign National	4 years	A candidate should have passed 10+2 examination with at least 50% marks (45 % marks in case of SC/ST) with English, Physics, Chemistry, Mathematics/Biology.	Based on CET (UG) Academic: 25% PU-CET (UG): 75%
M.Sc. with Research/ M.Sc	25+4 NRI +6 Foreign National	2 years	i) Passed the B.Sc. (3 year) degree in the framework of NEP 2020 **OR** the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from the UGC recognized Indian / Foreign University or Institute. ii) The candidate must have studied Biophysics or allied subjects as major discipline OR one of the major disciplines / subjects OR a minor / additional course with at least 24 credits under NEP 2020 OR Generic Elective (GE) / Additional course under CBCS system in the B.Sc. degree OR candidates with Bachelor of Science in any other subjects (such as B.Sc. Medical / Non-Medical, Bioinformatics / Biotechnology etc) are also eligible.	Based on CET (PG) Academic: 40% PU-CET (PG):60%
Ph.D.	42	3-6 years	See Ph.D. Prospectus 2026	

*5 % Concession is admissible in eligibility marks to SC/ST/BC/PWD Candidates

Note: The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. (Hons.) Res. and M.Sc. (Hons.) as per seats, eligibility and admission criteria specified in the table above.

(ii) Allocation to the Research-Related courses in the Second Year shall be determined (atleast for 25% Candidates) based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Biophysics after completion of the First Year. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Hons.) Res. (Two-Year Programme) degree. Those who are not eligible for the Research-based courses shall complete the Second Year with the prescribed Course work only and will be awarded the M.Sc. (Hons.) degree.

Note: Science Departments having Honours School Shall fill the vacant / left over seats of B.Sc. (HS) along with M.Sc. (HS). Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seat and reservation be followed as per rules **(Syndicate Para 6, 25.03.2023)**

TITLE OF SYLLABI: Detailed course curriculum available at https://puchd.ac.in/syllabus.php

B.SC. (Hons) in Biochemistry as per NEP 2020 under the framework of Honours School System

	SEMESTER-I	**SEMESTER-II**
Discipline Specific courses / Core	BPH-DSC-1 (BPH-101 : Introduction to Biophysics –I)	BPH-DSC-2 (Introduction to Biophysics-II)
Minor course	BPH M 1 : Integrated Biophysical Techniques	BPH M 2 : Concepts in Microscopic Anatomy
Interdisciplinary courses	BPH IDC I Introduction to Cell Biophysics	BPH IDC-I Introduction to Cell Biophysics
Ability Enhancement courses (Languages)	AEC 1 AEC 2	AEC – 3 AEC - 4

Skill enhancement courses / Internship / Dissertation	BPH SEC 1 : Introduction to Radiation Biophysics	BPH SEC 2 (Bioinstrumentation)
Common Value added courses	VAC – 1	VAC - 2
SEMESTER-III		**SEMESTER-IV**
Discipline Specific Core	BPH DSC 3 : Cytology and Cell Physiology BPH DSC 4 : Biophysical Chemistry BPH SEC 3 : Animal Handling and Ethical Care	BPH-DSC-5 Microscopic Anatomy BPH-DSC-6 Physiochemical Techniques BPH-DSC-7 Organ system of Human Body
Minor course	BPH M 3 : Physiochemical Techniques	BPH-M-4 Cytology and Cell Physiology
Inter / Multi-disciplinary	BPH IDC : Introduction to Cell Biophysics	
Skill enhancement courses	_____	
SEMESTER V		**SEMESTER VI**
Discipline Specific Core	BPH-DSC-8 Human Physiology BPH-DSC-9 Biomedical Imaging BPH-DSC-10 Bioinformatics & Programming	BPH-DSC-11 Biomaterials and Biomechanics BPH-DSC-12 Molecular Biophysics BPH-DSC-13 Fundamentals of Genetic Engineering
Minor course	BPH-M 5 Mammalian Physiology	BPH-M 6 Biophysical Chemistry of Biomolecules
		Internship (INT-1)
SEMESTER VII		**SEMESTER VIII**
Discipline Specific Core	BPH-DSC-14 (Biomolecular Spectroscopy)	BPH-DSC-17 (Cell and Tissue culture Techniques)
	BPH-DSC-15 (Medical Physics and Radiation Medicine)	BPH-DSC-18 (Advanced Microscopy and Nanobiophysics)
	BPH-DSC-16 (Practical Biomolecular Spectroscopy and Medical Physics)	BPH-DSC-19 (Practical tissue Culture, Microscopy and Neurobiology)
	DSC-16P Seminars on advances in Biophysics	DSC-19 P Grand Viva
	DSC-20A** (T+P) Neurobiology	DSC 20 B**(T+P) Methods in High Throughput Biology
Minor Course	BPH M-7 (Bioinformatics and Molecular Modelling)	BPH-M-8 (Gene & Protein Engineering
Research project	Dissertation	Dissertation

Only those students will be allowed to do research who will have more than 75% CGPA till 6th Semester. For Semester VII, a theory paper of 4 credits will be taught to the project holders on Research Methodology and basics of research. The student will submit a report on the literature survey and synopsis of the proposed research work, that will fulfill 2 credits. For Sem VIII, the student will be engaged in the research work and will submit a dissertation / Project report (6 credits) for the same.
**This paper is meant for those students who have less than 75% CGPA till 6th Semester and are not allowed to opt for Research project.

DSC : Discipline Specific Core, M : Minor Course, IDC : Interdisciplinary course, AEC : Ability Enhancement Courses (languages)
SEC : Skill Enhancement course, VAC : Value Added courses, DSE : Discipline Specific Elective

Minor courses offered by Biophysics Department for students of other Departments

SEMESTER I		**SEMESTER II**	
BPH M 1	Integrated Biophysical Techniques	BPH M 2	Concepts in Microscopic Anatomy
SEMESTER III		**SEMESTER IV**	
BPH M 3	Physiochemical Techniques	BPH M 4	Cytology and Cell Physiology
SEMESTER V		**SEMESTER VI**	
BPH-M-5	Mammalian Physiology	BPH-M-6	Biophysical Chemistry
SEMESTER VII		**SEMESTER VIII**	
BPH-M-7	Bioinformatics and Molecular Modelling	BPH-M-8	Gene and Protein Engineering

IDC offered by Biophysics Department for students of other Departments

SEMESTER I		**SEMESTER II**	
BPH IDC (Introduction to Cell Biophysics)		BPH IDC (Introduction to Cell Biophysics)	
SEMESTER III		**SEMESTER IV**	
BPH IDC	Introduction to Cell Biophysics		

SKILL ENHANCEMENT COURSES (for students of Department)

SEMESTER I		**SEMESTER II**	
BPH SEC 1	Introduction to Radiation Biophysics	BPH-SEC-2	Bioinstrumentation
SEMESTER III		**SEMESTER IV**	
BPH-SEC-3	Animal Handling and Ethical Care		

The nomenclature and duration of the course is under consideration and will be changed as approved by Senate

M.Sc. (Hons) with Research and Course work

SEMESTER – I Credits = 20, Marks = 500 5 courses (100 marks each)		**SEMESTER – II Credits = 20, Marks = 500 3 courses (100 marks each) 1 thesis (200 marks)**	
MBPH-DSC-1	Biomolecular Spectroscopy	MBPH-DSC-4	Cell and Tissue Culture Techniques
MBPH-DSC-2	Medical Physics and Radiation Medicine	MBPH-DSC-5	Advanced Microscopy and Nanobiophyiscs

MBPH-DSC-3	Practical Biomolecular Spectroscopy and Medical Physics	MBPH-DSC-6	Practical Tissue Culture, Microscopy and Nanobiophysics
MBPH-DSE-1	Neurobiology	MBPH-DSE-3	Methods in High throughput Biology
MBPH-DSE-2	Seminars on Advances in Biophysics and Lab Rotation	MBPH-DSE-4	Comprehension of UGC-NET syllabus

SEMESTER III **Credits = 20, Marks = 500** **4 courses (100 marks each) 1 Synopsis (100 marks)**		**SEMESTER IV** **Credits = 20, Marks = 500** **5 courses (100 marks each)**	
MBPH-DSC-7		MBPH-DSC-10	(4 credits each)
MBPH-DSC-8	(4 credits each)	MBPH-DSE-7	(4 credits)
MBPH-DSE-5	(4 credits)	MBPH-RSE-2	(4 credits)
MBPH-RSC-1	(4 credits)		Thesis Research work (8 credits) *one
	Synopsis of proposed Research work (4 credits)		

*One Discipline Specific course in each of Semesters I and II may be practical / lab work.
** One of the discipline specific elective courses may be based on Computer Applications in Semester I and / or II

M.Sc (Hons.) with Course work

SEMESTER – I **Compulsory Core Courses** **Credits = 20, Marks = 500** **5 courses (100 marks each)**		**SEMESTER – II** **Compulsory core Courses** **Credits = 20, Marks = 500** **3 courses (100 marks each) 1 thesis (200 marks)**	
MBPH-DSC-1	Biomolecular Spectroscopy	MBPH-DSC-4	Cell and Tissue Culture Techniques
MBPH-DSC-2	Medical Physics and Radiation Medicine	MBPH-DSC-5	Advanced Microscopy and Nanobiophyiscs
MBPH-DSC-3	Practical Biomolecular Spectroscopy and Medical Physics	MBPH-DSC-6	Practical Tissue Culture, Microscopy and Nanobiophysics
MBPH-DSE-1	Neurobiology	MBPH-DSE-3	Methods in High throughput Biology
MBPH-DSE-2	Seminars on Advances in Biophysics and Lab Rotation	MBPH-DSE-4	Comprehension of UGC-NET syllabus

SEMESTER III **Credits = 20, Marks = 500** **4 courses (100 marks each) 1 Synopsis (100 marks)**	**SEMESTER IV** **Credits = 20, Marks = 500** **5 courses (100 marks each)**
MBPH-DSC-7	MBPH-DSC-10
MBPH-DSC-8	MBPH-DSC-11
MBPH-DSC-9 (4 credits each)	MBPH-DSC-12 (4 credits each)
MBPH-DSE-5	MBPH-DSE-7
MBPH-DSC-6 (4 credits each)	MBPH-DSC-8 (4 credits each)

One Discipline Specific Course in each of Semester I-IV should be Practical / Lab Work.
** One of the Discipline Specific Elective courses in Semesters I and II may be based on Computer Applications.

THRUST AREAS: Cancer Biology, Neuro-biophysics and Drug Discovery.

PLACEMENT: The Department of Biophysics has an active placement cell which helps, support and encourages the students for venturing into the fields of their respective interests. In this regard, Department organizes regular seminars and talks in collaboration with central placement cell of PU, where distinguished alumni from various fields are invited to discuss the scope of Biophysics, emphasizing on the placement scenario and opportunities in the field.

ALUMNI RELATIONS: Department keeps constant contact with its alumni whether in India or abroad. Whenever, they visit the department there is always an interaction with faculty and students. Prior to their visit, most of the alumnus informs the department about their visit and if the alumni are active in academia/research then the dept. plans their lecture or informal interaction with the students. The alumni also help in placement of the students in academia and research. The Department holds alumni meets at regular intervals.

DEPARTMENT OF BIOTECHNOLOGY

ABOUT THE DEPARTMENT

The Department came into existence as Centre in 1989. In 1993 after obtaining financial aid from UGC and DBT, Govt. of India, it was upgraded to the level of full-fledged Department. The Department is rated as one of the best in India for imparting state of art technology to the students in the field of biotechnology. Most of the students qualify UGC and CSIR entrance test in their first attempt and are admitted to Ph.D. programs in prestigious research institutions in India. Most of the faculty members have been trained abroad and are recipient of prestigious National and International awards. The faculty of the department publishes research papers in National and International journals on regular basis. Every year department organizes Workshop/Symposium/Seminar dealing with state of art technologies. Department also organizes a seminar on "Recent Techniques in Biotechnology" for B.Sc. and M.Sc. students on regular basis. Scientists of international repute are invited to deliver lectures. The department has the distinction of being funded by DST-FIST (2002-07; 2011-16) and UGC-SAP (2007-12; 2013-18).

FACULTY

Designation	**Name**	**Field of Research specialization**
Professor Emeritus	R.C. Sobti	Molecular Diagnosis of Cancer
Professors	Jagdeep Kaur	Molecular Biology & Protein Biochemistry
	Neena Capalash	Microbial Biotechnology & Cancer Biology

	Jagtar Singh **(Chairperson)**	Immunology & Molecular Epidemiology, Animal Biotechnology
	Desh Deepak Singh	Bioinformatics and Structural Biology
Associate Professor	Kashmir Singh	Plant Biotechnology

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission criteria
B.Sc. (Hons.) in Biotechnology as per NEP 2020 under the framework of Honours School System	15 General + 2 NRI+4 Foreign National	4 years	50% marks in 10+2 or equivalent examination with the subjects English, Physics, Chemistry, Mathematics/ Biology	On the basis of PUCET (U.G.) PU-CET (UG) : 75% Qualifying Exam: 25%
M.Sc. (Hons.) in Biotechnology as per NEP 2020 under the frame work of Honours School System	Ongoing Class	2 years	_____	Ongoing Class
M.Sc. with Research/ M.Sc	05 General + 02 SC + 02 NRI + 01 Foreign National	2 Years	A. Candidates from Category II: The candidate shall be admitted THROUGH an Entrance Test only: Criteria for admission to M.Sc. (Hons.) Research i) B.Sc. (3-Year) Biotechnology with atleast 50% marks in FYUP framework (NEP 2020) from PU, Chandigarh or its equivalent examination from a UGC recognized Indian/Foreign University or Institution. ii) Earned a minimum of 24 credits in Biotechnology as a Minor course in the complete B.Sc. program. A candidate who has taken additional Biotechnology courses at the B.Sc. level to meet this condition shall also be eligible. B.Sc. or B.Sc. (Hons.) Biotechnology under the CBCS with atleast 50% marks from PU, Chandigarh or its equivalent examination from a UGC recognized Indian/Foreign University or Institution. The major discipline or one of the major disciplines/subjects of B.Sc. must be Biotechnology. B.Sc. (Hons.) or B.Sc. Biotechnology with atleast 50% marks under the 10+2+3 system of education from PU, Chandigarh or its equivalent examination from a UGC recognized Indian/Foreign University or Institution. The candidate must have studied Biotechnology in all three years of B.Sc. (Hons.) or B.Sc. degree	Based on PU- CET (P.G.) Academics: 40% PU-CET (PG): 60%
Ph.D.	Subject to availability of seats	3-6 years	See Ph.D. Prospectus 2026	Candidates who have cleared UGC-NET/CSIR - NET) / GATE Examination/ SLET/ Teacher Fellowship holders/ direct awardees of fellowship by any national agency or any other equivalent test. Candidates who have cleared P.U. Entrance Test.

*5% Concession is admissible in eligibility requirement to SC/ST/BC/PWD candidates.
** The candidates seeking admission in M.Sc. Biotechnology should fill separate admission forms in colleges offering M.Sc. course in Biotechnology. No Centralized Counselling will be done by the Department.

Note: Science Departments having Honours School Shall fill the vacant / left over seats of B.Sc. (HS) along with M.Sc. (HS). Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seat and reservation be followed as per rules **(Syndicate Para 6, 25.03.2023)**

TITLE OF SYLLABI: Detailed course curriculum is available at https://puchd.ac.in/syllabus.php

B.Sc. (Hons.) Biotechnology as per NEP-2020 under the framework of Honours School System

SEMESTER-I		**SEMESTER-II**	
Paper-1	BTC-DSC-I Biomolecules	Paper-1	BTC-DSC-2 Molecular Biology
Paper-2	BTC-M-1 Recombinant DNA Technology	Paper-2	BTC-M-1 Plant Biotechnology
Paper-3	BTC-IDC Introduction to Biotechnology	Paper-3	BTC-IDC Introduction to Biotechnology
Paper-4	AEC-1 English AEC-2 Hindi / Punjabi / Urdu	Paper-4	AEC-3 English AEC-4 Hindi / Punjabi / Urdu
Paper-5	BTC-SEC-1 Statistical Tool	Paper-5	BTC-SEC-2 Basics of Bioinformatics
Paper-6	VAC-1	Paper-6	VAC-2
SEMESTER-III		**SEMESTER- IV**	
Paper-1	BTC-DSC-3 Enzymology	Paper-1	BTC-DSC-5 Biochemistry & Metabolism
Paper-2	BTC-DSC-4 Genetics	Paper-2	BTC-DSC-6 Developmental Biology
Paper-3	BTC-M-3 Environmental Biotechnology	Paper-3	BTC-DSC-7 Plant Physiology
Paper-4	BTC-IDC- Introduction to Biotechnology	Paper-4	BTC-M-4 Bioanalytical tools
Paper-5	BTC-SEC-3 Molecular Diagnostics		
SEMESTER-V		**SEMESTER- VI**	
Paper-1	BTC-DSC-8 Animal Biotechnology	Paper-1	BTC-DSC-11 Bioprocess Technology
Paper-2	BTC-DSC-9 Bioinformatics	Paper-2	BTC-DSC-12 Immunology
Paper-3	BTC-DSC-10 Recombinant DNA Technology	Paper-3	BTC-DSC-13 Food Biotechnology
Paper-4	BTC-M-5 Animal Biotechnology	Paper-4	BTC-M-6 Bioprocess Technology
Paper-5	VAC-3	Paper-5	INT-1 Internship
SEMESTER-VII		**SEMESTER-VIII**	
Paper-1	BTC-DSC- 14 Plant cell & tissue culture	Paper-1	BTC-DSC-17Plant Biotechnology
Paper-2	BTC-DSC-15 Advanced Immunology	Paper-2	BTC-DSC-18 Microbial Biotechnology
Paper-3	BTC-DSC-16 Advanced Molecular Biology	Paper-3	BTC-DSC-19 Entrepreneurship Development
Paper-4	BTC-DSC-20A**Advanced Recombinant DNA Technology	Paper-4	BTC-DSC-20B** Bioanalytical Tools
Paper-5	BTC- M-7 Bioinformatics	Paper-5	BTC- M-8Immunology
Paper-6	Research Project#(Project Proposal)	Paper-6	Research Project#(Dissertation)

M.Sc. (Honours) in Biotechnology (2 Year Programme) Under the NEP Framework

SEMESTER-I		**SEMESTER - II**	
Paper-1	PG-DSC-101 Plant Cell & Tissue Culture	Paper-1	PG-DSC-201Plant Biotechnology
Paper-2	PG-DSC-102 Advanced Recombinant DNA Technology	Paper-2	PG-DSC-201 Bioanalytical Tools
Paper-3	PG-DSC-103* Practical Based Course	Paper-3	PG-DSE-203* Practical Based course
Paper-4	PG-DSE-101 Advanced Molecular Biology	Paper-4	PG-DSE-201 Entrepreneurship Development
Paper-5	PG-DSE-102 Advanced Immunology		PG-DSE-202 Microbial Biotechnology
SEMESTER-III		**SEMESTER- IV**	
Paper-1	Animal Biotechnology		Research Project, Thesis, Presentation & Viva, Internal Assessment
Paper-2	Plant Biotechnology		
Paper-3	Emerging Technologies		
Paper-4	**Electives (any one to be opted)**		
	Molecular Medicine		
	Food microbiology and food safety		
Paper-5	Trends in Biotechnology		

Ph. D course work (One Semester): Research Methodology, Basic & Modern Analytical Techniques in Biotechnology, Presentations.

THRUST AREAS: Molecular Epidemiology, Microbial Biotechnology, Plant Biotechnology, Recombinants, Glycobiology of Infectious Diseases.

PLACEMENTS: Faculty of the department provides career counseling to the students and helps them to choose profession of their choice. More than 50% PG students prefer to join Ph.D. after clearing competitive exams (UGC/CSIR/DBT/ICMR NET etc). Few of our students are doing Ph.D. in countries like US, Canada, EU etc. After completing Ph.D. students are placed in teaching/research institutes and a few go abroad for Postdoctoral fellowships. The Department provides a platform to encourage the students for joining private sector in the field of biotechnology.

ALUMNI RELATIONS: The department maintain the record of pass out students and time to time invites past students to interact with present students by conducting seminars, symposia etc.

DEPARTMENT OF BOTANY

ABOUT THE DEPARTMENT

The Department of Botany was established in 1919 at Lahore. It shifted to Chandigarh in 1960 from Khalsa College, Amritsar where it was housed temporarily after partition of the country. The Department has grown into a well recognised centre for

higher learning and research in structural, functional and evolutionary aspects of plants. The department had DST-FIST programme and had completed UGC DRS-II phase. Some of the major areas of research are: taxonomy, morphology, improvement and propagation of economically important plants, ecology of invasive alien plants, physiological up-gradation of harvest index of some important crops; stress biology of legumes; identification of eco-friendly herbicides and pesticides; mushroom cultivation; evaluation and conservation of plant diversity; importance of microbes in human welfare and molecular characterization of gene families involved in development and stress responses. In addition to teaching through modern techniques, seminars, symposia, workshops, the invited lectures and botanical excursions are an integral part of academic programme. The department has a well-stocked library with nearly 6,814 books and over 60 regular scientific journals. The department also houses an internally recognized Herbarium (abbreviated as PAN) and a Museum. The P.N. Mehra Botanical Garden, spread over 16 acres of land is one of the better-known botanical gardens attached to any university of the country. The department has been getting regular sanction for BSR fellowships under UGC-SAP (DRS-III) programme. Additionally, the UGC also sanctions funds to the department for infrastructural development from time to time. Besides this, many research projects are being funded by DST, MoEF, UGC, CSIR, DBT, SERB and MoFPI. The Department has received DST FIST Grant for a period of 5 years and RUSA Grant respectively starting from 2020.

FACULTY

Particulars	**Name**	**Field of Research Specialization**
Prof. Emeritus	S.S. Kumar	Bryology
	M.L. Sharma	Angiosperm taxonomy and grasses
	S.P. Khullar	Pteridophytes
Professors	Harsh Nayyar	Plant Physiology
	Daizy Rani	Plant Ecology (Eco-Physiology)
	P.Pathak	Morphology and Morphogenesis
	C. Nirmala Ghongtham	Cytogenetics, Molecular Biology and Biotechnology
	Richa Puri	Biosystematics & Seed Physiology
	Kamal Jit Singh	Plant Physiology and Biochemistry
	M.C. Sidhu **(Chairperson)**	Medicinal Plants, Cytogenetics, Plant Diversity
	A.N. Singh	Restoration Ecology and Plant Ecology
Associate Professor	Anju Rao	Plant Morphogenesis
Assistant Professors	Shalinder Kaur	Eco-physiology
	Santosh K. Upadhyay	Plant Molecular Biology
	Papiya Mukherjee	Cryo-Biology and Molecular Biology
	Jaspreet Kaur	Tissue Culture and Molecular Biology

COURSES OFFERED (SEMESTER SYSTEM)

Courses	**Seats**	**Duration**	**Eligibility***	**Admission criteria**
B.Sc. (Hons.) Botany B.Sc. (Hons.) Botany (Res.)	20 + 3 NRI+ 5 Foreign National	4 years	10+2 examination with atleast 50% marks with Physics, Chemistry, Biology and English from recognized Boards Allocation of Research Work* in 7th and 8th Semesters for award of the degree will be based on the merit for fixed number of seats. The remaining admitted students shall be awarded the B.Sc. (Hons.) (Four-year Programme) degree upon successful completion of credits.	Based on PU-CET (UG) Academics: 25% PU-CET(UG):75%
M.Sc. with Research/ M.Sc	25+4NRI +6Foreign National	2 years	i) Passed the B.Sc. (3-year) degree with atleast 50% marks in the framework of NEP-2020, OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian / Foreign University or Institute. ii) The Candidate must have studied Botany as major discipline OR one of major disciplines/subjects, OR a Minor/Additional course with atleast 24 credits under NEP 2020 OR Generic Elective(GE)/Additional course under CBCS system in the B.Sc. degree.	Based on PU-CET (PG) Academics: 40% PU-CET(PG):60%
Ph.D	21	3-6 years	See Ph.D Prospectus 2026	

* 5% concession is admissible in eligibility marks to SC/ST/BC/PwD candidates

**Weightage(if any) as per rules will be given to those candidates who have done B.Sc. Honours in the subject of Botany

Note: The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. (Hons.) Res. and M.Sc. (Hons.) as per seats, eligibility and admission criteria specified in the table above.

(ii) Allocation to the Research-Related courses in the Second Year shall be determined (atleast for 25% Candidates) based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Botany after completion of the First Year. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Hons.) Res. (Two-Year Programme) degree. Those who are not eligible for the Research-based courses shall complete the

Second Year with the prescribed Course work only and will be awarded the M.Sc. (Hons.) degree.

TITLES OF SYLLABI: Detailed course curriculum is available at https://puchd.ac.in/syllabus.php

B.Sc. (Honours) in Botany (4 year Programme as per NEP 2020) Under the Framework of Honours School System Semester 1st to 8th Semester

SEMESTER-I		SEMESTER-II	
BOT-DSC-1	Phycology & Microbiology	BOT-DSC-2	Mycology & Plant Pathology
BOT-M-1	Plant Diversity-I	BOT-M-2	Plant Diversity-II
BOT-IDC-1	Medicinal Botany	BOT-IDC-2	Plant Tissue Culture
BOT-SEC-1	Basic Lab & Field Skills in Botany	BOT-SEC-2	Intellectual Property Rights
AECC-1	English	AECC-3	Ethnobotany
AECC2	MIL	AECC-4	MIL
BOT-VAC-1	Landscaping and Floriculture	BOT-VAC-2	Ethnobotany

SEMESTER-III		SEMESTER-IV	
BOT-DSC-3	Archegoniates	BOT-DSC-5	Morphology of Angiosperms
BOT-DSC-4	Cell Biology	BOT-DSC-6	Plant Anatomy
BOT-M-3	Economic Botany and Plant Biotechnology	BOT-DSC-7	Economic Botany
BOT-IDC-3	Plant Ecology and Taxonomy	BOT-M-4	Plant Anatomy and Embryology
BOT-SEC-3	Biofertilizers		
SEMESTER-V		**SEMESTER-VI**	
BOT-DSC-8	Basics of Genetics	BOT-DSC-11	Plant Metabolism
BOT-DSC-9	Plant Physiology	BOT-DSC-12	Plant Breeding
BOT-DSC-10	Reproductive Structures and Taxonomy of Angiosperms	BOT-DSC-13	Plant Ecology
BOT-M-5	Plant Ecology	BOT-M-6	Plant Physiology
			Internship

SEMESTER-VII		SEMESTER-VIII	
DSC-14	Molecular Biology	DSC-17	Plant Systematics
DSC-15	Research Methodology	DSC-18	Genomics
DSC-16	Bioinformatics	DSC-19	Ecological Diversity
DSC-20A	Plant Biotechnology	DSC-20B	Reproductive Biology of Angiosperms
	Minor: Plant Biochemistry		Minor: Taxonomy of Angiosperms

M.Sc. (Honours) in Botany (Two year Programme as per NEP 2020) Under the Framework of Honours School System Semester 1st to 4th Semester

SEMESTER-I	SEMESTER-II
PG-DSC-101: Molecular Biology	PG-DSC-201: Plant Systematics
PG-DSC-102: Plant Biotechnology	PG-DSC-202: Reproductive Biology of Angiosperms
PG-DSC-103: Molecular Biology & Plant Biotechnology (Practicals)	PG-DSC-203: Reproductive Biology of Angiosperms & Plant Systematics (Practicals)
PG-DSE-104: Bioinformatics	PG-DSE-204: Genomics
PG-DSE-105: Research Methodology	PG-DSE-205: Ecological Diversity
SEMESTER-III	**SEMESTER-IV**
BOT-Core-3001: Plant Biochemistry	BOT-Core-4001: Gymnosperms
BOT-Core-3002: Cell & Molecular Biology	BOT-Core-4002: Environment Botany
BOT-Core-3003: Angiosperms: Phylogeny, Embryology and Taxonomy	Paper-III: Field Study
Paper-IV: Seminars	Paper-IV: Project Work
Elective Courses (Two Courses to be selected out of four offered)	Elective Courses (Three Courses to be selected out of six offered)
BOT-Elective-3004: In vitro Technologies and Industrial Applications	BOT-Elective-4003: Advances in Ecology
BOT-Elective-3005: Urban Environment	BOT-Elective-4004: Advances in Plant Biochemistry
BOT-Elective-3006: Agroecology & Sustainable Agriculture	BOT-Elective-4005: Advances in Molecular Biology
BOT-Elective-3007: Plant Morphogenesis	BOT-Elective-4006: Microbial Technology
	BOT-Elective-4007: Recombinant Proteomics
	BOT-Elective-4008: Advanced topics in Plant Physiology

THRUST AREAS: Plant Physiology, Plant Ecology, Plant Biotechnology, Plant Biochemistry, Phycology, Mycology, Bryology, Taxonomy, Physiology, Cytology.

PLACEMENT: The department has a Placement Cell which Co-ordinates with Central Placement Cell of the University to get time to time information about the opportunities available to the students of the department.

ALUMNI RELATIONS: The Department has alumni association i.e., Panjab University Botany Department Alumni Association (PUBDAA), which has Executive Committee and several members. The department organises Alumni Meet every year to maintain contact with the alumni as well as to provide the information about the latest happenings of the department to members. Several of its alumni are highly distinguished and working in different capacities at National and International levels.

DEPARTMENT OF CHEMISTRY

ABOUT THE DEPARTMENT

Founded by Dr. S. S. Bhatnagar at Lahore in 1925, the Department of Chemistry is one of the prestigious Departments of Panjab University. It has on its faculty highly competent members whose work has been internationally recognized. Several faculty members are recipients of awards and honours, such as Shanti Swarup Bhatnagar, Jawaharlal Nehru Fellowship, Raman and Palit awards. Many faculty members are bestowed with F.N.A., F.A.Sc., F.N.A.Sc. The Department has been selected by the UGC

first for COSIST and Special Assistance Programme (SAP) and it is the Centre of Advanced Studies in Chemistry (CAS) for the last 16 years. The Department of Science and Technology (DST), Government of India has accorded it the status of "DST-FIST Supported Department". The Department has stimulating undergraduate and postgraduate teaching programmes. Frequent symposia, conferences, invited lectures and refresher courses have been organized for the benefit of University, College and School teachers and talented students. The Department has good instrumental facilities and its library is perhaps one of the best in Northern India with its excellent collection of books, research journals and monographs. The Department is well-known for its research activities and has very well equipped research Laboratories.

FACULTY

Designation	**Name**	**Field of Research Specialization**
Honorary Professor	T. Ramasami	
Professors Emeritus	S. V. Kessar	Organic
	Gurdev Singh	Inorganic
NASI Senior Scientist	K. K. Bhasin	Inorganic
Professors	S. K. Mehta	Physical
	Kamal Nain Singh	Organic
	Sonal Singhal	Inorganic
	Ganga Ram Chaudhary	Physical
	(Chairperson)	
	Navneet Kaur	Organic
	Gurjaspreet Singh	Inorganic
	Vikas	Physical
	Neetu Goel	Physical
	Amarjit Kaur	Organic
	Navneet Kaur	Organic
	Ramesh Kataria	Inorganic
Associate Professors	Aman Bhalla	Organic
	Varinder Kaur	Physical
	Shweta Rana	Physical
	Rohit Kumar Sharma	Organic
Assistant Professors	Subash Chandra Sahoo	Inorganic
	Gurpreet Kaur	Physical
	Savita Chaudhary	Physical
	Deepak B. Salunke	Organic
	Palani Natarajan	Inorganic
	Jyoti Agarwal	Organic
UGC Assistant Professors (FRP)	Ankur Ganesh Pandey	Organic
	Vijay Pal Singh	Inorganic
Assistant Professors	Khushwinder Kaur	Physical
(Temporary Faculty)	Vaneet Saini	Organic

COURSES OFFERED (SEMESTER SYSTEM)

Courses	**Seats**	**Duration**	**Eligibility***	**Admission Criteria**
B.Sc. (Hons.) in Chemistry as per NEP 2020 under the framework of Honours School System	58 + 15 NRI + 15 Foreign National	4 years	Passed 10+2 examination from recognized Board/CBSE with at least 50% marks with Physics, Chemistry, Mathematics/ Biology and English.	Based on PU-CET (UG) Academic : 25% PU-CET(UG): 75%
M.Sc. with Research/ M.Sc	15 + 4 NRI + 4 Foreign National	2 year	i) Eligibility Criteria: (a) Passed the B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 **OR** the Choice Based Credit System (CBCS) **OR** 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. ii) The candidate must have studied CHEMISTRY as major discipline **OR** one of the major disciplines/subjects **OR** a minor/Additional course with at least 24 credits under NEP-2020 **OR** Generic Elective (GE)/Additional course under CBCS system in the B.Sc. degree **OR** any Undergraduate degree with Allied disciplines / subjects. The candidate must have studied chemistry as one of the subjects in each semester of B.Sc. (3-year) with at least 24 credits	Based on PU-CET (PG) Academic : 40% PU-CET (PG): 60%
Ph.D.	10	3-6 years	See Ph.D. Prospectus 2026	
*5% concession is admissible in eligibility marks to SC/ST/BC/PwD candidates.				

Note: Science Departments having Honours School shall fill the vacant / left over seats of B.Sc. (HS) along with M.Sc. (HS). Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seats and reservation be followed as per rules (Syndicate Para 6, 25.03.2023

TITLE OF SYLLABI: Detailed course curriculum is available at https://puchd.ac.in/syllabus.php?qstrfacid=10

B.Sc (Hons.) (According to NEW EDUCATION POLICY (NEP)

CORE COURSE (CHEMISTRY)

CHE-DSE = Discipline Specific Courses CHE-M = Minor Course AEC: Ability enhancement course (Languages) CVAC: Common Value-added Course Contact Hours: Theory (15 hours corresponds to 1 credit, Practical 30 hrs to 1 credit)* This IDC Course (Basic Analytical Methods) is available for the students of other than Chemistry Departments. The Students of Chemistry department must opt the IDC course from other departments. ** This VAC course is available for the students of all departments including Chemistry department

SEMESTER I		SEMESTER I	
CHE-DSC-1	INORGANIC CHEMISTRY-I	CHE-DSC-2	PHYSICAL CHEMISTRY-II
CHE-SEC-1	PHYSICAL CHEMISTRY-I	CHE-SEC-2	ORGANIC CHEMISTRY-I
CHE-M-1	BASIC CHEMISTRY-I	CHE-M-2	INORGANIC CHEMISTRY-I
CHE-IDC*	FOOD AND COSMETICS	CHE-IDC*	PHYSICAL CHEMISTRY-I
CHE-VAC**	ENVIRONMENTAL SCIENCE	CHE-VAC**	BASIC CHEMISTRY-I
ENG-AEC-1	ENGLISH	ENG-AEC-3	FOOD AND COSMETICS
PUN-AEC-2/ HIN-AEC-2/ URD-AEC-2	MIL (MODERN INDIAN LANGUAGES)	PUN-AEC-4/ HIN-AEC-4/ URD-AEC-4	ENVIRONMENTAL SCIENCE
			ENGLISH
			MIL (MODERN INDIAN LANGUAGES)

SEMESTER-III		SEMESTER-IV	
CHE-DSC-3	ORGANIC CHEMISTRY-II	CHE-DSC-5	INORGANIC CHEMISTRY-III
CHE-DSC-4	INORGANIC CHEMISTRY-II	CHE-DSC-6	ORGANIC CHEMISTRY-III
CHE-SEC-3	PHYSICAL CHEMISTRY-III	CHE-DSC-7	PHYSICAL CHEMISTRY-IV
CHE-M-3	BASIC CHEMISTRY-III	CHE-M-4	BASIC CHEMISTRY-IV
CHE-IDC*	FOOD AND COSMETICS		

SEMESTER-V		SEMESTER-VI	
CHE-DSC-8	INORGANIC CHEMISTRY-IV	CHE-DSC-11	INORGANIC CHEMISTRY-V
CHE-DSC-9	PHYSICAL CHEMISTRY-V	CHE-DSC-12	PHYSICAL CHEMISTRY-VI
CHE-DSC-10	ORGANIC CHEMISTRY-IV	CHE-DSC-13	ORGANIC CHEMISTRY-V
CHE-M-5	BASIC CHEMISTRY-V	CHE-M-6	BASIC CHEMISTRY-VI
CHE-VAC**	ENVIRONMENTAL SCIENCE	INTERNSHIP	Internship

SEMESTER-VII (with coursework)		SEMESTER-VII (with Research Work)	
CHE-DSC-14A	ORGANIC CHEMISTRY-VI	CHE-DSC-14A	ORGANIC CHEMISTRY-VI
CHE-DSC-15	INORGANIC CHEMISTRY-VI	CHE-DSC-15	INORGANIC CHEMISTRY-VI
CHE-DSC-16	PHYSICAL CHEMISTRY-VII	CHE-DSC-16	PHYSICAL CHEMISTRY-VII
CHE-DSC-20A-1	ORGANIC CHEMISTRY-VII	CHE-DSC-20A-1	ORGANIC CHEMISTRY-VII
CHE-M7	BASIC CHEMISTRY-VII	CHE-M7	BASIC CHEMISTRY-VII
CHE-DSC-14B	Advanced Practical – 1	CHE-DSC-14B	Advanced Practical – 1
CHE-DSC-20A-2	Advanced Practical – 2	CHE-DSC-20A-2	Advanced Practical – 2

SEMESTER-VIII (with coursework)		SEMESTER-VIII (with Research Work)	
CHE-DSC-17A	PHYSICAL CHEMISTRY- VIII	CHE-DSC-17	PHYSICAL CHEMISTRY- VIII
CHE-DSC-18	ORGANIC CHEMISTRY- VIII	CHE-DSC-18	ORGANIC CHEMISTRY- VIII
CHE-DSC-19	INORGANIC CHEMISTRY-VII	CHE-DSC-19	INORGANIC CHEMISTRY-VII
CHE-DSC-20B-1	INORGANIC CHEMISTRY-VIII	CHE-M8	BASIC CHEMISTRY-VII
CHE-M8	BASIC CHEMISTRY-VIII	CHE-DSC-RBC-3	Research Methodology (II)
CHE-DSC-17B	Advanced Practical – 3 (Computational)	Research Project	Research Project
CHE-DSC-20B-2	Advanced Practical – 4 (Computational)		

Course Structure of M.Sc. (Hons) Res. Two-year Programme under the Honours School System (with Research work)

SEMESTER-I		SEMESTER-II	
PG-DSC-101	Organic Synthesis(T)	PG-DSC-201	Advanced Quantum Chemistry(T)
PG-DSC-102	Transition Metal Chemistry(T)	PG-DSC-202	Pericyclic and Asymmetric Synthesis (T)
PG-DSC-103	(Advanced Practical -1 Advanced Practical -2)	PG-DSC-203	(Advanced Practical – 3) Computational practicals (P)
PG-DSE-104	Statistical Thermodynamics and Analytical Chemistry (T)	PG-DSE-204	Inorganic Spectroscopy and Nuclear Chemistry (T)

PG-DSE-105	Chemistry of Natural Products(T)	PG-DSE-205	Advanced Inorganic Materials(T)

SEMESTER-III (with Research Work)		SEMESTER-III (With Research work)	
PG-DSC-101	Organic Synthesis(T)	PG-DSC-201	Advanced Quantum Chemistry(T)
PG-DSC-102	Transition Metal Chemistry(T)	PG-DSC-202	Pericyclic and Asymmetric Synthesis (T)
PG-DSC-103	(Advanced Practical -1 Advanced Practical -2)	PG-DSC-203	(Advanced Practical – 3) Computational practicals (P)
PG-DSE-104	Statistical Thermodynamics and Analytical Chemistry (T)	PG-DSE-204	Inorganic Spectroscopy and Nuclear Chemistry (T)
PG-DSE-105	Chemistry of Natural Products(T)	PG-DSE-205	Advanced Inorganic Materials(T)

Criteria for Allocation of Research Work* in Semester-III and IV for award of M.Sc. (Hons.) Res. (Two-Year Programme) degree: Based on the Merit list of the First year of M.Sc. (Hons.).

THRUST AREAS: Synthetic Chemistry (Both Inorganic and Organic), Heterocyclic, Natural Products and Green Chemistry, Nanotechnology and Nuclear Chemistry, Colloidal, Biophysical, Theoretical and Computational Chemistry.

PLACEMENT: Many Post-graduate students pursue career in teaching and research after qualifying CSIR/UGC National Eligibility Test (NET). Our Students are absorbed for job/research in premier institutions like IISc, TIFR, BARC, DRDO, ISRO, IMSC, IIT, NCL, NPL and IISER. GATE/GRE qualified students get avenues for professional studies in India/Abroad. Some graduate students go for Post-graduate studies at TIFR, IISc, IMSc, IITs and various Central Universities. Students also find jobs through PU Central Placement Cell besides the Placement Cell of the department.

ALUMNI RELATIONS: Chemistry department has produced many distinguished alumni, who have adored administrative/ executive and scientific positions in our country and abroad. The department has an association named "Chemistry Department Alumni Association, Panjab University (CDAAPU). Annual meeting of the alumni is a regular feature. Executive members of the alumni association meet frequently to discuss the activities of the association. CDAAPU provides fellowships to needy students out of the interest accrued from contribution of alumni of 1968 batch.

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

ABOUT THE DEPARTMENT

The Department of Computer Science and Applications was set up as a Centre in 1983. It got the status of the Department of Computer Science and Applications in 1997. The department offers various professional educational programmes like **Ph.D. programme, Master of Computer Applications (MCA – Morning) a two years** full time course, **MCA (Self Financing) – a two years** full time self-financing course and **M.Sc. (Computer Science) (specialization in Data Science) under the framework of Hons. School System**. For these Post Graduate degree courses, admissions are held through an entrance test conducted by the Panjab University. The quality of input is really good as both Indian as well as foreign students are attracted towards these programmes.

The department has qualified, regular and competent faculty members with Ph.D./M.Tech./MCA (UGC NET) qualifications. Being a professional course, the curriculum is revised regularly to keep abreast of the latest advancements in the industry as well as the academia. Almost all the students at DCSA are well placed in various reputed companies. The department has an excellent infrastructure including laboratories, library, Internet facility, wireless networks and teaching – learning aids like smart classrooms. The faculty is performing and guiding research in different areas of Computer Science and Applications.

FACULTY

Designation	Name	Field of Research Specialization
Professors	Ravinder Kumar Singla	Software Engineering, Web Semantics, Computer Network / Security
	Indu Chhabra	Neural Networks, Image Processing, Data Mining, Software Engineering
	Sonal Chawla	Semantic Web Applications, Programming Languages, Advanced Databases, Operating System
	Anu Gupta	Software Engineering, Open Source Software, Cloud Computing, Java Programming
Associate Professor	Anuj Sharma **(Chairperson)**	Pattern Recognition, Machine Learning
Assistant Professors	Jasleen Kaur Bains	Java Programming, Image Processing, Pattern Recognition
	Rohini Sharma	Network Security, Design and Analysis of Algorithms
	Balwinder Kaur	RDBMS, Software Engineering, Operating System, Data Warehouse and Data Mining, Computer Organization
	Anuj Kumar	Image Processing, Pattern Recognition, Open Source Software
	Supreet Kaur Mann	Wireless Sensor Networks, Networking.
	Kavita Taneja	Mobile Ad Hoc Networks, Web Information Computing, Database Management System

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
M. Sc. Computer Science (Specialization in Data Science) under the framework of Honours School System	20 + 2NRI + 5 Foreign National	2 years	BCA/B.Sc. (hons) Computer Science/Information Technology / Computer Applications) / B.Tech (Computer Science) / Computer Engineering/ Information Technology) / B.E. (Computer Science / Computer Engineering / Information Technology) / B.Sc. (General) with Computer Science / Information Technology / Computer Applications as an elective subject / B.Sc. (Math	Based on P.U. CET-(P.G.) Academics:40% PU CET (PG):60%

			and Computing) / B.Voc. (Software Development / Hardware and Networking / Multimedia (Graphics and Animation) or any other examination recognized as equivalent with 50% marks thereto.	
M.C.A.	34+ 2* + 5NRI + 9 Foreign National	2 years	The minimum qualification for admission to the first year of the course is : i) A recognized first degree of minimum three years duration in any discipline with at least 50% marks and with Mathematics at 10+2 or at graduation level (all three years) OR ii) B.C.A. from Panjab University with 50% marks OR iii) B.Voc (Software Development) / B.Voc (Hardware and Networking) / B.Voc (Multimedia) (Graphics & Animation) with atleast 50% marks and with mathematics at 10+2 level OR iv) Any examination recognized by the Panjab University Chandigarh as equivalent to any of the above examination (i), (ii) or (iii)	Based on P.U. CET-(P.G.) Academics:50% PU CET (PG):50%
M.C.A. (Self-financing)	46+ 2*+ 6NRI +12 Foreign National			
Ph.D.	Subject to availability	3-6 Years	See Ph.D prospectus 2026	
*5% Concession is admissible in eligibility requirement to SC/ST/BC/PwD candidates.				
# for candidates who have studied Computer Science as one of the subjects for three years / or that subject as a full course at the under graduate level.				

TITLE OF SYLLABI: Detailed syllabi available at https://puchd.ac.in/syllabus.php

M.C.A.

SEMESTER-I		SEMESTER-II	
CS 2127	Programming in C and Data Structures	CS 2128	Object oriented programming (using C++ and Java)
CS 2111	Computer organization and Architecture	CS 2116	Computer Networks and Security
CS 2126	Mathematical structures and linear programming	CS 2129	Artificial Intelligence and soft computing Techniques
CS 2113	Relational Data Base Management Systems	CS 2130	Web Development and Python Programming
CS 2114	Operating Systems	CS 2119	Analysis and Design of Algorithms
PR 2127	Practical Based on CS 2127 Programming in C & Data Structures (Minor Project)	PR 2128	Practical Based on CS -2128 Object Oriented Programming using C++ and Java
PR 2113	Practical Based on CS 2113 and CS 2114 Linux and RDBMS (SQL Server / Oracle / My SQL) (Minor Project)	PR 2129	Practical based on CS 2129 and CS 2130 Artificial Intelligence and Soft Computing & Web Development ad Python Programming

SEMESTER - III		SEMESTER - IV	
CS 2120	Interactive Computer Graphics	CS 2125	**Project Work**
CS 2131	Theory of computations and Formal Languages		The Project period will of 16 to 20 weeks duration. The project will involve development of applications / system software in industries, commercial or scientific environment. It will carry 400 marks
CS 2132	Advance JAVA for web and Enterprise Applications		
CS 2123	Mobile Communication and Application Development		
CS 2117	Software Engineering and Project Management		
PR 2120	Practical based on CS 2120 and CS 2123 Interactive Computer Graphics and Mobile Communication and Application Development		
PR 2132	Practical based on CS 2132 Advance JAVA for Web and Enterprise Applications		

M.Sc. Computer Science (Specialization in Data Science) under the framework of Hons. School System

SEMESTER-I		SEMESTER-II	
MDS 2401	Principles of Data Science	MDS 2408	Analysis and Design of Algorithms
MDS 2402	Programming in Python	MDS 2409	Statistical methods for Data Science
MDS 2403	Advance Database Systems	MDS 2410	Data Mining and Artificial Intelligence
MDS 2404	Operating System with Linux	MDS 2411	Big Data Analytics
MDS 2405	Minor project based on MDS 2402	MDS 2412	Minor project based on MDS 2409
MDS 2406	Minor project based on MDS 2403	MDS 2413	Minor project based on MDS 2410
MDS 2407	Minor project based on MDS 2404	MDS 2414	Minor project based on MDS 2411

SEMESTER-III		SEMESTER-IV	
MDS 2415	Data Visualization	MDS 2421	Major Project
MDS 2416	Machine Learning – Tools and Techniques	MDS 2422	Seminar (based on MDS 2421)
MDS 2417	Software Project Management		
MDS 2418	Research Methods and Ethics in Data Science		
MDS 2419	Minor project based on MDS 2415		
MDS 2420	Minor project based on MDS 2416		

THRUST AREAS: Distributed Artificial Intelligence, Educational Technologies, Computer Graphics, Semantic Web Applications, Software Engineering, Open Source Software, Pattern Recognition, Image Processing and Computer Network/Security.

PLACEMENT: Campus placements of MCA and M.Sc. Computer Science (Specialisation in Data Science) under the framework of Hons. School System students have been very good for the last many years evidencing that the MCA/M.Sc. (Computer Science) under the framework of Hons. School system Curriculum, teaching infrastructure and its environment have been of great importance to the students and highly relevant to the Industry. Various computer companies such as Infosys, Edifecs, and many other reputed companies visit the department on a regular basis for placement, thereby helping in development of Human Resource in the field of ICT.

ALUMNI RELATIONS: A large number of our Alumni are holding key positions in industry, commerce and public life in India as well as abroad.

DEPARTMENT OF ENVIRONMENT STUDIES

ABOUT THE DEPARTMENT

In addition to teaching, research on current environmental issues of local, national and global importance remains the major thrust areas of the Department of Environment Studies. The department also undertakes consultancy on environmental issues through the University. The research conducted by the department has been credited with various national and international awards. The department also serves as the nucleus for co-ordination and implementation of compulsory course on Environment Education for Under Graduate classes of Panjab University and its affiliated colleges. The department has suitably developed the laboratory facilities with many sophisticated analytical equipment's including UV-VIS Spectrophotometer, HPLC, (High Performance Liquid Chromatography) Flame Photometer, COD-BOD assembly for teaching, demonstration and research purposes. The department has a well-equipped Cyberart and a Library with latest books and reading material in the field of Environment. The classrooms are equipped with LED Projector for teaching and imparting instructions to the students. Students are encouraged to use these aids for their seminars / project presentations. The students are regularly exposed to various aspects of industry requiring environmental attention, along with educational trips to the related production units and research institutions.

FACULTY

Designation	Name	Field of Research Specialization
Professors	Harminder Pal Singh **(Chairperson)**	Biotic Environment
	Suman Mor	Environment, Sanitation, Health
	Madhuri Rishi	Earth & Atmospheric Science
Associate Professor	Rajeev Kumar	Physical Environment

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility *	Admission Criteria
M.Sc.	20+3 NRI+5 Foreign National	2 Years	Bachelor's Degree with minimum 50% marks in aggregate from Environment Studies, Botany, Zoology, Geology Anthropology and Biological Sciences, as one other the subjects from P.U or nay other recognized University,	Based on PUCET (PG) Academics: 50% P.U.CET(PG):50%
Ph. D	Subject to availability	3-6 Years	See Ph.D. prospectus 2026	
*5% concession is admissible in eligibility marks to SC/ST/BC/PWD Candidates				

Noted: i The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. EVS as per seats, eligibility and admission criteria specified in the table above.

(ii) Allocation to the Research-Related courses in the Second Year shall be determined based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Environment Studies after completion of the First Year. At least 20% of the total strength of students admitted in the First Year shall be considered for allocating these Research-based courses. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Two-Year Programme) degree.

TITLE OF SYLLABI: Detailed syllabi available at https://puchd.ac.in/syllabus.php

M.Sc.

SEMESTER-I			SEMESTER-II		
Paper-I	ENV 6101	Environment Geoscience	Paper-I	ENV 6101	Biodiversity and conservation
Paper-2	ENV 6102	Ecological Principals	Paper-2	ENV 6102	Environmental analysis: Techniques and Instrumentation
Paper-3	ENV 6103	Environmental chemistry & toxicology	Paper-3	ENV 6103	Environmental pollution
Paper-4	ENV 6104	Solid Waste Management and Techniques	Paper-4	ENV 6104	Environmental awareness, Impact Assessment and auditing

SEMESTER-III			SEMESTER-IV		
Paper-I	ENV 6301	Environmental Technology	Paper-I	ENV 6401	Statistical application and research Methodology
Paper-2	ENV 6302	Major Environmental Issues	Paper-2	ENV 6402	Environmental Biotechnology
Paper-3	ENV 6303	Environment and Energy Management	Paper-3	ENV 6403	Remote sensing and GIS in Environmental Studies
Paper-4	ENV 6304	Industrial and biomedical waste management	Paper-4	ENV 6404	Training of at least 4 weeks, project report presentation

THRUST AREAS: Environment Pollution Monitoring & Remediation; Assessment of Biodiversity with special reference to Invasive Plants; Bio-prospecting of Medical and Aromatic Plants; Evaluation of Natural Plant Products as Novel Agrochemicals; Eco-toxicological Impacts of Heavy metals; Rain Water Harvesting and Groundwater Pollution; Management of Solid Waste; Wastewater treatment.

PLACEMENTS: The pass outs from the department are well placed in various Educational / Research Institutions and Industrial Establishments.

ALUMNI RELATIONS: The department has recently constituted an association of the alumni. The department envisages holding at least one Alumni meet every year so as to strengthen the linkage and bondage of the Alumni and the Department.

DEPARTMENT OF GEOLOGY

ABOUT THE DEPARTMENT

Established in 1958 by Late M.R. Sahni, the department was upgraded to the status of Centre of Advanced Study in 1963-64 in Himalayan Geology and Palaeontology. In1986, it received COSIST Grants for improvement in infrastructure facilities in the Thrust areas of Geochemistry and Exploration Geology. In recent years of research and teaching besides Palaeontology, Petrology, Environmental Geology and Hydrogeology were included as additional thrust areas. The Department has been allocated Rs.90.00 lacs under the FIST Programme of the DST in 2003. In 2012, the department has received Rs.148.00 lacs under CAS (Phase-VII) scheme of the UGC. It is thus the oldest Advanced Centre in the Country under the Special Assistance Programme of the UGC. The Department has a large collection of fossils, rocks and minerals housed in its Museum. The department has 48 (Forty eight) (registered /enrolled) research students on its rolls.

FACULTY

Designation	**Name**	**Field of Research Specialization**
Honorary Professor	O.N. Bhargava	Himalayan Geology
Professors Emeritus	Ashok Sahni	Vertebrate Palaeontology & Biomineralisation
Professors	Rajeev Patnaik	Vertebrate Palaeontology
	Ashu Khosla	Palaeontology, Vertebrate, Micropalaeontology, Sedimentology & Palaeobiogeography
	Parampreet Kaur **(Chairperson)**	Petrology, Isotope Geochemistry & Geochronology
	Gurmeet Kaur	Petrology, Mineralogy, Geochemistry & Hydrogeochemistry
Associate Professors	B.P. Singh	Palaeontology & Stratigraphy
Assistant Professors	Seema Singh	Sedimentology & Applied Geology
	Mahesh Thakur	Geophysics
	Debabrata Das	Groundwater Hydrology
UGC Assistant Professor	Susanta Paikaray	Environmental Geochemistry

COURSES OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission Criteria**
B.Sc.(Hons.) in Geology as per NEP 2020 under The framework of Honours School System	30+4 NRI + 8 Foreign National	4 Years	Candidate should have passed 10+2 examination with at least 50% marks with English, Physics, Chemistry, Maths/Biology	Admission based on Academics : 25% P.U.CET(UG) : 75%
M.Sc. with Research/ M.Sc	5 + 4 NRI + 8 Foreign National	2 Years	i) Passed the B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. ii) The candidate must have studied Geology as major discipline OR one of the major disciplines / subjects, OR a minor / additional course with atleast 24 credits under NEP-2020 OR Generic Elective (GE) / Additional course under CBCS system in the B.Sc. degree	Based on PU-CET (PG) Academics : 40% PU-CET (PG) 60%
Ph.D.	Subject to availability	3-6 Years	See Ph.D. Prospectus 2026	

*5% Concession is admissible in eligibility marks to SC/ST/BC/PwD candidates

*** The total no. of seats may vary depending on how many students of B.Sc. (Hons.) Geology after completing 3 years course under the

Honours School System in Geology (NEP – 2020) directly seek admission in B.Sc. (Hons.) (Four Year Programme) Geology.
Note: The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. (Hons.) Res. and M.Sc. (Hons.) as per seats, eligibility and admission criteria specified in the table above.
(ii) Allocation to the Research-Related courses in the Second Year shall be determined based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Geology after completion of the First Year. At least 20% of the total strength of students admitted in the First Year shall be considered for allocating these Research-based courses. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Hons.) Res. (Two-Year Programme) degree. Those who are not eligible for the Research-based courses shall complete the Second Year with the prescribed Course work only and will be awarded the M.Sc. (Hons.) Degree.

TITLES OF SYLLABI: (Detailed syllabi available at https://puchd.ac.in/syllabus.php)

B.Sc. (Hons.) in Geology as per NEP under the framework of Honours School System

SEMESTER-I		**SEMESTER-II**	
GEO DSC 1	Earth System Science	GEO DSC -2	Mineral Science
GEO DSC 1P		GEO DSC 2P	
GEO M1	Essentials of Geology	GEO M 2	Minerals and Rocks
GEO M1P		GEO M 2P	
GEO IDC	Soil Science	GEO IDC	Soil Science
GEO IDC P		GEO IDC P	
AECC 1	Language	AECC-2	Language
AEC-1	MIL (Modern Indian Languages)	AEC-2	MIL (Modern Indian langugages)
GEO SEC 1	Fundamentals of Hydrogeology	GEO-SEC-2	Fundamental of Remote Sensing & GIS
GEO SEC 1P		GEO SEC -2P	
VAC 1	Value Added Course	VAC-2	Value Added Course

SEMESTER-III		**SEMESTER-IV**	
GEO DSC 3	Structural Geology	GEO DSC 5	Igneous Petrology
GEO DSC 3P		GEO DSC 4P	
GEO DSC 4	Elements of Geochemistry	GEO DSC 6	Sedimentary Petrology
GEO DSC 4P		GEO DSC 4P	
GEO M 3	Fossil and their application	GEO DSC 7	Palaeontology
GEO M 3P		GEO DSC 7P	
GEO IDC	Soil Science	GEO-M-4	Structural Geology
GEO IDC P		GEO-M-4P	
GEO SEC 3	Field Work		

SEMESTER-V		**SEMESTER-VI**	
GEO-DSC- 8	Metamorphic Petrology	GEO-DSC- 11	Economic Geology
GEO-DSC- 8P		GEO-DSC- 11P	
GEO-DSC- 9	Stratigraphic Principles & Indian Stratigraphy	GEO-DSC- 12	Engineering Geology & Geophysics
GEO-DSC- 9P		GEO-DSC- 12P	
GEO-DSC- 10	Geomorphology	GEO-DSC- 13	Isotope Geology
GEO-DSC- 10P		GEO-DSC- 13P	
GEO-M- 5	Fundamentals of Remote Sensing & GIS Applications	GEO-M- 6	Environmental Geology
GEO-M- 5P		GEO-M- 6P	
GEO-VAC- 3	Fundamentals of Mining Geology	GEO-INT- 1	Internship: Field work/Lab work/Data Handing

SEMESTER-VII (with Course Work)		**SEMESTER-VIII (with Course Work)**	
GEO-DSC- 14	Crustal Evolution	GEO-DSC- 17	Vertebrate Evolution
GEO-DSC- 14 P		GEO-DSC- 17 P	
GEO-DSC- 15	Climate Science	GEO-DSC- 18	Himalayan Geology
GEO-DSC- 16	Neotectonics and Earthquake	GEO-DSC- 19	Geological Field Work
GEO-DSC- 20A	Micropaleontology	GEO-DSC- 20B	Sedimentology
GEO-DSC- 20A P		GEO-DSC- 20B P	
GEO-M-7	Earth Climate System and Life Evolution	GEO-M-8	Fuel & Mining Geology
Research Project		Research Project	

1st Year Course Structure, M.Sc. (Hons.) in Geology (One Year Programme) under the Frame Work of Honours School System of Panjab University & in accordance with NEP-2020 (Those who are opting for with course work) (2026-2027)

SEMESTER I (Credits = 20, Marks = 500)		**SEMESTER II (Credits = 20, Marks = 500)**	
GEO-PG-DSC-101	Crustal Evolution	GEO-PG-DSC-201	Vertebrate Evolution
GEO- PG-DSC- 102	Micropalaeontology	GEO- PG-DSC- 202	Sedimentology
GEO- PG-DSC- 103 (Practical)	Crustal Evolution and Micropalaeontology	GEO- PG-DSC-203 (Practical)	Vertebrate Evolution and Sedimentology
GEO-PG-DSE- 104	Neotectonics and Earthquakes	GEO-PG-DSE- 204	Exploration Geology and Critical Mineral Resources

GEO-PG-DSE- 105	Climate Science	GEO-PG-DSE- 205	Himalayan Geology

1stYear Course Structure, M.Sc. (Hons.) in Geology (One Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for course with Research) (2026-2027)

SEMESTER I (Credits = 20, Marks = 500)		**SEMESTER II (Credits = 20, Marks = 500)**	
GEO-PG-DSC-101	Economic Geology	GEO-PG-DSC-201	Structural Geology
GEO- PG-DSC- 102	Advanced Exploration Geophysics	GEO- PG-DSE- 202	Environmental Geology
GEO- PG-DSE- 103	Petroleum Geology	GEO- PG-RBC- 203	Research and Publication Ethics
GEO-PG-RBC- 104	Research Methodology		Thesis Research Work
	Synopsis of Proposed Research Work		

2ndYear Course Structure, M.Sc. (Hons.) in Geology (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for course with Research work) (2026-2028)

SEMESTER I (Credits = 20, Marks = 500)		**SEMESTER II (Credits = 20, Marks = 500)**	
GEO-PG-DSC-101	Crustal Evolution	GEO-PG-DSC-201	Vertebrate Evolution
GEO- PG-DSC- 102	Micropalaeontology	GEO- PG-DSC- 202	Sedimentology
GEO- PG-DSC- 103 (Practical)	Crustal Evolution and Micropalaeontology	GEO- PG-DSC- 203 (Practical)	Vertebrate Evolution and Sedimentology
GEO-PG-DSE- 104	Neotectonics and Earthquakes	GEO-PG-DSE- 204	Exploration Geology and Critical Mineral Resources
GEO-PG-DSE- 105	Climate Science	GEO-PG-DSE- 205	Himalayan Geology

SEMESTER-III		**SEMESTER-IV**	
GEO-PG-DSC-301	Economic Geology	GEO-PG-DSC-401	Structural Geology
GEO- PG-DSC- 302	Advanced Exploration Geophysics	GEO- PG-DSE- 402	Environmental Geology
GEO- PG-DSE- 303	Petroleum Geology	GEO- PG-RBC- 403	Research and Publication Ethics
GEO-PG-RBC- 304	Research Methodology		Thesis Research Work
	Synopsis of Proposed Research Work		

2ndYear Course Structure, M.Sc. (Hons.) in Geology (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for with course work) (2026-2028)

SEMESTER I (Credits = 20, Marks = 500)		**SEMESTER II (Credits = 20, Marks = 500)**	
GEO-PG-DSC-101	Crustal Evolution	GEO-PG-DSC-201	Vertebrate Evolution
GEO- PG-DSC- 102	Micropalaeontology	GEO- PG-DSC- 202	Sedimentology
GEO- PG-DSC- 103 (Practical)	Crustal Evolution and Micropalaeontology	GEO- PG-DSC- 203 (Practical)	Vertebrate Evolution and Sedimentology
GEO-PG-DSE- 104	Neotectonics and Earthquakes	GEO-PG-DSE- 204	Exploration Geology and Critical Mineral Resources
GEO-PG-DSE- 105	Climate Science	GEO-PG- DSE- 205	Himalayan Geology

SEMESTER III (Credits = 20, Marks = 500)		**SEMESTER IV (Credits = 20, Marks = 500)**	
GEO-PG-DSC-301	Economic Geology	GEO-PG-DSC-301	Structural Geology
GEO- PG-DSC- 302	Advanced Exploration Geophysics	GEO- PG-DSC- 302	Advanced Groundwater Hydrology
GEO- PG-DSC- 303 (Practical)	Economic Geology and Advanced Exploration Geophysics	GEO- PG-DSC- 303 (Practical)	Structural Geology and Advance Groundwater Hydrogeology
GEO-PG-DSE- 304	Petroleum Geology	GEO-PG-DSE- 304	Environmental Geology
GEO-PG-DSE- 305	Archean Geodynamics	GEO-PG-DSE- 305	Geological Field Work

THRUST AREAS: Paleontology & Stratigraphy, Petrology, Hydrogeology & Environmental Geology..
PLACEMENTS: There is a Placement Cell in the department, which co-ordinates with the Central Placement Cell of the University and provides guidance and counseling to the students about the job opportunities in various Companies / Institutes.
ALUMNI RELATIONS: Alumni Association of the Department (PUGAA) often interacts and hold functions for the welfare and fulfillment of the aspirations of the alumni.

DEPARTMENT OF FORENSIC SCIENCE

ABOUT THE INSTITUTE

Vision: "To create an environment for professionalism & excellence in Forensic Science and to train the scientific manpower for serving the criminal justice system."
The Department of Forensic Science (formerly Institute of Forensic Science and Criminology), Panjab University, Chandigarh, was established in 2009 with the mission of developing trained manpower in Forensic Science and strengthening the criminal justice system: a need that has grown increasingly critical in view of the escalating crime rate and the evolving nature of crime,

both in India and globally.The Department was conceived with a dual mandate: training human resources in Forensic Science and conducting cutting-edge research through the application of advanced scientific techniques to forensic disciplines. Scientific methods from virtually every field of natural science are finding ever-expanding applications in crime investigation, evidence analysis, and the establishment of proof before courts of law. The nation needs well-trained experts in these forensic techniques to build a robust, science-driven judicial and investigative system.In alignment with the National Education Policy (NEP) 2020, the Department currently offers B.Sc. (Honours) and M.Sc. (Honours) programmes in Forensic Science, along with a Ph.D. research programme. The undergraduate programme equips students with foundational and applied skills to use the latest scientific techniques in crime investigation. The postgraduate programme deepens specialisation and analytical competence, while the Ph.D. programme is designed to generate new knowledge and to explore, develop, and validate novel scientific techniques for forensic applications. Together, these programmes create a pipeline of scientific workforce at every level, meeting the demand for highly trained forensic professionals in the country.What makes the Department truly distinctive is its comprehensive and multidisciplinary approach: it provides instructions across all major aspects of Forensic Science, with structured specialisations in Forensic Biology, Forensic Chemistry, and Forensic Physics. This breadth of coverage, combined with a strong research orientation and NEP 2020-aligned curriculum, positions the Department as one of the leading centres for forensic science education and research.

The Department remains firmly committed to producing a scientific workforce capable of serving society in an effective, ethical, and efficient manner — contributing to justice, public safety, and the advancement of forensic science.

FACULTY

Designation	**Name**	**Field of Research Specialization**
Professor	Shweta Sharma	Colloidal Chemistry, Electrochemical Sensors, Solid Phase Microextraction (SPME), Forensic Toxicology, Drug-Drug Interaction, Documents examination, photocatalysis
	Vishal Sharma	Trace Evidence analysis, Instrumentation, Forensic Analytical Chemistry, Sensors, Chemometrics, Machine Learning, Voice & Image Forensics, Questioned documents
Associate Professor	Jagdish Rai **(Chairperson)**	DNA Sequencing, Protein Science

COURSES OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission criteria**
B.Sc. (Hons)	30 + 3 NRI + 8 Foreign National	4 Years	Should have passed 10+2 examination with at least 50% marks (45% marks in case of SC/ST) with English, Physics, Chemistry, Mathematics / Biology from recognized Board /CBSE.	Based on PU-CET (UG) Common Entrance Test conducted by the Panjab University Academics: 25% PU-CET (UG): 75%
M.Sc. (Hons)	19+2NRI+1** +5 Foreign National	2 years	B.Sc. / B.Sc. (Hons) degree in Forensic Science or any other Graduation Degree with 3/4/5 year duration with minimum 50% marks in the faculty of Science / Engineering / Medical / Dental and Pharmaceutical Science of Panjab University or any other University recognized University	Based on PU-CET (PG): Academics: 50% PU-CET (PG):50%
Ph.D.	Subject to availability	3-6 years	See Ph.D. prospectus 2026	

* 5% Concession is admissible in eligibility marks to SC/ST/BC/PwD Candidates

**Seats reserved for in–service candidates from Government Organization. In case of non – availability of in–service candidate, the seat will be converted into General Category

TITLES OF SYLLABI: (Detailed syllabus available at https://puchd.ac.in/syllabus.php)

B.Sc. (Hons.) in Forensic Science as per NEP 2020 under the framework of Honours School System

SEMESTER-I			**SEMESTER-II**		
(i)	BFS-DSC-1	Introduction to Forensic Science	(i)	BFS-DSC-2	Analytical Techniques-I
(ii)	BFS-SEC-1	Physics-I	(ii)	BFS-SEC-2	Criminal Law & Forensic Psychology
(iii)	BFS-M-1	Chemistry-I	(iii)	BFS-M-2	Biology-I
(iv)	BFS-IDC	General Forensic Science	(iv)	BFS-IDC	General Forensic Science
(v)	BFS-VAC	VAC From Common Basket	(v)	BFS-VAC	VAC From Common Basket
(vi)	ENG-AEC-1	English	(vi)	ENG-AEC-3	English
(vii)	PUN-AEC-2/ HIN-AEC-2/ URD-AEC-2	MIL (Modern Indian Languages)	(vii)	PUN-AEC-4/ HIN-AEC-4/ URD-AEC-4	MIL (Modern Indian Languages)
SEMESTER-III			**SEMESTER-IV**		
(i)	BFS-DSC-3	Dactyloscopy	(i)	BFS-DSC-5	Physics-III
(ii)	BFS-DSC-4	Quality Assurance & Ethics in Forensics	(ii)	BFS-DSC-6	Forensic Toxicology
(iii)	BFS-SEC-3	Physics-II	(iii)	BFS-DSC-7	Biology-III
(iv)	BFS-M-3	Biology-II	(iv)	BFS-M-4	Chemistry-II
(v)	BFS–IDC-3	General Forensic Science			
SEMESTER-V			**SEMESTER-VI**		
(i)	BFS-DSC-8	Questioned Documents	(i)	BFS-DSC-11	Forensic Chemistry

(ii)	BFS -DSC-9	Forensic Genomics & DNA Profiling	(ii)	BFS-DSC-12	Human Genetics & Molecular Biology
(iii)	BFS -DSC-10	Chemistry-III	(iii)	BFS-DSC-13	Forensic Physics
(iv)	BFS-M-5	Forensic Biology	(iv)	BFS-M-6	Forensic Anthropology, Osteology & Odontology
(v)	BFS –VAC-3	From the Common Basket	(v)	INT-1	Internship
SEMESTER-VII			**SEMESTER-VIII**		
(i)	BFS-DSC-14	Ballistics	(i)	BFS-DSC-17	Forensic Explosives
(ii)	BFS-DSC-15	Analytical Techniques-II	(ii)	BFS-DSC-18	Forensic Audio-Video Analysis
(iii)	BFS-DSC-16	MOOCs	(iii)	BFS-DSC-19	Drugs of Abuse
(iv)	BFS-M-7	Crime Scene & Forensic Evidence	(iv)	BFS-M-8	Digital Forensics & Cyber Security
(v)	BFS-DSC-20A	Photography & AI in Forensics	(v)	BFS-DSC-20B	MOOCs
(vi)	PROJECT PROPOSAL	Research Project	(vi)	Dissertation	Research Project

M.Sc. (Hons.) in Forensic Science as per NEP 2020 under the framework of Honours School System

SEMESTER-I			**SEMESTER-II**		
(i)	PG-DSC-101	General Forensic and Fingerprint Science	(i)	PG-DSC-201	Biology and Biochemistry
(ii)	PG-DSC-102	Human Genetics	(ii)	PG-DSC-202	Forensic Chemistry
(iii)	PG-DSC-103	Instrumentation	(iii)	PG-DSC-203	Forensic Physics
(iv)	PG-DSE-104	Criminology, Criminal Law and Forensic Psychology	(iv)	PG-DSE-204	Quality Management and Statistics
(v)	PG-DSE-105	Crime file/Scrap File	(v)	PG-DSE-205	MOOC
SEMESTER-III					**SEMESTER-IV**
(i)	PG-DSC-301	Forensic Toxicology and Drugs of Abuse	(i)	PG-DSC-401	Questioned Documents
(ii)	PG-DSC-302	Ballistics	(ii)	PG-DSE-402(P)/ PG-DSE-402(C)/ PG-DSE-402(B)	Forensic Audio Video Analysis / Forensic Explosives / DNA Technology and Forensic Identification
(iii)	PG-DSE-303	Forensic Biology	(iii)	RM-403	Digital Forensic and Cyber Security
(iv)	RM-304	Forensic Anthropology, Osteology and Odontology	(iv)	Thesis Research work	Thesis Research work
(v)	Synopsis of Research work	Synopsis of Research work			

THRUST AREAS: Fingerprint detection using nanoparticles, Analytical techniques for Questioned Document examination, Forensic Toxicology, Extraction of questioned analyte, Drug-drug interactions, Developing drug sensors, SPME techniques for analyte extraction, DNA Forensics & Voice & Image Forensics.

PLACEMENTS: The placement cell of the department endeavors to offer placement services to the students. The students are informed of various opportunities. There is enough scope for career growth in government and Private Sector in India and abroad. The main employment generating areas of students of forensic sciences in government sector are Law enforcing agenesis such as NIA (National Investigation Agency), CBI (Center Bureau of Investigation), IB (Intelligence Bureau), central/state police departments, CFSL (Centre Forensic Science Laboratory), SFSL (State Forensic Science Laboratory), Hospitals, Banks, Universities Defense/Army, Quality Control Bureau, Narcotics Department, judicial services, forest and wild life departments etc; and in the private, sectors are security agencies, Banks, multinationals, Detective Agencies, Media, Insurance Companies consultants in industry & free-lance consultants/private practitioner, Law Firms and Hospitals etc.

ALUMNI RELATIONS: The department remains in touch with old students by inviting them in lectures and get-togethers/Annual Function where they share their experience. Our alumni are working as Scientist B, Scientific Assistant, Scientific Officers, Senior Scientific Officers, Assistant Director in various State as well as Central Forensic Science laboratories. Many alumni are also working as Assistant Professor in Central & State Universties. Many students are employed in private as well as government organisation abroad. Some of them have established themselves as independent forensic experts and entrepreneurs in the private sector.

DEPARTMENT OF MATHEMATICS
(CENTRE FOR ADVANCED STUDY IN MATHEMATICS)

ABOUT THE DEPARTMENT

The Department was established in 1952 at Hoshiarpur and was set up at Chandigarh in 1958. It is one of the best Departments of Mathematics among Indian universities. It had been recognized as a Centre for Advanced Study in Mathematics by the UGC since 1963, until recently when the UGC discontinued this scheme for all universities. The National Board for Higher Mathematics has granted the status of Regional Library to the Department Library and supports the consortium for online access to MathSciNet, for which the Department is a leading partner. The department has the following faculty.

FACULTY

Designation	Name	Field of Research Specialization
Professor Emeritus	R.J. Hans Gill	Number Theory, Geometry of Numbers, Discrete Geometry
	S.K. Khanduja	Algebraic Number Theory
	A.K. Aggarwal	Number Theory
Professor (CSIR Emeritus)	Madhu Raka	Number Theory, Geometry of Numbers, Algebraic Coding Theory
Professors	S.K. Tomar	Applied Mathematics, Continuum Mechanics
	Savita Bhatnagar	Harmonic Analysis, Real Analysis
	Renu Bajaj	Applied Mathematics, Fluid Dynamics
	Gurmeet Kaur Bakshi	Algebra, Algebric Coding Theory
	Dinesh K. Khurana	Algebra, Ring Theory
Associate Professors	Aarti Khurana	Continuum Mechanics
	Anjana Khurana	Algebra
	Kulbhushan Agnihotri	Mathematical Modelling
	Manisha Sharma	Operational Research
	Suman Bala	Continuum Mechanics
	Surinder Pal Singh Kainth **(Chairperson)**	Real Analysis, Graph Theory
Assistant Professors	Sarita Pippal	Computational Fluid Dynamics
	Kathiravan T.	Number Theory
Assistant Professors (UGC)	Dilbag Singh	Applied Mathematics, Continuum Mechanics
	Gagandeep Singh	Queuing Theory, Stochastic Modeling, Applied Probability

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
B.Sc. (Hons.) Mathematics under the framework of NEP	30+3NRI + 8 Foreign National	4 years	50% marks in 10+2 examination from a recognized Board / CBSE with Mathematics as one of the subjects	Based on PU CET (UG) Academics: 25% PU CET (UG) : 75%
B.Sc. (Hons.) Mathematics & Computing under the framework of NEP	15+2NRI + 4 Foreign National	4 years	50% marks in 10+2 examination from a recognized Board / CBSE with Mathematics as one of the subjects	Based on PU CET (UG) Academics: 25% PU CET (UG) : 75%
M.Sc. with Research / M.Sc	30+5 NRI +8 Foreign National	2 years	i) Passed the B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. ii) The candidate must have studied Mathematics as major discipline OR one of the major disciplines/subjects in all semesters, OR a minor/additional course with at least 24 credits under NEP-2020 OR as a Generic Elective (GE)/Additional course in at least four semesters under CBCS system in the B.Sc. degree	Ongoing class Based on PU CET (PG) Academics: 40% PU CET (PG) : 60%
Ph.D.	Subject to availability	3-6 years	See Ph.D. Prospectus 2026	

*5% Concession is admissible in eligibility marks to SC/ST/BC/PwD candidates
INMO awardees can join B.Sc. (Hons.) Department of Mathematics, without appearing in the PU CET (UG) Entrance Test.
Note**:** The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. (Hons.) Res. and M.Sc. (Hons.) as per seats, eligibility and admission criteria specified in the table above.
(ii) Allocation to the Research-Related courses in the Second Year shall be determined based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Mathematics after completion of the First Year. Only the students with at least 70% of CGPA in the first year of MSc of shall be eligible for allocating Research-based courses. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Hons.) Res. (Two-Year Programme) degree. Those who are not eligible for the Research-based courses shall complete the Second Year with the prescribed Course work only and will be awarded the M.Sc. (Hons.) degree

TITLE OF SYLLABI: Detailed Course Curriculum is available at www.puchd.ac.in

B.Sc. (Hons.) in Mathematics as per NEP 2020 under the framework of Honours School System

SEMESTER-I		SEMESTER-II	
Discipline Specific courses – core	MAT-DSC-101 – Calculus	Discipline Specific courses	MAT DSC 2 – Algebra and ordinary differential equations
Minor course*	MAT-M-1-Calculas	Minor course*	MAT-M-2 Algebra and ordinary Differential equations
Interdisciplinary course*	MAT-IDC-Algebra and Geometry	Interdisciplinary course*	MAT-IDC-Algebra and Geometry

Ability Enhancement course	AEC-1 AEC-2	Ability enhancement course	AEC-3 AEC-4
Skill Enhancement course / internship / Dissertation	MAT-SEC-1 : Discrete mathematics	Skill enhancement course / internship / Dissertation	MAT-SEC-2: working with mathematical softwares
Common Value added course	VAC-1 Environment studies	Common Value added course	VAC-2 Human Rights

SEMESTER-III		**SEMESTER-IV**	
Discipline Specific courses – core	MAT-DSC-3 – Metric spaces	Discipline Specific courses - core	MAT DSC 5 – Linear Algebra
Discipline Specific courses – core	MAT-DSC-4 - Number Theory	Discipline Specific courses – core	MAT DSC 6 – Numerical Analysis
Discipline Specific courses – core	-	Discipline Specific courses – core	MAT DSC 7 – Partial differential equations
Minor course*	MAT-M-3-Partial Differential Equation and Numerical Analysis	Minor course*	MAT-M-4 Number Theory and Group theory
Interdisciplinary course*	MAT-IDC-Algebra and Geometry	Ability Enhancement course	-
Ability Enhancement course	-	Skill Enhancement course / internship / dissertation	-
Skill Enhancement course / Internship/ Dissertation	MAT-SEC-3 – Programming in C		

SEMESTER-V		**SEMESTER-VI**	
Discipline Specific courses-core	MAT-DSC-8-Riemann Integration and Series of Functions	Discipline Specific courses-core	MAT-DSC-11 – Complex Analysis
Discipline Specific courses-core	MAT-DSC-9 Group Theory	Discipline Specific courses-core	MAT-DSC-12 – Rings and Modules
Discipline Specific courses-core	MAT-DSC-10-Multivariate Calculus	Discipline Specific courses-core	MAT-DSC-13-Mechanics
Minor Course*	MAT-M-5-Mathematical Modelling	Minor Course*	MAT-M-6 – Discrete Mathematics
Common Value Added course	VAC-3	Skill Enhancement course / Internship/ Dissertation	**INT-1**
SEMESTER-VII		**SEMESTER-VIII**	
Discipline Specific courses-core	MAT-DSC-14–Topology	Discipline Specific courses- core	MAT-DSC-17–Lebesgue Integration
Discipline Specific courses-core	MAT-DSC-15–Advanced Group Theory	Discipline Specific courses- core	MAT-DSC-18– Field Theory
Discipline Specific courses-core	MAT-DSC-16–Classical Mechanics	Discipline Specific courses- core	MAT-DSC-19-Advacned Differential Equations
Discipline Specific courses-core	MAT-DSC-21–Linear Programing	Discipline Specific courses- core	MAT-DSC-22**–Advanced Complex Analysis
Discipline Specific courses-core	MAT-DSC-20A**–Special Functions and Integral Transformations	Discipline Specific courses- core	MAT-DSC-20B**-Integral Equations and Their Applications
Minor course*	MAT-M-7- Special Functions and Integral Transformations	Minor course*	MAT-M-8-Advanced Calculus

*These minor courses and interdisciplinary course are to be offered to the students of the other Departments. But Mathematics students must choose minor courses and interdisciplinary course from other Departments.

Only those students will be allowed to do BSc with research who will have more than 75% CGPA till 6th semester. As MAT-DSC-20A, they will have a 4 credit Research Project (Project Proposal) in Semester VII and as MAT-DSC-20B and MAT-DSC-22, they will have an 8 credit Research Project (Dissertation) in in Semester VIII.

*** These papers Are meant for those students who are not opting for B.Sc. with Research, either with choice or due to having less than 75% CGPA till 6th Semester

B.Sc. (Hons.) in Mathematics & Computing as per NEP 2020 under the framework of Honours School System

SEMESTER-I		**SEMESTER-II**	
Discipline Specific courses – core	MAC-DSC-1-Calculus	Discipline Specific courses	MAC-DSC-2-Algebra and Ordinary differential equations
Minor course*	-	Minor course*	-
Interdisciplinary course*	-	Interdisciplinary course*	-
Ability Enhancement course	ACE-1 ACE-2	Ability enhancement course	ACE-3 ACE-4
Skill Enhancement course /	MAC-SEC-1-Discrete	Skill enhancement course	MAC-SEC-2-Mechanics

internship / Dissertation	Mathematics	/ internship / Dissertation	
Common Value added course	VAC-1	Common Value added course	VAC-2

SEMESTER-III		**SEMESTER-IV**	
Discipline Specific courses – core	MAC-DSC-3-Metric Spaces	Discipline Specific courses - core	MAC DSC 5 – Linear Algebra
Discipline Specific courses – core	MAC-DSC-4- Programming in C	Discipline Specific courses – core	MAC DSC 6– Numerical Analysis
Discipline Specific courses – core	-	Discipline Specific courses – core	MAC –DSC-7 – Data structures
Minor course*	-	Minor course*	-
Interdisciplinary course*	-	Ability Enhancement course	-
Ability Enhancement course	-	Skill Enhancement course / internship / dissertation	-
Skill Enhancement course / Internship / Dissertation	MAC-SEC-3-Partial differential Equations		
SEMESTER-V		**SEMESTER-VI**	
Discipline Specific courses – core	MAC-DSC-8-Riemann Integration and Series of functions	Discipline Specific courses - core	MAC-DSC-11-Complex Analysis
Discipline Specific courses – core	MAC-DSC-9-Group Theory	Discipline Specific courses – core	MAC DSC 12 – Rings and Modules
Discipline Specific courses – core	MAC-DSC-10-Programming with Python	Discipline Specific courses – core	MAC –DSC-13 – Artificial Intelligence
Minor course*	-	Minor course*	-
Common Value Added Course	VAC-3	Skill Enhancement Course / Internship / Dissertation	INT-1
SEMESTER-VII		**SEMESTER-VIII**	
Discipline Specific courses-core	MAC -DSC-14–Topology	Discipline Specific courses- core	MAC -DSC-17–Lebesgue Integration
Discipline Specific courses-core	MAC -DSC-15–Advanced Group Theory	Discipline Specific courses- core	MAC -DSC-18– Field Theory
Discipline Specific courses-core	MAC -DSC-16–Classical Mechanics	Discipline Specific courses- core	MAC -DSC-19-Advacned Differential Equations
Discipline Specific courses-core	MAC -DSC-21–Linear Programing	Discipline Specific courses- core	MAC -DSC-22–Advanced Complex Analysis
Discipline Specific courses-core	MAC -DSC-20A*–Special Functions and Integral Transformations	Discipline Specific courses- core	MAC -DSC-20B*-Integral Equations and Their Applications

*Minor course and interdisciplinary course must be from two different subjects other than mathematics]

* These minor courses and interdisciplinary course are to be offered to the students of the other departments. But Mathematics students must choose minor courses and interdisciplinary course from other departments

#Only those students will be allowed to do BSc with research who will have more than 75% CGPA till 6th semester. As MAT-DSC-20A, they will have a 4 credit Research Project (Project Proposal) in Semester VII and as MAT-DSC-20B and MAT-DSC-22, they will have an 8 credit Research Project (Dissertation) in in Semester VIII

**These papers are meant for those students who are not opting for B.Sc. with Research, either with choice or due to having less than 75% CGPA till 6th Semester. Students who are eligible for the Research Project are advised to undertake it in the Computing stream

M.Sc. (Two Year Program) in Mathematics, as per NEP 2020

Semester	Course Code	Name of Course	Credits
I	MAT-PG-DSC-101	Real Analysis	4
	MAT-PG-DSC-102	Advanced Group Theory	4
	MAT-PG-DSC-103	Classical Mechanics	4
	MAT-PG-DSE-104	Linear Programming Problems	4
	MAT-PG-DSE-105	Number Theory	4
II	MAT-PG-DSC-201	Lebesgue Integration	4
	MAT-PG-DSC-202	Rings and Modules	4
	MAT-PG-DSC-203	Complex Analysis	4
	MAT-PG-DSE-204	Advanced Differential Equations	4
	MAT-PG-DSE-205	Integral Equations and their Applications	4

The M. Sc. (Mathematics) programme under the framework of the Honours School System is a two-year course divided into four semesters with a total of 80 credits. A student is required to complete 80 credits for the completion of the course and the award of the degree. The following are the degrees and diploma under the Postgraduate Programmes

1. M.Sc. (Hons.) Res. (Two-Year Programme) under the Honours School System – on completion of Two-Year Programme with Research work and Course work.
2. M.Sc. (Hons.) (Two-Year Programme) under the Honours School System – on completion of the Two-Year Programme with Course Work.

3. PG Diploma under the Honours School System – on opting to exit after completion of the First year of M.Sc. Two-Year Programme under the Honours School System.

M.Sc. (Two Year Program) in Mathematics, for ongoing batch as per CBCS (each paper is of 4 credits)

SEMESTER III		SEMESTER IV	
Core Course XI	MAT MC16-Non-Commutative Ring Theory OR MAT MC17-Linear Algebra and Commutative Algebra-I	Core Course XIV	MAT MC21-Representation Theory of Finite Groups OR MAT MC22-Commutative Algebra-II
Core Course XII	MAT MC18-General Measure Theory OR MAT MC19–Topology	Core Course XV	MAT MC23-Functional Analysis
Core Course XIII	MAT MC20-Partial Differential Equations		
The students who have studied MAT MC1 and MAT MC9 in Semesters I & II will have to take MAT MC16 & MAT MC18 in Semester III. Similarly, the students who have studied MAT MC2 and MAT MC10 in Semesters I & II will have to take MAT MC17 & MAT MC19 in Semester III		The students who have studied MAT MC16 in Semesters III will have to take MAT MC 21 in Semester IV. Similarly, the students who have studied MAT MC17 in Semesters III will have to take MAT MC22 in Semester IV.	
Discipline Specific Elective Courses (Students have to choose one or two out of following depending upon their background)		Discipline Specific Elective Courses (Students have to choose two or three out of following depending upon their background)	
MAT MDSE 1	Computational Techniques-I	MAT MDSE 1*	Computational Techniques-I
MAT MDSE 2*	Algebraic Number Theory-I	MAT MDSE 2*	Algebraic Number Theory-I
MAT MDSE 3	Algebraic Coding Theory-I	MAT MDSE 3*	Algebraic Coding Theory-I
MAT MDSE 4	Complex Analysis – II	MAT MDSE 4	Complex Analysis-II
MAT MDSE 5	Fluid Mechanics-I	MAT MDSE 5*	Fluid Mechanics-I
MAT MDSE 6	Non Linear Programming	MAT MDSE 6*	Non Linear Programming
MAT MDSE 7	Mathematical Statistics	MAT MDSE 7*	Mathematical Statistics
MAT MDSE 8	Mechanics of Solids-I	MAT MDSE 8*	Mechanics of Solids-I
MAT MDSE 9	Numerical Methods for Differential Equations	MAT MDSE 9*	Numerical Methods for Differential Equations
MAT MDSE 16	Topics in Integration Theory	MAT MDSE 10	Computational Techniques II
MAT MDSE 17	Stochastic Processes	MAT MDSE 11	Algebraic Number Theory-I
MAT MDSE 18	Stochastic Calculus	MAT MDSE 12	Algebraic Coding Theory-II
MAT MDSE19**	Number theory-II	MAT MDSE 13	Fluid Mechanics-II
MAT MDSE 20	Integral Equation and Applications	MAT MDSE 14	Mechanics of Solids II
		MAT MDSE 15	Partial Differential Equations II
		MAT MDSE 16*	Topics in Integration Theory
		MAT MDSE 17*	Stochastic Processes
		MAT MDSE 18*	Stochastic Calculus
		MAT MDSE 19	Number Theory-II
		MAT MDSE 20*	Integral Equation and Applications
			*Will Be Offered If Not Run In Semester-III

SKILL ENHANCEMENT COURSES		SKILL ENHANCEMENT COURSES	
If a student has opted for only one Discipline specific elective course, then he/she may choose one of the following (depending upon the background)		If a student has opted for only one Discipline specific elective course, then he/she may choose one of the following (depending upon the background)	
MAT MSEC 1	Set theory	MAT MSEC 1*	Set theory
MAT MSEC 2	Network Analysis	MAT MSEC 2*	Network Analysis
		MAT MSEC 3	Advanced Optimization Techniques
			* Will if offered if not run in Semester III

THRUST AREA: Algebra, Continuum Mechanics, Analysis, Optimization.
PLACEMENTS: Our students are placed in teaching jobs in Government/private educational institutions.
ALUMNI RELATIONS: We invite our distinguished alumni at every academic function in the department. They deliver motivating lectures to the Students / Faculty.

DEPARTMENT OF MICROBIOLOGY

ABOUT THE DEPARTMENT

The department is one of the oldest and pioneer departments of Microbiology. The department has made a remarkable progress in teaching and research since its establishment and has been recognized for research nationally and internationally. It has been implementing various schemes and R & D Projects by various govt. agencies like Department of Biotechnology (DBT), Dept. of Science and Technology (DST-PURSE, University Grants Commission), other Funding Agencies including Council of Scientific and Industrial Research (CSIR), Indian Council for Medical Research (ICMR), Chandigarh Council of Science and Technology (CCST), Department of Health Research, Govt. of India etc.

Research facilities: The Department has excelled in Medical and Industrial Research and owes the faculty with expertise in almost all the branches of Microbiology like Immunology, Diagnostic Reproductive Biology, Phage Therapy, Microbial Biosensors, Quorum Sensing, Molecular Biology, Food Microbiology, Fermentation Technology, Microbial Diversity and

Metabolites, Environmental Microbiology, Enzymes and their Applications etc. The graduates from this department are already employed in various National/International academic, premier research and industrial organizations and International Universities. The department has good modern teaching and research infrastructure.

Collaborations: Besides intradepartmental collaborations, the department does have collaborations with PGIMER (CHD), CSIR-IMTECH (CHD), PEC(CHD), CSIR-IHBT (Palampur). The faculty of the department has been conferred awards/recognition at various platforms nationally. The vision of the department is to explore Microbial diversity in Health, Industry and Environment with the mission to use Microbiology in the Service of Society.

Major research facilities available in the Department: In 2014, the department has shifted to new building in South Campus of the university situated in Sector-25, Chandigarh. The new building has the world class infrastructure and well established departmental Instrumentation Facility. The major equipment available in the department include UV-Visible Spectrophotometers, Ultra Centrifuge, Refrigerated Centrifuge, Ultra Deep Freezer, Orbital Shakers, Water Bath Shakers, Protein Purification System with fraction collector, electrophoresis equipment, BOD Incubators, Gas chromatograph, laboratory fermenter, Fluroscent Microscope, Sonicator, Trans-illuminator, CO_2 incubators, Micro Centrifuge, Cold Room, Real Time PCR Machine, Electro-evaporator, ELISA Reader, Lyophilizer, Milipore Water Purification System etc. The Department of Biotechnology, Govt. of India, New Delhi has selected this Department for assistance for enhancement of research and teaching in the field of Microbial Biotechnology. UGC has selected the department for Special Assistance Programme (SAP).

FACULTY

Particular	**Name**	**Field of research Specialization**
Professor Emeritus	K. G. Gupta	Applied Microbiology
	J. K. Gupta	Industrial Microbiology
Professors	Prince Sharma	Molecular Microbiology
	Naveen Gupta	Industrial & Molecular Microbiology
	(Chairperson)	Industrial, Environment & Molecular Microbiology
	Deepak Kumar Rahi	Industrial Microbiology & Applied Mycology
Assistant Professors	Khem Raj	Medical Microbiology
	Seema Kumari	Virology
	Harleen Kaur	Fermentation & Nanobiotechnology

COURSES OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission**
B. Sc. (Hons.) under the NEP 2020	30+4NRI+ 8 Foreign National	4 years	50% marks in 10+2 with English, Physics, Chemistry, Maths, Biology, Biotechnology	Admission based on P.U. CET-(U.G.) **Academics:** 25% **PU-CET(UG):**75%
M. Sc. Microbiology under the framework of Honours School System	30 + 4 NRI + 8 Foreign National	2 years	Ongoing students must have cleared B. Sc. (Hons.)	Ongoing Classes
M.Sc with Research /M.Sc	10+1NRI+3 Foreign National	2 years	1. B.Sc. (3-Year) Microbiology with at least 50% marks in Academics under FYUP framework (NEP 2020) from PU Chandigarh or equivalent examination from a UGC recognized Indian/Foreign University or Institution. 2. Earned minimum of 24 credits in Microbiology as a Minor course in the complete B.Sc. program. Candidate who has taken additional Microbiology courses at B.Sc. level to meet this condition shall also be eligible. 3. B.Sc. or B.Sc. (Hons.) Microbiology under the CBCS with at least 50% marks from PU Chandigarh or equivalent examination from UGC recognized Indian/Foreign University/Institution. The major discipline must be one of the major disciplines/subjects of B.Sc. must be Microbiology. 4. B.Sc. (Hons.) or B.Sc. Microbiology with at least 50% marks under 10+2+3 system of education from PU Chandigarh or equivalent examination from UGC recognized Indian/ Foreign University/ Institution. Candidate must have studied Microbiology in all Semester	PU-CET (PG) Entrance Test **Academics:** 40 % **PU-CET(PG):** 60%
Ph.D	Subject to availability	3-6 years	See Ph.D Prospectus 2026	
*5% Concession is admissible in eligibility marks to SC/ST/BC/PwD Candidates				

TITLES OF SYLLABI: Detailed syllabus available at www.puchd.ac.in/syllabus.php

COURSE STRUCTURE

Framework of 4 Year B.Sc. (Hons.) Microbiology. 1st Year Programmed (2026-2027) Under NEP-2020

	SEMESTER-I	SEMESTER-II
Discipline Specific Courses -Core	MIC-DSC-1/ Fundamentals of Microbiology (4T+2P Credits)	MIC-DSC-2/ Fundamentals of Applied Microbiology (4T+2P Credits)
#Minor	MIC-M-1/Introduction to General Microbiology(4T+2P Credits)	MIC-M-2/Introduction to Applied Microbiology (4T+2P Credits)
*Inter- disciplinary courses	MIC-IDC/ Microbes for sustainable development (2T+1P Credits)	MIC-IDC-/Microbes for Sustainable Development (2+1 Credits)
Ability Enhancement Courses (language)	AEC-1 (English) / Offline / Online / Blended / MOOC's (2T+0P Credits) AEC-2 (Modern Indian Language) / Offline / Online / Blended/ MOOC's (2T+0P Credits)	AEC-3 (English)/Offline/Online/Blended / MOOC's (2T+0P Credits) AEC-4 (Modern Indian Language) /Offline/ Online/ Blended/MOOC's (2T+0P Credits)
Skill Enhancement courses/ Internship/ Dissertation	MIC-SEC-1/Skills in Microbiology-I (2T+1P Credits)	MIC-SEC-2/Skills in Microbiology-II (2T+1P Credits)
Common Value- Added Courses	VAC-1 (2T+0P Credits)	VAC-2 (2T+0P Credits)

Framework of 4-Year B.Sc. (Hons.) Microbiology. 2nd Year Programme (2026-2027) Under NEP-2020

	Semester-III	Semester-IV
Discipline Specific Courses -Core	MIC-DSC-3 /Mycology (4T+2P Credits) MIC- DSC 4/Virology (4T+2P Credits	MIC- DSC -5/ Molecular Biology and Molecular Genetics (4T+2P Credits) MIC- DSC- 6 / Environmental Microbiology (4T+2P Credits) MIC- DSC -7/Industrial Microbiology (4T+2P Credits)
#Minor	MIC- M-3/Mycology & Virology (4T+2P Credits)	MIC- M-4/ Fundamentals of Molecular Biology and Microbial Genetics (4T+2P Credits)
*Inter- disciplinary courses	MIC-IDC-1 Microbes for sustainable development (2T+1P Credits)	-
Skill Enhancement courses / Internship/ Dissertation	MIC-SEC-3/Microbial Quality Control in Food & Pharmaceutical Industries (2T+1P Credits)	-

Framework of 4-Year B.Sc. (Hons.) Microbiology. 3rd Year Programme (2026-2027) Under NEP-2020

	Semester-V	Semester-VI
Discipline Specific Courses -Core	MIC-DSC-8 / Parasitology (4T+2P Credits) MIC- DSC- 9/ Medical Bacteriology-I (4T+2P Credits) MIC- DSC- 10/ Immunology (4T+2P Credits)	MIC- DSC -11/ Medical Bacteriology-II (4T+2P Credits) MIC- DSC- 12/ Food & Dairy Microbiology (4T+2P Credits) MIC- DSC -13/ Recombinant DNA Technology and Genome Analysis (4T+2P Credits)
#Minor	MIC- M-5/Bacteriology, Immunology & Parasitology (3T+1P Credits)	MIC- M-6/ Industrial & Food Microbiology (3T+1P Credits)
Skill Enhancement courses/ Internship/ Dissertation	--	Internship INT-1 (2 Credits) (Students will be given 4 hour per week training including field trips/ Industrial visits/ Learning of advanced techniques etc.)
Common Value- Added Courses	VAC-3 (2T+0P Credits)	

Framework of 4-Year B.Sc. (Hons.) Microbiology. 4th Year Programme (2026-2027) Under NEP-2020

	Semester-VII	Semester-VIII
Discipline Specific Courses -Core	MIC-DSC-14 / Microbial Physiology and Metabolism (2T+ 2P Credits) MIC- DSC- 15/ Biosafety and Intellectual Property Rights (4T Credits) MIC- DSC- 16/ Instrumentations and Biotechniques (4T+2P Credits) MIC- DSC- 20A/ Newer approaches in diagnostic Microbiology (4T+2P Credits)	MIC- DSC -17/ Entrepreneurship and Startup (4T Credits) MIC- DSC- 18/ MOOC (4T Credits) MIC-DSC-19/ Bioinformatics and Biostatistics (4T+2P Credits) MIC-DSC-20B/ Bioprocess Engineering and Fermentation Technology (4T+2P Credits)
#Minor	MIC- M-7/ Environment Microbiology (3T+1P Credits)	MIC- M-8/ Fundamentals of Bioinformatics (3T+1P Credits)
Skill Enhancement	Research Project (PROJECT PROPOSAL) (6	Research Project (DISSERTATION) (6 Credits)

courses/ Internship/ Dissertation	Credits)	

Criteria for the award of certificate/degree

1. Students exiting the program after securing 48 credits will be awarded UG certificate in the relevant discipline/subject provided they secure 4 credits in work based vocational courses offered during summer term or internship/apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester
2. Students exiting the program after securing 96 credits will be awarded UG diploma in the relevant discipline/subject provided they secure additional 4 credits in skill-based vocational courses offered during last year or second year summer term.
3. Students who want to undertake 3-year UG program will be awarded UG degree in the relevant discipline/subject upon securing 144 credits. Subject to minimum credit requirement in respective subject.
4. Students will be awarded UG degree (Honours) with Research in the relevant discipline/subject upon securing 192 credits subject to minimum credit requirement in respective subject

M.Sc. Microbiology as per NEP 2020 under the frame work of Honours School System

SEMESTER-I	SEMESTER-II
MMIC C-1 Advances in Microbial Ecology MMIC C-2 Pathogenesis of Infectious diseases MMIC C-3 Newer approaches in diagnostic Microbiology MMIC C-4 Combined Practical-1 MMIC GE-1 Swayam Paper-I*	MMIC C-5 Fermentation Technology MMIC C-6 Advances in Molecular Biology & Biotechnology MMIC C-7 Advances in Immunoprophylaxis & Immunotherapy of Infections MMIC C-8 Combined Practical-2 MMIC GE-2 Swayam Paper-II*
SEMESTER III	**SEMESTER IV**
MMIC C-9 IPR, Biosafety, Bioinformatics and Biostatistics MMICC-10 Advanced Topics in Microbiology –I (Seminar) MMIC C-11 Advanced Topics in Microbiology –II (Paper) MMICC-12 Project Training Report & Presentation MMIC C-13 Research Work (Review)** MMIC GE-3 Swayam Paper-III*	MMIC C-14 Journal Club MMIC C-15 Research Work (Thesis)** MMIC C-16 Research Work (Viva Voce)**

*Generic Elective (GE) subjects are to be selected by the students from the following pool of subjects available on "Swayam", Free on line free education portal (https://swayam.gov.in/) as recommended by UGC. Courses delivered through SWAYAM are available free of cost to the learners, however students wanting certifications shall be registered, shall be offered a certificate on successful completion of the course, with a little fee. At the end of each course, there will be an assessment of the student through proctored examination and the marks/grades secured in this exam could be transferred to the academic record of the students. UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising the Universities to identify courses where credits can be transferred on to the academic record of the students for courses done on SWAYAM.

1. Bioorganic and biophysical chemistry
2. Organic spectroscopy
3. Application of spectroscopic methods in molecular structure determination
4. Environmental chemistry
5. Forensic chemistry and explosives
6. Forensic biology and serology
7. Food laws and standards
8. Technology of fermented, cheese, ice-cream and by-products

****RESEARCH WORK**: The research work for thesis will start from third semester and will be continued in the fourth semester. The weight age will be of 50 marks in third semester. At the end of semester third, students will submit their literature work in the form of a Review on the topic selected. There will be a presentation before a panel of teachers from the department.

M.Sc. (Hons) in Microbiology as per NEP 2020 under the frame work of Honours School System

Semester I	Semester II
Credits = 20, Marks = 500 5 Courses (100 marks each)	Credits = 20, Marks = 500 5 Courses (100 marks each)
MIC-DSC-1 Instrumentation and Biotechniques MIC-DSC-2 Newer Approaches in diagnostic Microbiology MIC-DSC- 3 (Practical Instrumentation and Biotechniques and Newer Approaches in diagnostic Microbiology) (4 credits each)	MIC-DSC-4 (Bioprocess engineering and Fermentation technology) MIC-DSC-5 (Bioinformatics and Biostatistics) MIC-DSC 6 (Practical Bioprocess engineering and Fermentation technology and Bioinformatics and Biostatistics) (4 credits each)
MIC -DSE-1 Biosafety and Intellectual Property rights MIC -DSE-2 Seminar on advanced topics on microbiology (4 credits each)	MIC -DSE-3 Entrepreneurship and Start-ups MIC -DSE-4 MOOC (4 credits each)
Semester III	**Semester IV**
Credits = 20, Marks = 500 4 Courses (100 marks each)	Credits = 20, Marks = 500 3 Courses (100 marks each)

1 Synopsis (100 marks)	1 Thesis (200 marks)
MIC -DSC-7 MIC -DSC-8 (4 credits each)	MIC -DSC-9 (4 credits)
MIC -DSE-5 (4 credits)	MIC -DSE-6 (4 credits)
MIC-RSC-1(4 credits)	MIC-RSC-2(4 credits)
Synopsis of Proposed Research Work (4 Credits)	Thesis Research Work (8 Credits)

*****One Discipline Specific Course in each of Semesters I and II may be Practical/Lab. Work.
**One of the Discipline Specific Elective courses may be based on Computer Applications in Semesters I and/or II.
THRUST AREAS: Medical Microbiology, Food Microbiology, Industrial Microbiology, Immunology, Environmental Microbiology, Microbial Physiology and Biochemistry, Genetic Engineering and Biotechnology.
PLACEMENTS: Though there is 100% off campus placement of the students of Microbiology after M.Sc./Ph.D, efforts are being made to activate the process of on campus placement through Central Placement Cell, Panjab University, Chandigarh.
ALUMNI RELATIONS & Distinguished Alumni of Department: To promote the alumni relations, the committee has recently been constituted to activate the process.

DEPARTMENT-CUM -NATIONAL CENTRE FOR HUMAN GENOME STUDIES AND RESEARCH

ABOUT THE CENTRE
Department cum National Centre for Human Genome Studies and Research is relatively new education centre established in year 2002. The first sequencing of the human genome in 2002 provided a glimpse of humans at our most basic molecular level. The main goal of our department is to inspire and educate young minds in Genetics and Genomics. Students learn to approach problems and formulate questions that span the full range of biological systems, from genes to cells to medicine to evolution. Research in Genetics and Genomics is quickly becoming the key source of new insights, better understanding and targeted treatments of both rare monogenic diseases and common complex diseases such as coronary heart disease, cancer etc. Our ethos reflects and fosters a passion for discovery and curiosity and a commitment to excellence. The goal of this Centre is to provide the most advanced and comprehensive education possible related to human genome at the post graduate level. We highly value interdisciplinary knowledge and collaboration as the core of our effort. Our research addresses the molecular mechanisms underlying fundamental processes in biology and disease. We apply genetic, biochemical, cell biological, computational and biophysical approaches to study various questions/problems in biology. We are motivated towards understanding of human biology and disease and to develop solutions to societal health problems. Mission is to establish specific scientific programs that will be available to the public, to improve human health and well-being through education and research.

FACULTY

Designation	Name	Field of Research Specialization
Professor	Ramandeep Kaur	Molecular and Cancer Biology
Associate Professor	Ranvir Singh	Protein Crystallography
	Shashi Chaudhary **(Chairperson)**	Genetics & Molecular Biology of Human Disease

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
M.Sc. Human Genomics Research	15+2(NRI)+ 4 Foreign National	2 years	Bachelor's degree under the 10+2+3/10+2+4, pattern of education in Physical, Chemical, Biological, Pharmaceutical, Para medical, Dental Sciences or in Medicine/Engineering and/ or Technology from any University/Institute recognized by the Panjab University, with at least 55% marks	Based on P.U. CET-(P.G.) Academics: 50% P.U.CET(PG):50%
M.Sc. Human Genomics Research	5	1 year	Bachelor's degree under 4-years programme (NEP 2020) in Physical, Chemical, Biological, Pharmaceutical, Para medical, Dental Sciences or in Medicine/Engineering and/ or Technology from any University/Institute recognized by the Panjab University, with at least 55% marks	Based on P.U. CET-(P.G.)Academics: 50%P.U.CET(PG):50%
Ph.D.	Subject to availability	3-6 years	See Ph.D. Prospectus 2026	
*5% Concession is admissible in eligibility marks to SC/ST/BC/PwD candidates				

TITLES OF SYALLABI (Detailed syllabus available at https://puchd.ac.in/syllabus.php)

M.Sc.

SEMESTER-I		SEMESTER-II	
MHG II-DSC-101	Biochemistry and Cell Biology	MHG II-DSC-201	Basic Structural Biology and Bioinformatics
MHG II-DSC-102	Molecular Biology	MHG II-DSC-202	Genetic Engineering-Tools & Techniques
MHG II-DSC-103	Genetics	MHG II-DSC-203	Basic Human Molecular Genetics
MHG II-DSEC-104	Analytical Techniques	MHG II-DSEC-204	Immunology

MHG II-DSEC-105A AND/OR MHG II-DSEC-105 B	Laboratory Techniques in Genomics –I, Laboratory Techniques in Genomics –II	MHG II-DSEC-205A AND/OR MHG II-DSEC -205 B	Laboratory Techniques in Genomics –III Laboratory Techniques in Genomics –IV
SEMESTER-III		**SEMESTER-IV**	
MHG II-DSC-301	Advanced Structural Biology and Bioinformatics	MHG I-401	Thesis Research work and Presentation
MHG II-DSC-302	Genomics and Proteomics	MHG I-402	Clinical Rounds
MHG II-DSC-303	Advanced Human Molecular Genetics	MHG I-403	Research Methodology
MHG II-DSEC-304	Gene Expression and Epigenetics	MHG I-404	Journal Club and Educational Tour
MHGII-DSEC-305A AND/OR MHG II-DSEC-305 B	Laboratory Techniques in Genomics –V. Laboratory Techniques in Genomics -VI		

Structure of M.Sc. Human Genomics Research - One year programme

Semester I		**Semester II**	
MHG I-DSC-101	Advanced Structural Biology and Bioinformatics	MHG I-201	Thesis Research work and Presentation
MHG I-DSC-102	Genomics and Proteomics	MHG I-202	Clinical Rounds
MHG I-DSC-103	Advanced Human Molecular Genetics	MHG I-203	Research Methodology
MHG I-DSEC-104	Gene Expression and Epigenetics	MHG I-204	Journal Club and Educational Tour
MHG I-DSEC-105 A AND/OR MHG I-DSEC-105 B	Laboratory Techniques in Genomics –V Laboratory Techniques in Genomics - VI		

THRUST AREAS: Molecular Biology, Functional Genomics and Proteomics
PLACEMENTS: Most of the students pursue Ph.D. programe after completion of their course while others opt for private sector jobs in clinical research organizations like Dr. REDDYS (Hyderabad), MedGenome (Bangalore) & IDS Infotech Ltd., Mohali etc.
ALUMNI RELATIONS: Departmental alumni keep visiting and interacting with students and provide their valuable input from their experience, time to time.

DEPARTMENT OF PHYSICS

ABOUT THE DEPARTMENT

The Department of Physics was established at Lahore in 1934, moved to Delhi for some time and then to Govt. College, Hoshiarpur (Punjab) after partition. Subsequently, the Department was shifted to Chandigarh in 1958.
The Department had previously received grants under the UGC- COSIP (College Science Improvement Programme) from 1977-83, SAP (Special Assistance Programme) from 1980-88 and COSIST (Committee of Strengthening of infrastructure in Science and Technology) from 1984-91. Since 1988, it has been accorded the status of a Centre of Advanced Study (CAS) by UGC with three major thrust areas: Particle Physics, Nuclear Physics and Solid- State Physics - a unique achievement. At present the Department has the strength of 22 faculty members, 2 UGC faculty, 36 assisting staff and 2 daily wage staff, apart from Post-doctoral fellows under various funding schemes as well as project scientists/investigators.There are about 80 research students and 437 B.Sc. (Hons. School) Physics, M.Sc. (Hons.School) Physics, B.Sc. (Hons. School) Physics (Specialization in Electronics) andM.Sc. (Hons.School) (Specialization in Electronics) students on the rolls of the Department.About 150 B.Sc. (Hons. School) students of other departments study Physics subjects as Minor and Interdisciplinary subjects.
The faculty members have been honoured with MeghnadSaha Award, GoyalPrize (Kurukshetra University), Sir C.V. Raman Award, Hari Om Trust Award, S.N. SatyaMurthi Young Scientist Award, DAE Young Scientist Award, Himachal Scientists of theYear award 2011,Chinese Academyof Sciences President's International fellowship, Mercator Professorship, HomiBhaba Fellowship, Emeritus Scientist, RamannaFellowship, Raman Fellowship. They have been elected for Indian Academy of Sciences fellowship, Joliot Curie fellowship, Alexander Von Humboldt fellowships, DFG (German Research Society) Fellowship, BMFT (Ministry of Research and Technology of Germany like DST) fellows, UNESCO/IAEA Fellowship, WE-Heraeus Fellowship, Heinrich Hertz Foundation fellowship, Fulbright Fellowship, Commonwealth fellowship, IN2P3-CNRS Fellowship, France, Third World Academy of Sciences fellowships and UGC National Lecturer Fellowship awards. Our faculty had also served/ is serving at various administrative positions such as Vice-Chancellors of Panjab University and other Universities.
The Department is having research collaborations with institutions like Royal Military College of Canada, Canada; University of Notre Dame, USA; Fermilab USA; CERN Geneva; Bonn University Germany; University of Bayreuth, Wuerzburg, Munich and Berlin in Germany, Chemistry Deptt., City College of New York (CUNY), New York; KEK Japan, Chinese academy of Sciences, Shanghai China; ICTP, Trieste; Univ. of Illinois, USA; BNL, USA; Max. Planck Institute, Germany; Univ. of Leipzig, Germany; SUBATECH, Nantes, France; Instt. for Theoretische Physics, Tubingen, Germany; Instt of Nuclear Studies, Warsaw University, Poland; Univ. of Milano, Italy; J.L. Univ., Germany; J.W. Goethe Univ., Frankfurt, Germany; Instt. OfNucl. Physics, Strasbourg, France; University of Surrey, Gilford, U.K.; University of Hawaii, Cincinnati; Virginia Tech., Princeton University, University of Antwerp, Belgium, JINR Dubna Russia, IUC, Kolkata; VECC, Kolkata; TIFR, Mumbai; IUAC, New Delhi; IIT, Kanpur; Delhi University, Delhi; Mumbai University, Mumbai; IIT, Chennai; I.O.P. Bhubaneshwar; H.P. University, Shimla; T.B.R.L., P.G.I.M.E.R., C.S.I.O., Chandigarh, Jammu University, Jammu. The department has MOU with IUAC, New Delhi, for joint faculty appointment and to various academic exchange programs for Accelerator based research.
UGC had sanctioned 3 crores under CAS-V Phase (2015-2020) grant under improvement of Infrastructural facilities of the Physics department. Funds of Rs. 3.5 crores for infrastructure development have been sanctioned by the Department of Science and Technology under FIST programme to upgrade Teaching and Research facilities. The Department of Science & Technology has

given technical approval for funding the proposal for establishing Panjab University Accelerator Science Centre (6 MV Tandem Accelerator) at P.U. Campus.

The Centre for Medical Physics and the Centre for Nano Science & Nano Technology are closely associated with the Department of Physics.

Research Facilities

Facilities exist in the Department for research in Nuclear Physics, High Energy Physics, Photon-Atom Interaction Studies, Solid State/Condensed Matter Physics, Laser Spectroscopy, Astrophysics and Planetary Science (Space Sciences), Radiometric Dating and Theoretical Physics, leading to the Ph.D. degree.

Major facilities available in the Department :

(i) Cyclotron, (ii) High Energy Physics (Data Analysis and Detector fabrication Labs.) for studies connected with Collider Physics at CERN and Fermilab., Neutrino Physics at INO and Fermilab., (iii) Facilities for PAC/PAD studies of Hyperfine Interactions (iv) Semi-conductor laboratory, fabrication of thin films, (v) Raman Spectrometer, (vi) Several Nuclear Spectrometers incorporating detectors like HPGe, Si(Li), NaI(Tl), BaF2, and LaBr3 associated with modern electronics, (vii) Data Analysis labs. for Ultra relativistic heavy Ions experiments done at CERN, (viii) High Performance Computational Facility for theoretical studies for modeling physical problems including simulations, (ix) Energy dispersive X-ray fluorescence spectrometers using radioactive exciter sources and X-ray tube for material analysis, and (x) XRD. 11-inches astronomical Telescope has been installed in the Department as a part of teaching and Public awareness Programs in Astrophysics.

The Department houses Indian Association of Physics Teachers (IAPT) office and actively leads in IAPT, Indian Physics Association activities.

FACULTY

Particular	Name	Field of Research Specialization
Professors Emeritus	K.N. Pathak	Condensed Matter Physics (Theory)
	Nirmal Singh	Nuclear Physics (Experimental)
	M.M. Gupta	Particle Physics (Theory)
	Suman Bala Beri	High Energy Physics (Experimental)
Professors	Devinder Mehta	Nuclear Physics (Experimental)
	Navdeep Goyal	Condensed Matter Physics (Experimental)
	Rajeev K. Puri	Nuclear Physics (Theory)
	G.S.S. Saini	At. Mol. Spectroscopy (Experimental)
	C. Nagaraja Kumar	Theoretical Physics
	S.K. Tripathi **(Chairperson)**	Condensed Matter Physics (Experimental)
	Sandeep Sahijpal	Astrophysics & Planetary Sciences (Theory)
	Ranjan Kumar	Condensed Matter Physics (Theory)
	B.R. Behera	Nuclear Physics (Experimental)
	Vipin Bhatnagar	High Energy Physics (Experimental)
	Ashok Kumar	Nuclear Physics (Experimental)
	J.S. Shahi	Nuclear Physics (Experimental)
	Samarjit Sihotra	Nuclear Physics (Experimental)
	Lokesh Kumar	High Energy Physics (Experimental)
Associate Professor	K.S. Bindra	Physics Education
	Rajesh Kumar	Condensed Matter Physics (Experimental)
	Sakshi Gautam	Electronic & Communication (Experimental)
	Neeru Chaudhary	Instrumental (Experimental)
Assistant Professors	Manish Dev Sharma	Electronics & Communication (Experimental)
	Gulsheen Ahuja	Instrumentation (Experimental)
	Ravi Prakash Nath Tripathi	Nanomaterials and Optical Microscopy Technique
	Ram Gopal	Laser and Photonics, Plasmonics and Perovskite Solar Cell
Professor (UGC)	Prof. Tankeshwar Kumar	Condensed Matter (Theory)
Assistant Professor (UGC)	Sushil Singh Chauhan	High Energy Physics (Experimental)

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
B.Sc.(Physics) under the framework of Honours School System according to NEP 2020 01. #With Research and course work 02. With only course work	40+6 NRI+10 Foreign National	4 Years	10+2 examination (Non-Medical/Medical) with 50% marks from recognized Board/CBSE #Students securing equal and above 75% CGPA till 6th Semester will be offered research and course work option.	Based on PU-CET(UG) Academics :25% PU-CET(UG):75%

B.Sc. Physics (Specialization in Electronics) under the framework of Honours School System, according to NEP 2020 [Self-financing course]* 01. #With Research and course work 02. With only course work	20+3 NRI+5 Foreign National	4 Years	10+2 examination (Non-Medical/Medical) with 50% marks from recognized Board/CBSE #Students securing equal and above 75% CGPA till 6th Semester will be offered research and course work option.	Based on PU-CET(UG) Academics :25% PU-CET(UG):75%
M.Sc. (Physics) under the framework of Honours School System. 01. #With Research and course work 02. With only course work	40+6 NRI+10 Foreign National	2 Years	B.Sc. (Pass-course) or B.Sc. (Honours) Physics examination of Panjab University, with Physics and Mathematics as elective subjects with 50% marks, or, any other university examination recognized as equivalent thereto with 50% marks, or, B.Sc. (Honours) in Physics under Choice-based credit system (CBCS) with 50% marks, or, B.Sc. (Honours) in any subject under CBCS with 24 credits in Physics as Generic Elective (GE) subject and Mathematics as Major/GE subject with 50% marks. #Top 20 students in the merit of M.Sc. I year (Sem I+II) will be offered Research and course work option. of M.Sc. I year (Sem I+II) will be offered Research and course work option	Based on PU-CET Post Graduate (PG) Academics: 40% PU-CET(PG): 60% In addition, all the students after passing B.Sc. (Honours) in Physics of Panjab University campus will continue for the respective M.Sc. (Physics) under the framework of Honours School System
M.Sc. Physics (Specialization in Electronics) under the framework of Honours School System 01. # With Research and course work 02. With only course work [Self-financing course]*	20+3 NRI+5 Foreign National	2 Years	B.Sc. (Pass-course) or B.Sc. (Honours) Physics examination of Panjab University, with Physics and Mathematics as elective subjects with 50% marks, or, any other university examination recognized as equivalent thereto with 50% marks, or, B.Sc. (Honours) in Physics under CBCS with 50% marks, or, B.Sc. (Honours) in any subject under CBCS with 24 credits in Physics as GE subject and Mathematics as Major/GE subject with 50% marks, or, B.Sc. (Honours) Electronics, or, B.Tech/B.E. (Electronics / Electrical / Mechanical or equivalent) with 50% marks. #Top 5 students in the merit of M.Sc. I year (Sem I+II) will be offered Research and course work option.	Based on PU-CET (PG) Academics: 40% PU-CET(PG): 60% In addition, all the students after passing B.Sc. (Honours) in Physics (Specialization in Electronics) of Panjab University campus will continue for respective M.Sc. Physics (Specialization in Electronics) under the framework of Honours School System.
*Post-Graduate Diploma in Advance Scientific Computing (Self - Finance Course)	20+2+5 Foreign National	1 year	Two years M.Sc. or B.E / B. Tech in any discipline, or four years B.Sc. in any Science stream	Merit based selection process based on the percentage of marks in the qualifying degree.
Post-Graduate Diploma in Accelerator & Detector Physics (Traditional Course)	20 +2 NRI + 5 Foreign National	1 Year	Two years M.Sc. Physics, or B.E / B. Tech in any discipline, or four years B.Sc. Physics programme	Merit based selection process based on the percentage of marks in the qualifying degree.
Post-Graduate Diploma in Optoelectronic Device Fabrication (Traditional Course)	20 + 2 NRI +5 Foreign National	1 Year	Two years M.Sc Physics, or B.E / B. Tech in any discipline, or four years B.Sc. Physics programme	Merit based selection process based on the percentage of marks in the qualifying degree.
Ph.D.	Subject to availability	3-6 Years	See Ph.D. Prospectus 2026	

* 5% concession is admissible in eligibility marks to SC/ST/BC/PwD candidates.
The course fees of "*Self-financing courses***" are substantially higher than the "***Traditional courses***".
***Please carefully read the handbook of information (2024) for details regarding the total number of (convertible/non-convertible) available seats in various courses, the fees structure and the eligibility criteria for the various categories.
Important note for candidates:
Note: Science Departments having Honours School Shall fill the vacant / left over seats of B.Sc. (HS) along with M.Sc. (HS). Each Department shall take prior approval of vacant seats (except additional seats) from Dean of University Instruction before the start of admission. The vacant seats be merged in the sanctioned seat and reservation be followed as per rules **(Syndicate Para 6, 25.03.2023)**
a) The online submission of the CET (PG) form alone cannot be considered as the application for admission in M.Sc. courses. The candidates applying for admission in the M.Sc. courses have to separately fill the online application form for admission in the Physics Department apart from the CET (PG) online form.
b) The candidates applying for the B.Sc. courses should opt for B.Sc. (Physics) and B.Sc. Physics (Specialization in Electronics) under the framework of Honours School System in the online CET (UG) form.

B.Sc. (Honours) Physics 4 year programme as per NEP 2020 under the frame work of Honours School System
TITLES OF SYLLABI: Detailed syllabus available at https://puchd.ac.in/syllabus.php

SEMESTER-I (credits = 24, Marks = 600)		SEMESTER-II (credits = 24, Marks = 600)	
PHY-DSC -1	Mechanics Credits- 4(T) + 2(P) Marks – 100 (T) + 50 (P)	PHY-DSC -2	Electricity and Magnetism Credits – 4(T) + 2(P) Marks - 100 (T) + 50 (P)
PHY-SEC-1	Mathematical Physics & Computational Technique -1 Credits -3, Marks-75 (50 (T) + 25 (P)	PHY- SEC -2	Waves and Optics Credits-3, Marks -75 (50 (T) + 25 (P)
PHY-M-1	Mechanics Credits- 4(T) + 2(P) Marks – 100 (T) + 50 (P)	PHY-M- 2	Electricity and Magnetism Credits – 4(T) + 2(P) Marks –150 (100 (T) + 50 (P)
PHY-IDC-1	Electricity & Magnetism Credits – 3 (2(T) + 1 (P)) Marks – 75 (50 (T) +25 (P)	PHY-IDC- 2	Elements of Modern Physics Credits – 3 Marks – 75 (50 (T) +25 (P)
PHY- VAC -1	Renewable Energy & Energy Harvesting Credits = 2 (T) Marks = 50	PHY- VAC -2	Introduction to material science Credit -2 (T) Marks - 50
PHY-AEC- 1	Renewable energy &Energy Harvesting Credit -2 (T) Marks – 50	PHY-AEC- 3	PHY-AECC2: English/ Environmental Science Credits -2, Marks -50
PHY-AEC - 2	English/ Environmental Science Credits -2, Marks -50	PHY-AEC - 4	MIL Credit-2, Marks -50

Important Notes:
1. The minor and major subjects opted by a student will remain same for two consecutive semesters (i.e Sem I and II; Sem III and IV; Sem V and Sem VI and Sem VII and Sem VIII). The change in these subjects during a running session will not be allowed.
2. IDC shall be different from the DSC and Minor courses.
3. *The contact hours of AEC courses are doubled in order to meet the conditions of the syllabi for teaching and improving writing skills.
4. #Only those students will be allowed to do research who will have more than 75% CGPA till 6th semester. For Sem VII, a theory paper of 4 credits will be taught to the project holders on 'Research Methodology and basics of research'. The student will submit a report on the literature survey and synopsis of the proposed research work, that will fulfil 2 credits. For sem VIII, the student will be engaged in the research work and will submit a dissertation/project report (6 credits) for the same.
5. ** This paper is meant for those students who have less than 75% CGPA till 6th Semester and are not allowed to opt for research project.
6. See Nomenclature tables for codes
7. The codes for IDC and VAC courses will be assigned later.

Criteria for the award of certificate/degree
1. Students exiting the programme after securing 48 credits will be awarded UG certificate in the relevant discipline/subject provided they secure 4 credits in work based vocational courses offered during summer term or internship/apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester
2. Students exiting the programme after securing 96 credits will be awarded UG diploma in the relevant discipline/subject provided they secure additional 4 credits in skill-based vocational courses offered during lastr year or second year summer term.
3. Students who want to undertake 3-year UG programme will be awarded UG degree in the relevant discipline/subject upon securing 144 credits. Subject to minimum credit requirement in respective subject.
4. Students will be awarded UG degree (Honours) with Research in the relevant discipline/subject upon securing 192 credits subject to minimum credit requirement in respective subject.

SEMESTER-III (Credits 24 Marks=600)		SEMESTER-IV (Credits=24, Marks=600)	
PHY-DSC-4	Elements of Modern Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)	PHY- DSC -5	Mathematical & Computational Physics-III Credits 4T+2P / Marks 150 (100T+50P)
PHY-DSC-5	Thermal Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)	PHY- DSC -6	Quantum Mechanics and Applications Credits 4T+2P / Marks 150 (100T+50P)
PHY-SEC-3	Mathematical & Computational Physics - II Credits -3, Marks-75 (50 (T) + 25 (P)	PHY- DSC -7	Analog Systems and applications Credits = 4T+2P, Marks 150 (100T+50P)
PHY-IDC-3	Waves & Optics		

	Credits – 3 (2(T) + 1 (P)) Marks – 75 (50 (T) +25 (P)		
PHY-M-3	Waves and Optics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)	PHY– M- 4	Elements of Modern Physics Credits = 4T+2P, Marks 150 (100T+50P)

SEMESTER V (Credits = 24, Marks = 600)		**SEMESTER VI (Credits = 24, Marks = 600)**	
PHY- DSC - 8	Electromagnetic Theory Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHY- DSC -11	Nuclear Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)
PHY- DSC - 9	Statistical Mechanics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHY- DSC -12	Particle Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)
PHY- DSC - 10	Atomic and Molecular Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHY- DSC -13	Solid State Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P)
PHY– M- 5	Analog Electronics and Applications Credits- 2(T) + 2(P) Marks – 100 (50 (T) + 50 (P))	PHY– M- 6	Basics of Quantum Mechanics Credits- 2(T) + 2(P) Marks – 100 (50 (T) + 50 (P)
PHY- VAC - 3	Basic Instrumentation Skill for Science Students Credit -2 (T) Marks – 50	Internship PHY- INT- 1	*Operational Procedure to be defined by physics department Credits -2, Marks -50

4th Year Course Structure, B.Sc. (Hons.) in Physics under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research) (2026-2027)

SEMESTER VII (Credits = 24, Marks = 600		**SEMESTER VII (Credits = 24, Marks = 600**	
PHY- DSC - 14	Advanced Electronics (Electronics-I) Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P)	PHY- DSC -17	Classical Electrodynamics Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))
PHY- DSC - 15	Quantum Mechanics Credits- 4(T) Marks – 100	PHY- DSC -18	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHY- DSC -16	Classical Mechanics Credits- 4(T) Marks – 100	PHY- DSC - 19	MathematicalPhysics Credits- 4(T) Marks – 100
PHY– DSC- 20A	Research Project and Project Proposal Preparation Classes on Research Methodology and Ethics + Literature Survey an Proposal Preparation Credits- 6 (4(T)+2(Proposal)) Marks – 150 (100 (T)+50(Proposal))	PHY-DSC- 20B	Research Project (Dissertation) Credits- 6 Marks – 150
PHY- M - 7	Thermal Physics Credit –4 (3(T) +1(P)) Marks – 100 (75(T)+25(P))	PHY– M - 8	Introduction to Theoretical Physics Credit –4(3(T) +1(P)) Marks – 100 (75(T)+25(P))

4th Year Course Structure, B.Sc. (Hons.) in Physics under the Frame Work of Honours School System of Panjab University & in Accordance with NEP-2020 (Those who are opting for only course work) (2026-2027)

SEMESTER VII (Credits = 24, Marks = 600)		**SEMESTER VIII (Credits = 24, Marks = 600**)	
PHY- DSC - 14	Advanced electronics (Electronics– I) Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHY- DSC – 17	Classical Electrodynamics Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))
PHY- DSC - 15	Quantum Mechanics Credits- 4(T) Marks – 100	PHY- DSC – 18	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHY- DSC -16	Classical Mechanics Credits- 4(T) Marks – 100	PHY- DSC –19	Mathematical Physics Credits- 4(T) Marks – 100

PHY– DSC-20A	Elements of Astrophysics Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))	PHY-DSC -20B	Relativistic Quantum Mechanics and Quantum Field Theory Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))
PHY- M - 7	Thermal Physics Credit -4(3(T) +1(P)) Marks – 100 (75(T)+25(P))	PHY– M - 8	Introduction to Theoretical Physics Credit -4(3(T) +1(P)) Marks – 100 (75(T)+25(P))

B.Sc. (Honours) Physics with Specialization in Electronics, 4 yearprogramme as per NEP 2020 under the frame work of Honours School System

SEMESTER I (Credits = 24, Marks = 600)		SEMESTER II (Credits = 24, Marks = 600)	
PHYE-DSC -1	Mechanics Credits- 4(T) + 2(P) Marks – 100 (T) + 50 (P)	PHYE-DSC -2	Electricity and Magnetism Credits – 4(T) + 2(P) Marks - 100 (T) + 50 (P)
PHYE-SEC-1	Mathematical Physics & Computational Technique -1 Credits -3, Marks-75 (50 (T) + 25 (P)	PHYE- SEC-2	Waves and Optics Credits-3, Marks -75 (50 (T) + 25 (P))
PHYE-M-1	Mechanics Credits- 4(T) + 2(P) Marks – 100 (T) + 50 (P)	PHYE-M- 2	Electricity and Magnetism Credits – 4(T) + 2(P) Marks –150 (100 (T) + 50 (P))
PHYE-IDC-1	Electricity & Magnetism Credits – 3 (2(T) + 1 (P)) Marks – 75 (50 (T) +25 (P))	PHYE-IDC- 2	Elements of Modern Physics Credits – 3 Marks – 75 (50 (T) +25 (P))
PHYE- VAC -1	Renewable energy & Energy Harvesting Credit -2 (T) Marks - 50	PHYE- VAC -2	Introduction to material science Credit -2 (T) Marks - 50
PHYE-AEC- 1	English/Environmental Science Credits -2, Marks -50	PHYE-AEC- 3	PHY-AECC2: English/Environmental Science Credits -2, Marks -50
PHYE-AEC - 2	MIL Credit-2, Marks -50	PHYE-AEC - 4	MIL Credit-2, Marks -50

Important Notes:

1. The minor and major subjects opted by a student will remain same for two consecutive semesters (i.e Sem I and II; Sem III and IV; Sem V and Sem VI and Sem VII and Sem VIII). The change in these subjects during a running session will not be allowed.
2. IDC shall be different from the DSC and Minor courses.
3. The contact hours of AEC courses are doubled in order to meet the conditions of the syllabi for teaching and improving writing skills.
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5. ** This paper is meant for those students who have less than 75% CGPA till 6th Semester and are not allowed to opt for research project.
6. See Nomenclature tables for codes
7. The codes for IDC and VAC courses will be assigned later.

Criteria for the award of certificate/degree

1. Students exiting the programme after securing 48 credits will be awarded UG certificate in the relevant discipline/subject provided they secure 4 credits in work based vocational courses offered during summer term or internship/apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester
2. Students exiting the programme after securing 96 credits will be awarded UG diploma in the relevant discipline/subject provided they secure additional 4 credits in skill-based vocational courses offered during last year or second year summer term.
3. Students who want to undertake 3-year UG programme will be awarded UG degree in the relevant discipline/subject upon securing 144 credits. Subject to minimum credit requirement in respective subject.
4 Students will be awarded UG degree (Honours) with Research in the relevant discipline/subject upon securing 192 credits subject to minimum credit requirement in respective subject.

SEMESTER III (Credits = 24, Marks = 600)		SEMESTER IV (Credits = 24, Marks = 600)	
PHYE-DSC -4	Elements of Modern Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC -5	Mathematical & Computational Physics - III Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))

PHYE-DSC -5	Thermal Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC -6	Quantum Mechanics and Applications Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))
PHYE-SEC -3	Mathematical & Computational Physics - II Credits -3, Marks-75 (50 (T) + 25 (P)	PHYE-DSC -7	Analog Systems and Applications Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))
PHYE-IDC -3	Waves & Optics Credits – 3 (2(T) + 1 (P)) Marks – 75 (50 (T) +25 (P))		
PHYE–M- 3	Waves and Optics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE–M- 4	Elements of Modern Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))

SEMESTER V (Credits = 24, Marks = 600)		**SEMESTER VI (Credits = 24, Marks = 600)**	
PHYE-DSC -8	Electromagnetic Theory Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC -11	Nuclear Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))
PHYE- DSC -9	Statistical Mechanics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC -12	Particle Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))
PHYE- DSC -10	Atomic and Molecular Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC -13	Solid State Physics Credits- 4(T) + 2(P) Marks – 150 (100 (T) + 50 (P))
PHYE– M- 5	Analog Electronics and Applications Credits- 2(T) + 2(P) Marks – 100 (50 (T) + 50 (P))	PHYE–M- 6	Basics of Quantum Mechanics Credits- 2(T) + 2(P) Marks – 100 (50 (T) + 50 (P))
PHY-VAC -3	Basic Instrumentation Skill for Science Students Credit -2 (T) Marks - 50	Internship PHY-INT- 1	*Operational Procedure to be defined by physics department Credits -2, Marks -50

4th Year Course Structure, B.Sc. (Hons.) in Physics with specialization in Electronics under the Frame Work of Honours School System of Panjab University & in Accordance with NEP-2020 (Those who are opting for research) (2026-2027

SEMESTER VII (Credits = 24, Marks = 600)		**SEMESTER VIII (Credits = 24, Marks = 600)**	
PHYE- DSC - 14	**Advanced Electronics (Electronics – I)** Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))	PHYE- DSC - 17	Classical Electrodynamics Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))
PHYE- DSC - 15	Quantum Mechanics Credits- 4(T) Marks – 100	PHYE- DSC - 18	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHYE- DSC -16	Classical Mechanics Credits- 4(T) Marks – 100	PHYE- DSC - 19	**Digital Electronics (Electronics –II)** Credits- 4(T) Marks – 100
PHYE DSC-20A	Research Project and Project Proposal Preparation **Classes on Research Methodology and Ethics + Literature Survey and Proposal Preparation** Credits- 6 (4(T)+2 (Proposal)) Marks – 150 (100 (T)+50(Proposal)	PHYE-DSC-20B	Research Project **(Dissertation)** Credits- 6 Marks – 150
PHYE- M - 7	Thermal Physics Credits – 4 (3(T) +1(P)) Marks – 100 (75(T)+25(P))	PHYE– M - 8	Introduction toTheoretical Physics Credits – 4 (3(T) +1(P)) Marks – 100

4th Year Course Structure, B.Sc. (Hons.) in Physics with specialization in Electronics under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for only course work) (2026-2027)

SEMESTER VII (Credits = 24, Marks = 600)		**SEMESTER VIII (Credits = 24, Marks = 600)**	
PHYE- DSC - 14	Advanced Electronics (Electronics – I) Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))	PHYE-DSC - 17	Classical Electrodynamics Credits- 6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))

PHYE-DSC - 15	Quantum Mechanics Credits- 4(T) Marks – 100	PHYE- DSC - 18	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHYE-DSC -16	Classical Mechanics Credits- 4(T) Marks – 100	PHYE- DSC - 19	Digital Electronics (Electronics –II) Credits- 4(T) Marks – 100
PHYE–DSC-20A	Elements of Astrophysics Credits-6 (4(T) + 2 (P) Marks – 150 (100 (T) + 50 (P)	PHYE-DSC-20B	Relativistic Quantum Mechanics and Quantum Field Theory Credits-6 (4(T) + 2(P)) Marks – 150 (100 (T) + 50 (P))
PHYE- M - 7	Thermal Physics Credits – 4 (3(T) +1(P)) Marks – 100 (75(T)+25(P))	PHYE– M - 8	Introduction to Theoretical Physics Credits – 4 (3(T) +1(P)) Marks – 100 (75(T)+25(P))

1st Year Course Structure, M.Sc. (Hons.) in Physics (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for course work) (2026-2028)

SEMESTER I (Credits = 20, Marks = 500)		SEMESTER II (Credits = 20, Marks = 500)	
PHY- DSC – 101	Electronics – I Credits- 4(T) Marks – 100	PHY- DSC – 201	Classical Electrodynamics Credits- 4(T) Marks – 100
PHY- DSC – 102	Quantum Mechanics Credits- 4(T) Marks – 100	PHY- DSC – 202	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHY- DSC – 103	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)	PHY- DSC – 203	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)
PHY– DSE– 104	Classical Mechanics Credits- 4(T) Marks – 100	PHY-DSE– 204	Mathematical Physics –II Credits- 4(T) Marks – 100
PHY- DSE– 105	Mathematical Physics - I Credits- 4(T) Marks – 100	PHY– DSE– 205	Relativistic Quantum Mechanics and Quantum Field Theory Credits- 4(T) Marks – 100

2nd Year Course Structure, M.Sc. (Hons.) in Physics (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for course work) (2026-2028)

SEMESTER III (Credits = 20, Marks = 500)		**SEMESTER IV (Credits = 20, Marks = 500)**	
PHY- DSC - 301	Particle Physics - I Credits- 3(T) Marks – 75	PHY- DSC – 401	Particle Physics - II Credits- 4(T) Marks – 100
PHY- DSC - 302	Nuclear Physics - I Credits- 3(T) Marks – 75	PHY- DSC – 402	Nuclear Physics - II Credits- 4(T) Marks – 100
PHY- DSC - 303	Solid State Physics - I Credits- 3(T) Marks – 75	PHY- DSC – 403	Solid State Physics - II Credits- 4(T) Marks – 100
PHY- DSC - 304	Electrodynamics and General theory of Relativity Credits- 3(T) Marks – 75	PHY- DSC – 405	(i). Space Science and Technology (ii). Astrophysics (iii). Experimental techniques in Nuclear and Particle physics (iv). Any subjects from the elective lists (Students has to choose one) Credits- 4(T) Marks – 100
PHY- DSE - 305	(i) Electronics – II (Digital Electronics) (ii). Any subjects from the elective lists (Students has to choose one) Credits- 4(T) Marks – 100	PHY- DSC – 405	Physics Laboratory Credit – 4 Marks – 100
PHY- DSE – 306	Physics Laboratory Credit – 4 Marks – 100		

1st Year Course Structure, M.Sc. (Hons.) in Physics (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research and course work) (2026-2028)

SEMESTER I (Credits = 20, Marks = 500)		SEMESTER II (Credits = 20, Marks = 500)	
PHY- DSC – 101	Electronics – I Credits- 4(T) Marks – 100	PHY- DSC – 201	Classical Electrodynamics Credits- 4(T) Marks – 100
PHY- DSC – 102	Quantum Mechanics Credits- 4(T) Marks – 100	PHY- DSC – 202	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHY- DSC – 103	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)	PHY- DSC – 203	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)
PHY– DSE– 104	Classical Mechanics Credits- 4(T) Marks – 100	PHY-DSE– 204	Mathematical Physics -II Credits- 4(T) Marks – 100
PHY- DSE– 105	Mathematical Physics - I Credits- 4(T) Marks – 100	PHY– DSE– 205	Relativistic Quantum Mechanics and Quantum Field Theory Credits- 4(T) Marks – 100

2nd Year Course Structure, M.Sc. (Hons.) in Physics (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research and course work) (2026-2028)

SEMESTER III (Credits = 20, Marks = 500)		SEMESTER IV (Credits = 20, Marks = 500)	
PHY- DSC – 301R **PHY- DSC – 302R**	(i)Particle Physics - I (ii)Nuclear Physics - I (ii)Solid State Physics - I Candidate has to choose Two DSC subject out of the Above three as per the research interest. Credits - 4 (T) + 4 (T) Marks - 100 + 100	**PHY- DSC – 401R**	(i)Particle Physics - II (ii)Nuclear Physics - II (iii)Solid State Physics - II Credits- 4(T) Marks – 100 Candidate has to choose One DSC subject out of the above mentioned three DSC as per their research interest
PHY- DSE– 303R	(i)Electrodynamics and General theory of Relativity (ii) Electronics – II (Digital Electronics) (ii). Any subjects from the elective lists Candidate has to choose one DSE subject out of the Above list as per the research interest. Credits - 4 (T) Marks - 100	**PHY-DSE – 402R**	Choose one (i). Space Science and Technology (ii). Astrophysics (iii). Experimental techniques in Nuclear and Particle physics (iv). Any subjects from the elective lists Credits- 4(T) Marks – 100
		PHY- R – 403R	Research methodology (i)Computer simulation and numerical methods (ii) Experimental techniques in Physics Credits – 4 (2+2) Marks 100 – (50+50)
		PHY– R– 404R	Research Dissertation Credit –8 Marks – 200
PHY- R– 304R	Research Methodology + Research Ethics Credits - 4 (T) Marks - 100		
PHY- R– 305R	Synopsis of the Proposed Research work Credit –4 Marks – 100		

1stYear Course Structure, M.Sc. (Hons.) in Physics (Specialization in Electronics)(Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for course work) (2026-2028)

SEMESTER I (Credits = 20, Marks = 500)		SEMESTER II (Credits = 20, Marks = 500)	
PHYE-DSC –101	Electronics – I Credits- 4(T) Marks – 100	PHYE-DSC – 201	Classical Electrodynamics Credits- 4(T) Marks – 100
PHYE-DSC – 102	Quantum Mechanics Credits- 4(T) Marks – 100	PHYE-DSC – 202	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHYE-DSC –103	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)	PHYE-DSC – 203	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)
PHYE–DSE–104	Classical Mechanics Credits- 4(T) Marks – 100	PHYE-DSE–204	Mathematical Physics -II Credits- 4(T) Marks – 100
PHYE-DSE–105	Mathematical Physics - I Credits- 4(T) Marks – 100	PHYE–DSE–205	Digital Electronics (Electronics-II) Credits- 4(T) Marks – 100

2nd Year Course Structure, M.Sc. (Hons.) in Physics (Specialization in Electronics) (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research and course work) (2026- 2028)

SEMESTER III (Credits = 20, Marks = 500)		**SEMESTER IV (Credits = 20, Marks = 500)**	
PHYE- DSC - 301	Particle Physics - I Credits- 3(T) Marks – 75	PHYE- DSC – 401	Advanced Microcontrollers And Microprocessors (Electronics – V) Credits- 4(T) Marks – 100
PHYE- DSC - 302	Nuclear Physics - I Credits- 3(T) Marks – 75	PHYE- DSC – 402	Integrated and VLSI Circuit design (Electronics – VI) Credits- 4(T) Marks – 100
PHYE- DSC - 303	Solid State Physics - I Credits- 3(T) Marks – 75	PHYE- DSC – 403	Digital Signal Processing (Electronics – VII) Credits- 4(T) Marks – 100
PHYE- DSC - 304	Microprocessors and Microcontrollers (Electronics-III) Credits- 3(T) Marks – 75	PHYE- DSE – 404	Choose one (i). Space Science and Technology (ii). Astrophysics (iii). Experimental techniques in Nuclear and Particle physics (iv). Any subjects from the elective lists Credits- 4(T) Marks – 100
PHYE- DSE - 305	(i) Electronics Instrumentation & Power Electronics (Electronics – IV) (ii). Any subjects from the elective lists (Students has to choose one) Credits- 4(T) Marks – 100	PHYE- DSC – 405	Physics Laboratory Credit – 4 Marks – 100
PHYE- DSE - 306	Physics Laboratory Credit – 4 Marks – 100		

1stYear Course Structure, M.Sc. (Hons.) in Physics(Specialization in Electronics)(Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research and course work) (2026- 2028)

SEMESTER I (Credits = 20, Marks = 500)		**SEMESTER II (Credits = 20, Marks = 500)**	
PHYE-DSC –101	Electronics – I Credits- 4(T) Marks – 100	PHYE-DSC – 201	Classical Electrodynamics Credits- 4(T) Marks – 100

PHYE- DSC – 102	Quantum Mechanics Credits- 4(T) Marks – 100	PHYE- DSC – 202	Advanced Statistical Mechanics Credits- 4(T) Marks – 100
PHYE- DSC –103	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)	PHYE- DSC – 203	Physics and Computational Laboratory Credit –4 (2+2) Marks – 100 (50+50)
PHYE– DSE–104	Classical Mechanics Credits- 4(T) Marks – 100	PHYE- DSE–204	Mathematical Physics -II Credits- 4(T) Marks – 100
PHYE- DSE–105	Mathematical Physics - I Credits- 4(T) Marks – 100	PHYE– DSE–205	Digital Electronics (Electronics -II) Credits- 4(T) Marks – 100

2nd Year Course Structure, M.Sc. (Hons.) in Physics (Specialization in Electronics) (Two Year Programme) under the Frame Work of Honours School System of Panjab University& in Accordance with NEP-2020 (Those who are opting for research and course work) (2026- 2028)

SEMESTER III (Credits = 20, Marks = 500)		**SEMESTER IV (Credits = 20, Marks = 500)**	
PHYE- DSC –301R PHYE- DSC –302R	(i)Particle Physics - I (ii)Nuclear Physics - I (ii)Solid State Physics - I Candidate has to choose Two DSC subject out of the Above three as per the research interest. Credits - 4 (T) + 4 (T) Marks - 100 + 100	PHYE- DSC – 401R	(i)Advanced Microcontrollers And Microprocessors (Electronics – V) (ii)Integrated and VLSI Circuit design(Electronics – VI) (iii) Digital Signal Processing (Electronics – VII) Credits- 4(T) Marks – 100 Candidate has to choose one DSC subject out of the above mentioned three DSC as per their research interest
PHYE- DSE–	(i)Microprocessors and Microcontrollers (Electronics – III) (ii)Electronics Instrumentation & Power Electronics (Electronics – IV) Candidate has to choose one DSE subject out of the Above list as per the research interest. Credits - 4 (T) Marks - 100	PHYE-DSE – 402R	Choose one (i). Space Science and Technology (ii). Astrophysics (iii). Experimental techniques in Nuclear and Particle physics (iv). Any subjects from the elective lists Credits- 4(T) Marks – 100
		PHYE- R – 403R	Research methodology (i)Computer simulation and numerical methods (ii) Experimental techniques in Physics Credits – 4 (2+2) Marks 100 – (50+50)
		PHYE– R– 404R	Research Dissertation Credit –8 Marks – 200
PHYE- R– 30	Research Methodology + Research Ethics Credits - 4 (T) Marks - 100		
PHYE- R– 30	Synopsis of the Proposed Research work Credit –4 Marks – 100		

PG Diploma in Advance Scientific Computing (2026 -2027)

SEMESTER I (Credits = 12, Marks = 300)		**SEMESTER II (Credits = 20, Marks = 500**	
PHY-ACT-01	Introduction to Python Programming Credits - 4, Marks -100	PHY-ACT-04	Web Development with Python Credits -4 Marks -100
PHY-ACT-02	Advanced Python Programming Credits - 4, Marks -100	PHY-ACT-05	Data Science, Machine Learning, Deep Learning with Python
PHY-ACT-03	Practical Applications, Minor Project Credits - 4, Marks -100	PHY-ACT-06	Major Project/Internship Credits - 12, Marks - 300

Post-graduate Diploma in Accelerator & Detector Physics (Semester System& in accordance with NEP 2020)(2026 -2027)

SEMESTER I (Credits =20, Marks = 500)		SEMESTER II (Credits = 20, Marks = 500	
PHY-AP-01	Beam Dynamics and Transport System Credits - 4, Marks -100	PHY-AP-06	Dissertation Credits -08, Marks -200
PHY-AP-02	Accelerators Credits - 4, Marks -100	PHY-AP-07	Accelerator Based Analytical technique Credits - 4, Marks -100
PHY-AP-03	Vacuum Techniques Credits - 4, Marks -100	PHY-AP-08	Detector Physics Lab Credits - 4, Marks -100
PHY-AP-04	Detectors Credits - 4, Marks -100	PHY-AP-09	Accelerator Control and PC interfacing laboratory Credits - 4, Marks -100
PHY-AP-05	Workshop, Accelerator and Vacuum Lab Training Credits - 4, Marks -100		

Syllabus for Post-Graduate Diploma in Optoelectronic Device Fabrication (2026 -2027)

SEMESTER I (Credits = 20, Marks = 500)		SEMESTER II (Credits = 20, Marks = 500)	
DF- 01	Fundamentals of Electronic and Optoelectronic Devices Credits- 4 (T) Marks – 100	DF - 06	Device Integration and Packaging Credits – 4 (T) Marks - 100
DF – 02	Materials for Device Fabrication Credits – 4 (T) Marks – 100	DF – 07	Characterization of Devices Credits – 4 (T) Marks - 100
DF – 03	Device Fabrication Techniques Credits – 4 (T) Marks – 100	D F - 08	Project Work, Hands on Training and Device Fabrication Credits – 12 (P) Marks - 300
DF – 04	Clean Room Laboratory Training Credits – 4 (T) Marks – 100		
DF – 05	Project Work, Hands on Training and Device Fabrication Credits – 4 (P) Marks – 100		

THRUST AREAS: Nuclear Physics (Experimental), Nuclear Physics (Theory), Particle Physics (Experimental), ParticlePhysics (Theory), Condensed Matter Physics (Experimental), Condensed Matter Physics (Theory). Other research areas include Astrophysics and Planetary Sciences (Space Sciences), Molecular Spectroscopy and Physics Education.

PLACEMENTS: The students pursue career in teaching and research after qualifying CSIR/UGC NET. Studentsqualifyvarious entrance examination/interviews for pursuing research in premier institutes like IISc, TIFR, BARC, DRDO, ISRO, IMSc, RRI, PRL, IIT and IISER. Students also qualify GATE to pursue professional courses, like M.Tech., MCA, etc. Students also qualify GRE for further studies abroad. Significant number of students go for Post-graduation at TIFR, IISc, IMSc, and IITs after qualifying B.Sc (Hons.) from PU. Students are also placed through PU Central Placement cell.

ALUMNI RELATIONS: The Physics Department has an association of its alumni. Annual meeting of the Physics DepartmentAlumni is a regular feature and held in the month of December. It gives a platform to its alumni to share their experiences and also act as motivator for the students of the department

DEPARTMENT OF STATISTICS

ABOUT THE DEPARTMENT

The Department of Statistics was established in 1964 as a part of Mathematics Department, and since 1974 it is an independent Department. The Department offers Master's and Ph.D. Courses in Statistics. The courses are designed to develop analytic and inferential aptitude of the students through theory and rigorous practical assignments along with exposure to practical training during the course of their study. The Department has received financial support for its academic growth under COSIST, FIST and SAP scheme of UGC and DST of the Government of India. The Department has also been awarded the status of DSA (Department under Special Assistance) by UGC based on its excellence in Teaching and Research.It is among one of the active departments in the country carrying out research in fields of Multiple Comparison Procedures, Reliability and Survival Analysis, Statistical Inference and Applied Statistics (Actuarial Statistics, Bio-Statistics, Econometrics and Income Distributions). The Department has well equipped Computer laboratory with access to softwares like MINITAB, SPSS, SYSTAT, R, S-PLUS, PYTHON and STATGRAPHICS. The students are given training for usage of R and SPSS for solving their practical assignments. Eminent Statisticians from India and other countries keep visiting the Department frequently for delivering lectures and research collaboration. The faculty members attend National and International conferences. Interaction with neighbouring industries in the field of process control and with institutes like PGIMER, GMCH, NIPER, IMTECH, CRRID, Census and NITTTR etc. for providing research consultancy to doctors and researchers is another highlight of the Department of Statistics. The faculty members also collaborate with sister departments for research and data analysis.

The Department of Statistics has an independent Library which has on shelf more than 5000 books and access (offline & online) to about 20 journals.

FACULTY:

Designation	Name	Field of Research Specialization
Professors	Suresh K. Sharma	Biostatistics, Statistical Modeling, Ranking and selection and related estimation problems, Statistical Inference, Applied Statistics, Predictive Modeling and Bioinformatics
	Narinder Kumar **(Chairperson)**	Statistical Inference, Multiple Comparison Procedures and Applied Statistics
Associate Professor	Anju Goyal	Ranking and Selection Methodology, Multiple Comparison Procedures, Statistical Inference, Sampling Techniques
Assistant Professors	Manoj Kumar	Linear Models, Econometrics
System Administrator	Harminder Singh Deosi	Statistical Programming, Pattern Recognition

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
M.Sc.	34+5NRI +9 Foreign Nationals	2 Years	50% marks in B.A./B.Sc. (General or Honours) examination with Mathematics/Statistics as Major subject of Panjab University or any other university recognized by Panjab University as equivalent thereto. OR 50 % marks in B.A,/B.Sc. (General or Honours) examination in any subject under CBCS with 24 credits in Mathematics/Statistics as Generic Elective (GE) (as per Panjab University General Guidelines). OR 50% marks in B.A. /B.Sc. (3-year) examination in the FYUP Framework Under NEP 2020 with Mathematics/Statistics as major subject of Panjab University or any other university recognized by Panjab University as equivalent thereto. OR 50% marks in B.A./B.Sc.(3-year) examination in the FYUP Framework Under NEP2020 with 24 credits in Mathematics/Statistics as Minor subject (as per Panjab University General Guidelines).	Based on P.U.CET (PG) Academics-50% PU CET (PG)-50%
Ph.D.	08	3-6 years	See Ph.D. Prospectus 2026	

*5% Concession is admissible in eligibility marks to SC/ST/BC/PWD candidates
***15% weightage will be given to those candidates who have done B.Sc. (Honours) only in the subject of Statistics.

Note: (i) The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes-M.Sc. (Hons.) Research and M.Sc. (Hons.)-for a total of [34+5 (NRI) +9 (Foreign Nationals)] seats. The eligibility and admission criteria for these programmes are as specified in the table above.

(ii) Allocation to the Research-based courses in the Second Year shall be determined based on the candidate's merit performance in the First Year or any other criteria decided by the Board of Control (BOC) of the Department of Statistics after completion of the First Year. At least 20% of the total strength of students admitted in the First Year shall be considered for allocating these Research-based courses. Students who successfully complete the Research-based courses along with the prescribed Course work will be awarded the M.Sc. (Hons.) Res. (Two-Year Programme) degree. Those who are not eligible for the Research-based courses shall complete the Second Year with the prescribed Course work only and will be awarded the M.Sc. (Hons.) degree.

Titles of Syllabi

M.Sc. (Hons.) in Statistics Two-Year Programme with course work as per NEP 2020 under the Honours School System

Semester 1		**Semester 2**	
STAT-PG-DSC-101	Linear Algebra	STAT-PG-DSC-201	Numerical Techniques using C **(**Theory 1/2, Practical 1/2**)**
STAT-PG-DSC-102	Distribution Theory **(**Theory 3/4, Practical 1/4**)**	STAT-PG-DSC-202	Estimation and Testing of Hypotheses**(**Theory 3/4, Practical 1/4**)**
STAT-PG-DSC-103	Statistical Methods with Packages **(**Theory 3/4, Practical 1/4**)**	STAT-PG-DSC-203	Sampling Theory and Official Statistics **(**Theory 3/4, Practical 1/4**)**
STAT-PG-DSE-104	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-204	Course selected from Discipline Specific Elective Courses Module
STAT-PG-DSE-105	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-205	Course selected from Discipline Specific Elective Courses Module
Semester 3		**Semester 4**	
STAT-PG-DSC-301	Nonparametric Inference **(**Theory 3/4, Practical 1/4**)**	STAT-PG-DSC-401	Multivariate Analysis **(**Theory 3/4, Practical 1/4**)**
STAT-PG-DSC-302	Linear Inference	STAT-PG-DSC-402	Design and Analysis of Experiment

	(Theory 3/4, Practical 1/4)		(Theory 3/4, Practical 1/4)
STAT-PG-DSC-303	Statistical Process and Quality Control (Theory 3/4, Practical 1/4)	STAT-PG-DSC-403	Econometrics (Theory 3/4, Practical 1/4)
STAT-PG-DSE-304	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-404	Course selected from Discipline Specific Elective Courses Module
STAT-PG-DSE-305	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-405	Course selected from Discipline Specific Elective Courses Module

Discipline Specific Elective (DSE) Courses Module*

Name of the Courses	
M 1Categorical Data Analysis	M 6 Real Analysis
M 2 Economic Statistics	M 7 Stochastic Processes
M 3Advanced Inference (Theory 3/4, Practical 1/4)	M 8 Complex Analysis
M 4 Reliability	M 9 Measure and Probability Theory
M 5 Statistical Simulation and Computation using R (Theory 1/2, Practical 1/2)	M 10 Operations Research (Theory 3/4, Practical 1/4)

BOC will decide which among the DSE Course(s) is (are) to be offered in a particular semester. DSE Courses can be also be offered by Postgraduate Academic Programme Monitoring and Execution Committee (PGAPMEC) from other Allied Departments (Department of Mathematics, Department of Computer Science and Applications) with the approval from BOC. Any other course BOC may also decide to offer.

Title of Syllabi

M.Sc. (Hons.) Res. in Statistics Two-Year Programme with Research work and Course work as per NEP 2020 under the Honours School System

Semester 1		Semester 2	
STAT-PG-DSC-101	Linear Algebra	STAT-PG-DSC-201	Numerical Techniques using C (Theory 1/2, Practical 1/2)
STAT-PG-DSC-102	Distribution Theory (Theory 3/4, Practical 1/4)	STAT-PG-DSC-202	Estimation and Testing of Hypotheses(Theory 3/4, Practical 1/4)
STAT-PG-DSC-103	Statistical Methods with Packages (Theory 3/4, Practical 1/4)	STAT-PG-DSC-203	Sampling Theory and Official Statistics (Theory 3/4, Practical 1/4)
STAT-PG-DSE-104	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-204	Course selected from Discipline Specific Elective Courses Module
STAT-PG-DSE-105	Course selected from Discipline Specific Elective Courses Module	STAT-PG-DSE-205	Course selected from Discipline Specific Elective Courses Module
Semester 3		**Semester 4**	
STAT-PG-DSC-301	Nonparametric Inference (Theory 3/4, Practical 1/4)	STAT-PG-DSC-401	Multivariate Analysis (Theory 3/4, Practical 1/4)
STAT-PG-DSC-302	Linear Inference (Theory 3/4, Practical 1/4)	STAT-PG-DSE-402	Course selected from Discipline Specific Elective Courses Module
STAT-PG-DSE-303	Course selected from Discipline Specific Elective Courses Module	STAT-PG-RBC-403	Course selected from RBC Module
STAT-PG-RBC-304	Course selected from Research Based Courses (RBC) Module	STAT-PG-THE-404	Thesis Research Work
STAT-PG-SYN-305	Synopsis of Proposed Research Work		

Discipline Specific Elective (DSE) Courses Module*

Name of the Courses	
M1 Categorical Data Analysis	M7 Stochastic Processes
M2 Economic Statistics	M8 Complex Analysis
M3 Advanced Inference (Theory 3/4, Practical 1/4)	M9 Measure and Probability Theory
M4 Reliability	M10 Operations Research (Theory 3/4, Practical 1/4)

M5 Statistical Simulation and Computation using R(Theory 1/2, Practical 1/2)	M11 Statistical Process and Quality Control (Theory 3/4, Practical 1/4)
M6 Real Analysis	M12 Design and Analysis of Experiment(Theory 3/4, Practical 1/4)

*BOC will decide which among the DSE Course(s) is (are) to be offered in a particular semester. DSE Courses can be also be offered by Postgraduate Academic Programme Monitoring and Execution Committee (PGAPMEC) from other Allied Departments (Department of Mathematics, Department of Computer Science and Applications) with the approval from BOC. Any other course BOC may also decide to offer

Research Based Courses (RBC) Module**

Name of the Courses
R1 Research Methodology and Ethics
R2 Econometrics (Theory 3/4, Practical 1/4)
R3 Actuarial Statistics
R4 Survival Analysis
R5 Simultaneous Inference

**BOC will decide which among the Research Based Course(s) is (are) to be offered in Semesters III and IV. Any other course BOC may also decide to offer.

THRUST AREAS: Multiple Comparison Procedures, Reliability and Survival Analysis, Statistical Inference and Applied Statistics: Actuarial Statistics, Bio-Statistics, Econometrics and Income Distributions

PLACEMENT: The Department has an association of its Alumni. It gives a platform to its Alumni to share their experiences and also acts as motivator for the students of the Department. Some Alumni are highly placed as IAS, IPS, Research Officers and Analysts. In case you are alumni of the Department of Statistics at Panjab University, you may kindly:

- Send us your email ID, telephone number, name and address of present place of work, and a brief profile at ssar@pu.ac.in
- Inform about this to other alumni of the Department who are in your contact.

We surely need the joint effort of all alumni to make this venture a success, and hope that you would not only send your details but also keep us updated from time to time.

ALUMNI RELATIONS :The placement cell of the Department plays a pivotal role in bridging the gap between academia and industry. It actively engages with top companies to facilitate internships and job opportunities for students, ensuring they gain valuable real-world experience. By organizing workshops, resume-building sessions, and mock interviews, the placement cell equips students with essential skills to succeed in the competitive job market. The placement cell maintains a comprehensive database of job openings, providing students with easy access to a variety of employment opportunities.

Our students have been selected through Campus Recruitment Programme by noted companies such as Mercer, Xenon Stack, GE-Money, Bridgei2i, Paisa bazaar, Chegg India, IQVIA, Tata Consultancy Services (TCS), Empor Marcon, Gce, Xceedance, etc

CENTRE FOR MEDICAL PHYSICS

ABOUT THE CENTRE:

The Centre for Medical Physics was created in 2007, as joint venture of Panjab University and Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh, to utilize technology dependent specialties coming out of the new scientific innovations for the immediate need of the society, i.e. good health. Medical Physics is an established clinical specialty with wide ranging applications in Radiotherapy Planning and treatment. It can be defined as embracing all applications of radioactive sources in the treatment of cancerous and non cancerous diseases. The students of Medical Physics discipline gain knowledge about different equipment's used in Radiotherapy planning and treatment and their quality assurances. Medical Physicists play a leading role in the areas of radiation safety and development of instrumentation/technology for use in radiation therapy and diagnostic radiology. There is an ample scope for research in the area of medical physics. Atomic Energy Regulatory Board (AERB) is the regulatory body for the M.Sc. Medical Physics Course. The syllabus of Medical Physics course has been designed in such a way that it shall make the student a competent Medical Physicist, Researcher, Radiation Safety Officer and Teacher after qualifying this course. In addition a certification for the Radiation Safety Officer (Level-III) from the Atomic Energy Regulatory Board (AERB) to the students is mandatory for them to be qualified in running the radiation facilities independently and handling of the treatment of patients.

FACULTY

Designation	**Name**	**Field of Research/Specialization**
Assistant Professor	Vivek Kumar **(Chairperson)**	Experimental Nuclear Physics and Medical Physics

COURSES OFFERED (SEMESTER SYSTEM):

Course	**Seats***	**Duration**	**Eligibility ***	**Criteria**
M.Sc.	10+ 2 NRI	3 years	(i) The candidate has passed the B.Sc. (3-year) degree with at least 60% marks in the framework of NEP-2020, OR the Choice Based Credit System (CBCS), OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. (ii) The major discipline or one of the major disciplines/subjects of B.Sc. must be Physics in all the	Based on P.U.C.E.T. (PG) Academics: 40% P.U.C.E.T. (PG): 60% and other admissible weightages..

			three years of under graduation with Mathematics as a minor for atleast two semesters. iii) Admission to M.Sc. course in Medical Physics will be through CET (P.G.), to be conducted by the Panjab University. While deciding the final merit of the entrance test, a weightage shall also be given to the B.Sc. (3-year) marks obtained by the candidate, as per university rules.	
Ph.D.	Subject to availability of seats	3-6 years	See Ph.D. Prospectus-2026	
* 5% Concession in admissible in eligibility marks to SC/ST/BC/PwD Candidates There are no additional seats as mentioned in Handbook of Information-2026				

TITLES OF SYLLABI: Detailed syllabi available online at https://puchd.ac.in/syllabus.php.

M.Sc. (Medical)

Semester I	Semester II
Nuclear and Radiation Physics	Applied Mathematical Physics
Non-Ionising Radiation Physics	Electrodynamics and Quantum Mechanics
Medical Electronics and Instrumentation	Physics of Medical Imaging
Anatomy, Physiology, Tumour Pathology, and Genetics	Physics of Radiotherapy Nuclear Medicine I: Imaging and Therapy
Solid State Physics and Radiation Detectors	Artificial Intelligence in Medical Physics
Programming, Data Science, and Computational Methods for Medical Physics	Materials for Radiological applications
Health Technology Assessment	Professional Ethics in Medical Physics
Semester III	**Semester IV**
Treatment Planning in Radiation Oncology	Radiation Protection
Nuclear Medicine II: Dosimetry and Quality Assurance	Radiation Hazards evaluation and control
Small Field Dosimetry and Calibration Standards	Dosimetric Audit and Clinical Trials in Medical Physics
Radiation Biology	Montecarlo Techniques in Dosimetry
Research Methodology, Data Analytics and Ethics	Seminar on Technical Research and Review Paper Analysis
Advanced Techniques and Emerging Technologies in Medical Physics	Project
Radiation Dosimetry and Standardization	Webinars- 4 Nos. (OR) Oral / Poster Presentation in Conference (OR) Field Onsite Training/- 4 weeks (OR) and
Third Year Internship (One year)	

THRUST AREAS: External Beam radiotherapy, Brachytherapy, Radiobiology, Radiation Protection.

PLACEMENTS: The Centre for Medical Physics has 100% placements in the medical institutions/universities, accelerator / reactor laboratories. Our students have got placements in the medical institutions like PGIMER (Chandigarh), Govt. Medical College (Chandigarh), Institute of Liver and Biliary Sciences (New Delhi), IGMC (Shimla) and many other hospitals in the country. Students are also pursuing Ph.D. in India and Abroad.

ALUMNI RELATIONS: The alumni are invited to participate to celebrate International Day of Medical Physics every year on 7th November on the occasion of birthday of Nobel Laureate Marie Curie. It gives a platform to its alumni to share their experiences and also act as motivator for the students of the Centre.

DEPARTMENT OF MICROBIAL BIOTECHNOLOGY

ABOUT THE DEPARTMENT

The Department of Microbial Biotechnology at Panjab University was established in July 2008 as the Centre for Microbial Biotechnology with the objective of addressing the evolving demands of the biotechnology sector. Over time, the Centre has grown into a full-fledged, independent department of the University and is presently located in the South Campus, Near Dental College, Sector- 25, Panjab University, Chandigarh. The Department is committed to imparting high-quality education and training in Microbial Biotechnology, enabling students to apply scientific knowledge to real-world challenges in healthcare, industry, agriculture, and environmental sustainability. In response to rapid advancements in biotechnology, the curriculum integrates strong theoretical foundations with exposure to contemporary tools and techniques, ensuring that graduates are well-prepared for both industry and research careers.

Under the mentorship of highly qualified and experienced faculty, students develop robust technical competencies, critical thinking abilities, and an innovative outlook. The Department offers both M.Sc. and Ph.D. programmes. The M.Sc. programme, structured over four semesters, emphasizes comprehensive academic and laboratory training during the initial three semesters, followed by a dedicated research project, dissertation, and seminar presentations in the final semester. The

curriculum is thoughtfully designed with contributions from both academic scholars and industry professionals, and aligns with current research trends, translational applications, and entrepreneurial opportunities. The Ph.D. programme fosters advanced research and encourages independent, original contributions to the field of Microbial Biotechnology. Alumni of the Department have established successful careers in biotechnology and pharmaceutical industries, research and academic institutions, and government laboratories, with several graduates also emerging as entrepreneurs and founders of innovative start-ups.

FACULTY

Designation	**Name**	**Field of Research/Specialization**
Professor	Rohit Sharma **(Chairperson)**	Industrial Microbiology & Biotechnology
Assistant Professor	Rachna Singh	Medical Microbiology

COURSE OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission criteria**
M. Sc.	25 + 2 NRI + 6 Foreign National	2 Years	1. Bachelors degree in any field of biological sciences including Biotechnology 2. Passed the B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian / Foreign University or Institute. 3. The candidate must have studied biological sciences in any field as major discipline OR one of the major disciplines/subjects, OR a minor / additional course with atleast 24 credits under NEP-2020 OR Generic Elective (GE)/Additional course under CBCS system in the B.Sc. degree.	Based on PU-CET (PG) Academics – 50% PU-CET(PG) – 50 %
Ph.D.	Subject to availability	3-6 Years	See Ph.D. Prospectus 2026	
* 5% Concession in admissible in eligibility marks to SC/ST/BC/PwD Candidates				

Note:

(i) The candidate shall be admitted to the common First year of the Two-Year Postgraduate Programmes -M.Sc (Hons.) Research as per seats, eligibility and admission criteria specified in the table above

TITLES OF SYLLABI: Detailed course curriculum available at https://www.puchd.ac.in/includes/syllabus/2023/20230728161434-m.scmicrobialbiotechnology2023-24.pdf?2026

Semester-I		**Semester-II**	
MBT-DSC-101	Microbial Biodiversity and Physiology	MBT-DSC-201	Medical Microbiology
MBT-DSC-102	Genetics and Recombinant DNA Technology	MBT-DSC-202	Molecular Biology
MBT-DSC-103	Bioprocess Engineering	MBT-DSC-203	Bioinstruments & their applications I
MBT-DSE-104	Immunology and Immunotechnology	MBT-DSE-204	Bioinformatics & Biostatistics
MBT-DSE-105	Microbial Biochemistry and Enzymology	MBT-DSE-205	Intellectual Property Rights (IPR), Bioethics & Entrepreneurship
Semester-III		**Semester-IV**	
MBT-DSC-301	Industrial Microbiology	MBT-DSC-401	Advances in Microbial Biotechnology
MBT-DSC-302	Bioinstruments & their applications II	MBT-DSC-402	Dissertation and Viva
MBT-DSC-303	Microbial Identification, Diagnostics & Nanobiotechnology		
MBT-DSE-304	Bioinnovation & Nurturing Entrepreneurship		
MBT-RM-305	Research Methodology		
MBT-RM-306	Synopsis for the Upcoming Project in the IVth Semester		

***MBT-DSC Microbial Biotechnology- Discipline Specific Core**

MBT-DSE: Microbial Biotechnology-Discipline Specific Elective

THRUST AREAS: Extremozymes, Antimicrobials, Biofilms, Vaccine Development. Medically – relevant microbial interactions.

PLACEMENTS: The placement brochure is available on Department website. Many students have qualified National level entrance tests for enrolment in Ph.D. and are pursuing Ph.D. programme. Many students have joined corporate jobs; many students have established their own start-up companies. Industry experts are invited to the department to interact with the students and the students are also taken for industrial visits.

ALUMNI RELATIONS: Alumni of the Department are invited regularly for interactions and talks. It gives a platform to the students to interact with them and learn from their experience and helps in building the alumni bonds.

CENTRE FOR NANOSCIENCE AND NANOTECHNOLOGY

ABOUT THE CENTRE

Established in 2005, the Centre for Nanoscience & Nanotechnology (CNSNT) has a long-standing reputation for providing premier interdisciplinary education. The Centre offers a two-year M. Tech. in Nanoscience and Nanotechnology alongside a robust Ph. D. program spanning various multidisciplinary domains.

In response to the growing global demand for clean energy expertise, CNSNT expanded its curriculum in 2024 to include a two-year M. Sc. in Renewable Energy and Smart Materials. Furthermore, in alignment with the NEP-2020 framework, the Centre introduced the B. Sc. course in Sustainable and Renewable Energy in 2026. To foster broader academic integration, CNSNT also offers Interdisciplinary Courses (IDC) for undergraduates and Generic Elective (G.E.) courses for postgraduates.

CNSNT provides hands-on training in advanced characterization techniques, both in-house and at nearby institutes and central facilities, including the Sophisticated Analytical Instrumentation Facility (SAIF) at Panjab University. Students gain practical experience in analyzing samples using state-of-the-art instruments relevant to nanoscience, such as Transmission Electron Microscope (TEM), Scanning Electron Microscope (SEM), X-ray Diffraction (XRD), and Atomic Force Microscope (AFM). Additionally, they work with advanced tools like Fourier Transform Infrared Spectroscope (FT-IR), UV-Visible Spectroscope, Hall Effect Measurement, Laser Desorption/Ionization Mass Spectrometer, Chemical Vapor Deposition, RF-Sputtering, Cyclic Voltammetry, Surface-Enhanced Raman Spectrometer (SERS), and I-V measurement systems. Beyond characterization, students engage in the fabrication of devices such as solar cells, memory devices, and sensors, as well as processes like thin-film deposition and the growth of 2D and 3D nanomaterials. Faculty members from various Science and Engineering departments of Panjab University actively contribute to CNSNT's teaching and research endeavors. The centre also hosts special invited lectures almost every month, featuring experts from premier Indian institutes like the Institute of Nano Science and Technology (Mohali), CSIO (Chandigarh), IISER (Mohali), and international institutions. CNSNT is committed to providing cutting-edge theoretical knowledge and hands-on training in nanoscience, nanotechnology, and renewable energy. Its goal is to establish world-class research and training infrastructure at the industry-academia interface, fostering innovation and excellence in the field.

CNSNT has established research collaborations through Memorandums of Understanding (MOUs) with the Institute of Nano Science and Technology (INST), Mohali, and Saitama University, Japan. These partnerships facilitate joint research, infrastructure sharing, and enhanced student participation in cutting-edge projects. Additionally, CNSNT is an active participant in the BRICS research network and the ANRF-PAIR network of universities.

CNSNT strives to emerge as a leading academic center for research and innovation by fostering proactive collaborations with premier institutes worldwide. The centre is deeply engaged in advanced research in nanoscience and renewable energy, with a strong focus on technological advancements in areas such as nanoelectronics, sensors, drug delivery, optoelectronics, energy storage and harvesting - especially solar energy harvesting, environmental solutions, and healthcare. To bridge the gap between academia and industry, CNSNT promotes industry participation by developing state-of-the-art research infrastructure, supporting time-sensitive project execution, encouraging entrepreneurship, and nurturing skilled professionals in allied domains.

VISION AND MISSION STATEMENT

THE VISION

To impart high-quality education and conducting cutting-edge research in the emerging interdisciplinary areas of Nanoscience & Nanotechnology and Renewable Energy.

THE MISSION

- To excel in research and innovation for disseminating new knowledge and technological know-how.
- To create future industry-ready skilled manpower.
- Pedagogy development on cutting-edge areas of Nanoscience and Renewable Energy.
- Creation of an industry-friendly research environment and state-of-the-art infrastructure.

FACULTY

Designation	Name	Field of Research Specialization
Professor	Sunil Kumar Arora	Synthes and characterization of novelnano-materials, Nanomagnetism, Nano-electronics, Spin-electronics, Epitaxial growth using MBE and sputtering, Nanofabrication, Engineering nanoscale defects, 2D layered materials (graphen and transition metal dichalcogenides) synthesis and hetero-interfaces devices
Assistant Professors	Jadab Sharma **(Chairperson)**	I am interested in synthesizing innovative nanomaterials and engineering their surfaces to create hybrid assemblies. My goal is to fabricate highly efficient devices that advance fields like nano-plasmonics, optoelectronics, and solar energy harvesting. My research explores the creation of advanced nanomaterials and hybrid devices to address challenges in sustainable energy and advanced electronics. Specific areas include developing new nano-plasmonic and optoelectronic systems and improving solar energy conversion
	Akash Katoch	Interface engineering of nanomaterials, (metal oxide nanowire, nanofibers, thin films, 2D metal chalcogenides), chemiresistive gas sensor, sensor device fabrication, heavy metal ion detection and energy storage devices.
UGC-FRP	Bharat Bajaj *(On study leave)*	Fabrication of Nanomaterials, Electrospinning of carbon nanofiber, functionalized carbon nanofiber, absorption of environmental pollutants, waste water treatment and sensing applications.
Assistant professor	Richa Rastogi	Nano material based biosensors for healthcare applications

(Temporary) Thakur

COURSES OFFERED (SEMESTER SYSTEM):

Course	Seats	Duration	Eligibility*	Admission criteria
Bachelor of Science (B. Sc.) (Sustainable & Renewable Energy) (Under Honours School System) As per NEP2020	25 +3 NRI +6 Foreign Nationals)	4 Years	Minimum of 50 % marks in aggregate or equivalent grade in the qualifying examination as specified in the admission scheme/syllabus.	60 % weightage in entrance examination** + 40 % weightage in qualifying examination or as per Panjab University admission criteria. Note:** Not applicable for NRI and foreign nationals. **Note**: For the session 2026-27, admission will be purely on aggregate marks scored in intermediate examination (10+2) or equivalent.
M. Sc. in Renewable Energy and Smart Materials (RESM)	25 +3 NRI +6 Foreign Nationals)	2 years	B.Sc. (03 years) examination from any recognized national and international (foreign) university or any other examination recognized by the competent authority as equivalent thereto with Physics or Chemistry or Applied Sciences (mathematics as subsidiary subject is mandatory for applied sciences) with minimum of 55 % marks in aggregate. B. Sc. (after completion of first 03 years) examination from any recognized national and international (foreign) university or any other examination recognized by the competent authority as equivalent thereto as per multiple entry exit criteria for students enrolled under 04- year bachelor degree program with Physics or Chemistry or Applied Sciences (mathematics as subsidiary subject is mandatory for applied sciences) with minimum of 55 % marks in aggregate	**50 % weightage in entrance examination + 50 % weightage in qualifying examination or as per Panjab University admission criteria.
M. Tech. (Nanoscience and Nanotechnology)	15+2 NRI+4 Foreign Nationals)	2 Years	Must have qualified GATE with Bachelor's degree (4 years after 10+2) in Engineering / Technology i.e. B.E. / B. Tech (in any branch) or Master's Degree in Physics / Chemistry / Biophysics / Biochemistry / Microbiology / Biotechnology / Nanoscience / Electronics with minimum 50 % marks in aggregate.	Merit based on GATE** score and if the seats are not completely filled, candidates without GATE will be allowed on the academic merit of qualifying examination
Ph. D. (Multi-disciplinary)	As per vacancy	05 Years	See Ph.D Prospectus 2026	As per UGC/PU rules and regulations.
*5% Concession is admissible in eligibility requirement to SC/ST/BC/PwD candidates				

TITLE OF SYLLABI : Detailed course curriculum is available at https://nsnt.puchd.ac.in

M.Sc. (Renewable Energy and Smart Materials)

SEMESTER-I		SEMESTER-II	
RESM-101	Renewable energy and climate linked policies.	RESM-201	Biomass conversion to biofuels: bio-ethanol & biodiesel production.
RESM-102	Thermodynamics of energy conversions and systems.	RESM-202	Hydrogen: production, storage & applications.
RESM-103	Introduction to smart materials & smart systems.	RESM-203	Materials for energy applications and fabrication of energy devices.
RESM-104	Laboratory-I	RESM-204	Laboratory-II (Research project based experiments).
RESM-105 (Department Specific Elective	RESM-105 EP-1 (Physics): Introduction to quantum mechanics. RESM-105 EC-2 (Chemistry): Transition metal chemistry.	RESM-205 (Department Specific Elective Courses)	RESM-205 EP-1 (Physics): Classical & statistical mechanics. RESM-205 EC-2 (Chemistry): Structure reactivity and reaction mechanism.

Courses)	RESM-105 ER-3 (General): Risk management: mitigation of CO_2 emission. RESM-105 ER-4 (General): Fundamentals of numerical methods and computer programming.		RESM-205 ER-3 (General): Conversion of waste into energy. RESM-205 ER-4 (General): Wind and tidal energy technology.
SEMESTER-III		**SEMESTER-IV**	
RESM-301	Photovoltaics and solar thermal devices: materials and fabrication.	RESM-401	Internship/Project work and thesis submission.
RESM-302	Batteries and fuel cells: principles, materials and technology.	RESM-402	Seminar presentation & viva-voce examination.
RESM-303	Third generation solar cells.		
RESM-304	Characterization of Materials.		
RESM-305	Laboratory-III (Research project based experiments)		
RESM-306 (Department Specific Elective Courses)	RESM-306 EP-1 (Physics): Physics of solid state matter. RESM-306 EC-2 (Chemistry): Chemistry of inorganic materials. RESM-306 ER-3 (General): Modelling of smart materials and energy systems: design and optimization. RESM-306 ER-4 (General): Smart cities: concept, planning, and requirements.		

M. Tech. (Nanoscience and Nanotechnology)

SEMESTER-I		**SEMESTER-II**	
MNT6101	Foundation of nanoscience and nanotechnology	MNT6201	Nanomaterials based devices: MEMS and NEMS
MNT6102	Elective Courses E1: Introduction to bio-nanotechnology E2: Materials and methods of nanocoatings E3: Societal impacts of nanotechnology	MNT6202	Elective Courses E1: Advancement in bio nanotechnology E2: Theoretical studies in nanoscience: scientific computation and simulation E3: Nanocomposites – fabrication, properties and applications
MNT6103	Chemistry of nanomaterials	MNT6203	Physics of nanomaterials
MNT6104	Synthesis of nanomaterials and fabrication techniques	MNT6204	Characterization techniques for nanomaterials
MNT6105	Scientific computation and simulation in nanoscience and nanotechnology	MNT6205	Carbon nanomaterials: synthesis, functionalization and applications
MNT6106	Laboratory-I	MNT6206	Laboratory II
G. E.	Open	-	-
SEMESTER-III		**SEMESTER-IV**	
MNT 7101	Soft materials and supramolecular molecular devices	MNT 7201	Internship/project work and thesis submission
MNT 7102	Elective Courses: E1: Thin film technology for nanomaterials and devices E:2 Nanomaterials and membrane science & technology E3: Nanoscale magnetic materials and devices	MNT 7202	Seminar presentation & viva-voce examination
MNT 7103	Industrial trend and applications of nanomaterials		
MNT 7104	Laboratory-III		
MNT 7105	Project/Internship proposal presentation		
G. E.	Open		

Bachelor of Science (B .Sc.) (Sustainable & Renewable Energy) (Under Honours School System) As per NEP2020

Semester-I		Semester-II	
SREDSC101	Introduction to Renewable Energy	SRE-DSC-201	Materials for Renewable Energy
SRE-M 102	Basic Chemistry	SRE-DSC-202	Basic Physics
SREIDC103*	IDC-I	SRE-DSC-203	IDC-II*
SRE-AEC 104	Innovation & Entrepreneurship	SRE-DSC-204	MIL
SRE-AEC 105	English	SRE-DSC-205	Basic Mathematics
SRE-SEC 106**	SEC-1	SRE-DSC-206	SEC-II**
SRE-VAC 107	VAC1(Environmental Science)	SRE-VAC-207	VAC-II***

Note: Syllabus is only for first two semesters (01 Year). The full syllabus is under preparation and will be available soon.	
*This subject will be selected by the pupil from common pool of basket of inter disciplinary courses (IDC) offered by various departments of Panjab University with the recommendation of the department. **This subject will be selected by the student from common pool of basket of skill enhancement courses (SEC) offered by various departments of Panjab University with the recommendation of the department.	*This subject will be selected by the student from common pool of basket of inter disciplinary courses (IDC) offered by various departments of Panjab University with the recommendation of the department. **This subject will be selected by the student from common pool of basket of skill enhancement courses (SEC) offered by various departments of Panjab University with the recommendation of the department. ***This subject will be selected by the student from common pool of basket of Value Added courses (VAC) offered by various departments of Panjab University with the recommendation of the department.

THRUST AREAS : Synthesis and fabrication nanomaterials, nanomaterial in sensors, healthcare, environment remedial applications, interface engineering of nanomaterials, solar energy harvesting (third generation solar cells), optoelectronics (nano-plasmonics and photonics), materials for energy applications (hydrogen generation, capacitor & battery).

CENTRE FOR NUCLEAR MEDICINE

ABOUT THE CENTRE

Nuclear medicine is a medical specialty concerned with the use of safe and small amounts of radioactive materials for diagnostic, therapeutic, and research purposes. More specifically, nuclear medicine is a part of molecular imaging because it produces images which reflect biological processes that take place at the cellular and subcellular levels. Though there are many diagnostic techniques currently available, nuclear medicine uniquely provides information about both the structure and function of virtually every major organ system within the body. It is this ability to characterize and quantify physiologic function which separates nuclear medicine from other imaging modalities, such as X-ray, MRI and ultrasound. A typical nuclear medicine study involves the administration of a radionuclide into the body in order to obtain images of the organs, to perform various body function studies and to treat diseases.

Vision and mission of the Centre

Nuclear medicine experts designated as Nuclear Medicine Physicists are highly skilled individuals and their responsibilities include performing in vivo, radiation safety and quality control procedures. Other responsibilities which include operating the cameras that create images including patient positioning and processing the data for research purposes. The discipline of nuclear medicine also produces dedicated scientists who develop radiopharmaceuticals/radioisotopes for the imaging of organs and therapies.

Vision and mission of the Centre

Nuclear medicine is an emerging area in medicine and is growing at a fast pace in India and there is an urgent need for trained human resource as medical physicists and radiation safety officers for running nuclear medicine departments and industries that use radioisotopes. Therefore, the centre shall provide trained manpower to cater the needs of various hospitals, medical colleges/Institutes and Industry in India and abroad. The mission of the M.Sc. Nuclear Medicine Program at Panjab University is to provide the students an opportunity to achieve expertise both in diagnostic imaging and therapeutics with clinical hands on experience in Nuclear Medicine. The Centre imparts a quality education leading to the award of degree in Masters of Science in Nuclear Medicine and train the students for national/international eligibility test to be designated as certified Radiation safety officers and medical physicists.

Unique features of the course

Panjab University is the second institution after AIIMS to start M.Sc. Course in Nuclear Medicine. The students shall get ample opportunity for hands on clinical training in the 2nd year of the course in Nuclear Medicine Clinical Setup.

FACULTY

Designation	Name	Field of Research Specialization
Assistant Professor	Dr. Vijayta D. Chadha **(Chairperson)**	Radiation biology and Radio pharmacy

COURSES OFFERED (SEMESTER SYSTEM):

Course	Seats	Duration	Eligibility*	Admission criteria
M.Sc. (Nuclear Medicine)	10+2 NRI	2 years (4 Semesters)	i) Passed the B.Sc. (3-year) degree with at least 50 % marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. ii) The candidate must have studied Nuclear Medicine/Biophysics as major discipline OR Physics and Chemistry (Non-medical Stream) or Chemistry & Zoology/Biotechnology (Medical Stream) as core subjects..	Based on PU-CET (PG) Academics: 50% PU-CET (PG) 50%
Ph.D	Subject to availability	3-6 years	See Ph.D Prospectus 2026	

*5% Concession is admissible in eligibility requirement to SC/ST/BC/PWD candidates There are no additional seats as mentioned in Handbook of Information – 2026

TITLES OF SYLLABI: Detailed course curriculum is available at https://nuclearmedicine.puchd.ac.in

M.Sc.

SEMESTER - I		SEMESTER - II	
(i)	Human Anatomy and Cell physiology	**(i)**	Human Physiology, Immunology and Cancer Biology
(ii)	Radiation Physics and Applied Mathematics	**(ii)**	Electronics, Biomedical instrumentation and Techniques
(iii)	Radiation Biology and Chemistry	**(iii)**	Biostatistics and Computer applications in Nuclear Medicine
(iv)	Radiation Detection and Measurements	**(iv)**	Medical Applications of Radioisotopes

SEMESTER-III		SEMESTER-IV	
Paper-1	Nuclear Medicine Instrumentation	Paper-1	Medical Cyclotron, PET/CT & Allied Instrumentation
Paper-2	Radiological Protection & Dosimetry-I	Paper-2	Nuclear Medicine Imaging & Radionuclide Therapy
Paper-3	Principles and practice of Radio pharmacy	Paper-3	Dissertation (Literature based presentation and rand Viva
Paper-4	Nuclear Medicine Imaging and Non-Imaging Procedures		

THRUST AREAS: To educate individuals to become high quality nuclear medicine technologists and Radiation Safety Officers. To provide a complete, up-to-date competency-based curriculum. To fulfill the need for nuclear medicine technologists in the local and regional communities.

PLACEMENTS: 100% placement of students as Medical physicists and Radiological Safety Officers with a starting package of 5-7 lakhs per annum..

ALUMNI RELATIONS: Centre for Nuclear Medicine got the first Batch of M.Sc. Nuclear Medicine passed out in 2009. Till now, 16 Batches have passed out after completion of M.Sc. degree. The Alumni are working with nation renowned institutes/hospital viz PGIMER, Chandigarh; AIIMS, New Delhi; AIIMS, Raipur; AIIMS, Rishikesh; CMC, Ludhiana; Oswal, Ludhiana; Tata memorial hospital, Mumbai; Rajiv Gandhi Cancer speciality hospital, Delhi; Baba Farid university, Faridkot; Safdarjung hospital, Delhi; Max hospital, Chandigarh; Forties Hospital, Mohali; Kailash Cancer Hospital and Research Centre, Gujarat etc.

CENTRE FOR PUBLIC HEALTH

ABOUT THE CENTRE

Panjab University is running Master in Public Health since year 2007 under UIEST to cater with the emerging needs of the country to produce trained manpower for handling public health issues. Public Health is emerging as one of the most significant areas as health of the citizen is important resource and asset of a nation. Major advances in improvement of health over the next decade will be through the development and application of prevention programmes. Health service delivery systems are undergoing rapid changes. It is important to prepare a task force of experts in domain of public health. This course is being offered to prepare Public Health professional and to strengthen capacity of various Health Organization.

FACULTY

Designation	**Name**	**Field of Research Specialization**
Assistant Professor	Manoj Kumar **(Chairperson)**	Public Health

Course	**Seats**	**Duration**	**Eligibility***	**Admission criteria**
Master in Public Health	17+2 NRI +5 in service** + 4 Foreign National	2 years	Passed MBBS/BDS/BAMS/BHMS/B.VSC/BPH/ BPT/B.Sc. Nursing, Life Sciences / Biological Sciences/ Allied Science or Equivalent degree with at least 50% marks* from recognized University / Institute in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR the 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute	Based on PU-CET (PG) Academics – 50% PU-CET(PG) – 50%
Ph.D	Subject to availability	3-6 years	See Ph.D Prospectus 2026	

*5% Concession is admissible in eligibility requirement to SC/ST/BC/PWD candidates

** Only regular employees in Government organization and having at least one year service experience to be admitted under "in-service" category. The candidate has to produce "No Objection Certificate" at the time of admission. In case of non-availability of in-service candidates the seats will be converted into General Category.

Note : The candidates shall be admitted to the common First Year of the two-year Postgraduate Programmes-Master in Public Health as per seats, eligibility and admission criteria specified in the table above.

TITLES OF SYLLABI (Detailed syllabus available at http://puchd.ac.in/syllabus.php

SCHEME OF STUDY

SEMESTER- I							
SUBJECT CODE	**NAME OF THE SUBJECT**	**L**	**T**	**P**	**HOURS PER WEEK**	**CREDITS**	**MARKS**
MPH- DSC-101	Basic Concepts in Public Health	4	1	0	5	4	100
MPH- DSC-102	Epidemiology	3	1	1	5	4	100
MPH- DSC-103	Health Informatics	3	1	1	5	4	100
MPH- DSE-104	**Open Elective –** A) Occupational Health and Safety Management **OR** B) Environmental Health	3 3	1 1	1 1	5	4	100
MPH- DSE-105	**Open Elective –** A) Global Health **OR** B) Public Health aspects of Special Groups	4 4	1 1	1 0	5	4	100
	Seminar/Journal Club	-	1	-	1	NC	S/US
TOTAL					**26 HOURS**	**20**	**500**

SEMESTER- II							
SUBJECT CODE	**NAME OF THE SUBJECT**	**L**	**T**	**P**	**HOURS PER WEEK**	**CREDITS**	**MARKS**
MPH- DSC-201	Epidemiology of Communicable and Non-communicable Diseases	3	1	1	5	4	100
MPH- DSC-202	Reproductive, Maternal, Neonatal, Child and Adolescent Health	4	1	0	5	4	100
MPH- DSC-203	Public Health Programmes and Policies	4	1	0	5	4	100
MPH- DSE-204	**Open Elective** A) Disaster management in Public Health **OR** B) Genetics in Public Health	4 4	1 1	0 0	5	4	100
MPH- DSE-205	**Open Elective** A) Indian Knowledge System* **OR** B) Social service in community: A Public Health perspective*	0 0	1 1	4 4	5	4	100
	Seminar/Mentor allotment for dissertation	-	1	-	1	NC	S/US
TOTAL					**26 HOURS**	**20**	**500**

***Value Addition Course**

SEMESTER- III							
SUBJECT CODE	**NAME OF THE SUBJECT**	**L**	**T**	**P**	**HOURS PER WEEK**	**CREDITS**	**MARKS**
MPH- DSC-301	Health Economics	4	1	0	5	4	100

MPH- DSC-302	Health Promotion	4	1	0	5	4	100
MPH- RMC-303	Biostatistics and Research Methodology- I	3	1	1	5	4	100
MPH- DSE-304	**Open Elective** A) Community Outreach activity **OR** B) Information, Education, Communication (IEC) and Behaviour Change Communication (BCC)	0 0	1 1	4 4	5	4	100
MPH- SPR-305	Synopsis for Dissertation and Internship	-	-	4	6	4	100
TOTAL					**26 HOURS**	**20**	**500**

SEMESTER- IV							
SUBJECT CODE	**NAME OF THE SUBJECT**	**L**	**T**	**P**	**HOURS PER WEEK**	**CREDITS**	**MARKS**
MPH- DSC-401	Health Management	4	1	0	5	4	100
MPH- RMC-402	Research Methodology and Biostatistics- II	3	1	1	5	4	100
MPH- DSE-403	**Open Elective** A) Entomology **OR** B) Public Health Law, Ethics and Human Rights	3 4	1 1	1 0	5	4	100
MPH- TRW-404	Dissertation	-	-	8	12	8	200
TOTAL					**27 HOURS**	**20**	**500**

Total Credits = 80	Semester I = 20	**Total Marks = 2000**	Semester I = 500
	Semester II =20		Semester II =500
	Semester III =20		Semester III =500
	Semester IV = 20		Semester IV = 500
NOTE	Examiner will set a total of **nine** questions comprising of **two** questions from each Unit, and **one compulsory question** of short answer type, covering the whole syllabus. The compulsory question will consist of **eights short answer type questions** of 2 marks each. **Students will attempt one question from each unit and the compulsory question**. All questions may carry equal marks		

Note:-
DSC – Discipline Specific Course
DSE- Discipline Elective Course
RMC- Research Methodology Course
SPR- Synopsis of Proposed Research
TRW- Thesis Research Work

THRUST AREAS: Public Health, Global Health, Occupational Health, Health Service, Health Promotions Health Education, Epidemiology, Environmental Health and Nutrition.

PLACEMENTS: Off Campus Placement.

ALUMNI RELEASES: The 6th Global Alumni Meet was successfully held at Panjab University on November 1st, 2025, celebrating the achievements of its distinguished alumni. The event witnessed active participation from the Centre for Public

Health (CPH), Panjab University, and was graced by two eminent leaders in the field of public health - Dr. Nitin Arora, State Senior Consultant (Maternal Health), National Health Mission, Uttarakhand and Ms. Atisha Sood, Consultant, Centre for Disaster and Health, NIDM, New Delhi. Both alumni were felicitated by the Honourable Vice-Chancellor, Prof. Renu Vig, and the esteemed Chairperson, Dr. Manoj Kumar (Centre for Public Health), in recognition of their outstanding contributions to maternal health, disaster management, and public health advancement. After attending the Alumni Meet at the Law Auditorium, both guests visited the Centre for Public Health where they interacted with students and faculty. They shared their professional journeys, experiences from the field, and insights into the evolving challenges and opportunities in public health. Their interaction served as an inspiration for the students, motivating them to pursue excellence, innovation, and community service in the field of public health.

CENTRE FOR STEM CELL TISSUE ENGINEERING & BIOMEDICAL EXCELLENCE

ABOUT THE CENTRE

The Centre offers two years (four semesters) M.Sc. degree course in Stem Cell & Tissue Engineering with Research), under NEP 2020.This course was started in 2008 and is intended for graduate students interested in pursuing their careers in the field of stem cell biology. This course will cover the most current knowledge of the principles of stem cell biology, tissue engineering, developmental biology, molecular signaling, genomic, epigenomic & non-genomic regulatory pathways together with immunology, genetics, human anatomy & physiology. The course curriculum has been designed to provide strong emphasis on experimental training to the students. During the first three semesters students will be imparted strong theoretical and practical trainings. In the fourth semester students will be trained to handle the research work related to the field. They will also be trained to write the projects, make presentations in the form of seminars and journal clubs along with the training in the Research methodologies. A continuous evaluation will be followed.

FACULTY

Designation	Name	Field of Research Specialization
Professor	Sanjeev Puri	Renal Tissue Engineering & Molecular Biology of Renal Pathophysiology
Assistant Professor	Seemha Rai **(Chairperson)**	Cancer Stem Cells
Assistant Professor	Anuj Gupta **(Ad-hoc)**	Biochemistry & Cell and Molecular Biology

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission criteria
M.Sc.	15+ 2 NRI +4 Foreign National	2 Years	Passed the 50% marks in B.Sc. under the 10+2+3/10+2+4 pattern of education in General/Life Sciences/BasicMedicalScience/Engineering (Biotech / Biomedical) / Pharmaceutical Biotechnology / Dentistry / Medical Laboratory Technology are eligible to apply for the admission in the framework of NEP-2020 OR the choice based credit system (CBCS) OR the 10+2+3/10+2+4 system of education from Panjab University, Chandigarh or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute..	Based on PU–CET (PG) Academics : 50% PU-CET (PG): 50%
Ph.D.	Subject to availability of seats	3-6 Years	Students securing 50% marks in M.Sc. Stem Cell & Tissue Engineering / Biotechnology Biochemistry are eligible to apply for the admission to PhD in Stem Cell & Tissue Engineering.	As per University rules, the admission to Ph.D. Programme shall be through Entrance Test conducted by Panjab University or qualified UGC-NET/CSIR(JRF) Examination /SLET/GATE/ /Teacher Fellowship holders/direct awardee of fellowship by DST(INSPIRE), ICMR or any other national agency.

* 5% Concession in admissible in eligibility marks to SC/ST/BC/PWD Candidates

**Weightage (if any) as per Panjab University, Chandigarh rules: 100%+ PU weightage +NCC/NSS/Youth Welfare

Note: However, for the ongoing candidates admitted in July 2025 for M.Sc. (Stem Cell & Tissue Engineering), Panjab University, Chandigarh, the Structure of the Syllabus as well as the Scheme of the Syllabus will remain the same for their 3rd and 4th Semester as it was issued during their admission in July 2025 for M.Sc. (Stem Cell & Tissue Engineering), Panjab University, Chandigarh

4. TITLE OF SYLLABI M.Sc. (Stem Cell & Tissue Engineering with Research) 2026 (Two Year Programme with Research) for the fresh admissions for the Session 2026-27 (Under NEP 2020). (Detailed course curriculum is available at http://puchd.ac.in/syllabus.php)

First Semester

DSC: Discipline Specific Courses	DSEC: Discipline Specific Elective Courses
STE-01 : Cell Culture & Cell Technologies	STE-04 : Human Anatomy and Physiology
STE-02 : Cell and Molecular Biology	STE-05: Genomics & Proteomics-1
STE-03: Cell and Molecular Techniques	

Second Semester

DSC: Discipline Specific Courses	DSEC: Discipline Specific Elective Courses
STE-06:TissueEngineering-1: Biomaterials/Biopolymers	STE-09: Genomics & Proteomics-II
STE-07: Immunology & Immunogenetics	STE-10: Histology
STE-08: Stem Cell Biology-I	

Third Semester

DSC: Discipline Specific Courses	DSEC: Discipline Specific Elective Courses	Research -related Course	Synopsis
STE-11: Stem Cell Translational & Ethics STE-12: Stem Cell Biology –II	STE-13: Developmental Biology	STE-14: Biostatistics and Computational Approach	STE-15: Synopsis of Proposed Research Work, One Journal Club, One Seminar Club

Fourth Semester

DSC: Discipline Specific Courses	DSEC: Discipline Specific Elective Courses	Research -related Course	Thesis
STE-16: Stem Cell Signal Transduction and Epigenetic Mechanisms	STE-17: Xenoantigens and Stem Cells	STE-18: Stem Cell Research Methodology	STE-19: Thesis/Project reports *Viva voce*Examination

Note: However, for the ongoing candidates admitted in July 2025 for M.Sc. (Stem Cell & Tissue Engineering), Panjab University, Chandigarh, the Structure of the Syllabus as well as the Scheme of the Syllabus will remain the same for their 3rd and 4th Semester as it was issued during their admission in July 2025 for M.Sc. (Stem Cell & Tissue Engineering), Panjab University, Chandigarh.

THRUST AREAS: Renal Tissue Engineering & Molecular Biology of Renal Pathophysiology, cancer stem cell, stem cell differentiation and niche, toxicologic studies and kinetics.

PLACEMENTS: Students are placed in academia as well as industry. In academia, students are pursuing higher studies at prestigious institutes worldwide viz. Rosewell Cancer Institute, State University of New York, Buffalo, USA; Duke University School of Medicine; Univ. of Manchester, UK; Monash Univ. Australia; ICGEB, New Delhi etc. and at industry level students are currently placed at various companies viz. Parexel International; Cordlife India, GlaxoSmithKline; MDR Labs etc.

ALUMNI RELATIONS: Centre for Stem Cell and Tissue Engineering got the first Batch of M.Sc. (Stem Cell and Tissue Engineering) passed out in 2010. Till now sixteen batches have been passed out and two are currently pursuing their M.Sc degree and therefore the Centre has already made an Alumni Association of Stem Cell & Tissue Engineering and a Stem Cell Society. The Centre is keeping an updated information/record about the Alumni placements and is planning to organize Alumni meets/events regularly.

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CENTRE FOR SYSTEMS BIOLOGY & BIOINFORMATICS

ABOUT THE CENTRE

The Centre for Systems Biology & Bioinformatics was established at Panjab University, Chandigarh in 2007. The emerging field of computational and systems biology represents an integration of concepts and ideas from the biological sciences, engineering disciplines, and computer science. Systems modelling and design are well established in engineering disciplines but are relatively new to biology. Advances in computational and systems biology require multidisciplinary teams with skill in applying principles and tools from engineering and computer science to solve problems in biology and medicine. The curriculum of the 2 year M.Sc. course of Systems Biology and Bioinformatics has a strong emphasis on foundational material to encourage students to become creators of future tools and technologies, rather than merely practitioners of current approaches. Areas of active research in this field include computational biology and bioinformatics, gene and protein networks, molecular biophysics, instrumentation engineering, cell and tissue engineering, predictive toxicology and metabolic engineering, imaging and image informatics, nanobiology and Microsystems, biological design and synthetic biology, neurosystems biology and cancer biology. The Centre has also started Ph.D. Programme and at present five students are pursuing their Ph.Ds.

FACULTY

Designation	Name	Field of Research Specialization
Professor	Veena Puri **(Chairperson)**	Microarray analysis and A-I based network biology, Interactions Biomarker Discovery
Associate Professors	Tammanna R. Sahrawat	Systems Network Biology, Drug Polypharmacology, ML based Network Biology
Assistant Professors	Ashok Kumar	Structural Bioinformatics, Genomics Network Biology, Molecular Modelling

and Dynamics Approach, Natural language Processing and Big Data Analysis

COURSES OFFERED (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
M.Sc.	13+2NRI+ 3 Foreign National	2 Years	Bachelor's of degree Science (General or Hons.) with Bioinformatics, Biotechnology, Biochemistry, Biology, Botany, Chemistry, Electronics, Genetics, Life Science, Mathematics, Mathematics & Computing, Microbiology, Physics, Statistics, Zoology, Agriculture, Computer Science, Engineering, Medicine, Pharmacy and Veterinary Science	Based on PU- CET (PG) Academics : 50% PU-CET(PG) : 50%
*5% Concession in admissible in eligibility marks to SC/ST/BC/PWD Candidates				

TITLES OF SYLLABI: The detailed syllabus is available at https://puchd.ac.in/syllabus.php

SEMESTER- I		SEMESTER-II	
Paper Code	**Title**	**Paper Code**	**Title**
DSC-MSBB-101	Structure and Interactions of Biomolecules	DSC-IMSBB-201	Biostatistics
DSC-2-MSBB 102	Metabolomics and Metabolic Pathway Engineering	DSC-2-MSBB-202	Genomics and recombinant DNA technology
DSC-1-MSBB 103	Spectroscopic Methods and Structural Biology	DSC-3-MSBB-203	Computational Methods of Sequence Analysis and Biomacromolecular informatics
DSE- I MSBB 104	i) Data Management and Biological Database Or II) Svayam portal course with similar credits	DSE-4-MSBB 204	i) Transcriptome Data Analysis Or II) Linux for Computational biology
		DSE-5 MSBB-205	I) Programming in C++& PERL Or II) Svayam Portal course with similar credits
DSE-2- MSBB-105	i) Basic Concepts in Mathematic of Mathematics or ii) Basic concepts in biology		
Semester III		Semester IV	
Paper Code	Paper	Paper Code	Paper
DSC-1- MSBB	Proteomics and Systems Biology	DSC-1-MSBB 401	Chemoinformatics
DSC-2-MSBB-302	Advances in Systems Biology and Bioinformatics	DSC-2-MSBB 402	Applied Statistical Data Science in Biology
DSC-3- MSBB-303	Research Methodology & Biostatistics	DSE-1-MSBB-403	i) Computational Cell Biology II) Svayam Portal Course with similar credits
DSE-I- MSBB-304	I) Molecular Modelling & Drug Discovery		
DSE-II-MSBB-305	II) Synopsis of thesis Work with Mentors		

THRUST AREAS: Bioinformatics (ii) Cancer Biology and Genomics (iii) Systems Network Biology (iv) Microarray analysis (v) NLP and Data analytics (vi) Structural Biology (vii) Molecular modeling.

PLACEMENTS: The Centre has its own placement cell and we approach different companies for placements of our students. PG students get placements in Clinical Research Organizations and Pharmaceutical companies like Parexel, Panacea Biotech etc. as well as pursuing Ph.D. programme from the Centre as well as from the National Institutes like IMTECH, PGIMER, NIPER, IIT, IISER & IIIT followed by post doc. and Faculty positions in National and International Institutes.

ALUMNI RELATIONS: The Centre of Systems Biology & Bioinformatics was established at Panjab University, Chandigarh in 2007 has a strong alumni base. We have regular interactions amongst the present batches and alumni.

DEPARTMENT OF ZOOLOGY

ABOUT THE DEPARTMENT

The department of Zoology was established at Lahore (now in Pakistan) in 1906 and was later shifted to Government College, Hoshiarpur (Punjab) after partition of the country and then to its present campus at Chandigarh in July, 1960. The department provides excellent opportunities to students by imparting training in Zoology through UG Certificate/Diploma/Degree, B.Sc. (Honours), B.Sc. (Honours with Research), M.Sc. (Honours) with Research/ M.Sc. (Honours) (two year programme) under the Honours School System and Ph.D. Programmes. At present, the department is running UG Programme according to NEP-2020 and PG Programme according to Choice Based Credit System (CBCS) From the academic session 2026-27, National Education Policy 2020 will also be implemented for PG Programmes. The department is running three skill enhancement courses in Vermiculture & Vermicompost, Apiculture and Aquarium Fish Keeping to enhance the self-employment potential of students in Applied Zoology. The department also arranges educational tours to National Parks/ Biodiversity Parks/Zoological Parks/Sanctuaries/Marine Destinations/Sewage Treatment Plants/Fish Farms/Wetlands etc. every year for students in order to acquaint them with importance of animal diversity and environment.For strengthening its teaching and research,

department has received grants from various national agencies. The department was awarded Centre of Advanced Studies (CAS-I) by the UGC from April 2007 to April 2012 under the thrust area of Biodiversity: Cell and Molecular Biology with a grant of Rs. 78.25 lacs. The UGC also awarded CAS-II to the department in 2015 for five years with a financial assistance of Rs. 161.55 lacs and two research fellows. The department was also recognized by the Department of Science and Technology (DST) in 2013 under its FIST programme and was sanctioned a grant of Rs. 1.10 crores for 5 years. With this grant, a Flow Cytometry Laboratory was established with the most sophisticated LSR Fortessa Cell Analyzer. At present, the department is running research projects of approx Rs 3 crores, funded by different agencies like CCRH, DST (SERB), DST (UT Chandigarh), DBT, ICMR and UGC. The department has also received a grant of Rs. 20 Lacs under Rashtriya Uchchatar Shiksha Abhiyan (RUSA) for developing laboratories of skill enhancement courses in Apiculture and Fish Keeping. Along with teaching, the department is keeping pace with the recent research trends in the field. Some of the major areas of research of the faculty members are Parasitology, Parasitic therapeutics, Cell Biology, Cytogenetics, Human genetics, Stem cell Biology, Molecular skin biology, Immunology, Environmental Toxicology, Systematic Entomology, Applied Entomology, Molecular Genomics, Reproductive Physiology, Aquatic Biology, Wetland Ecology, Fish and Fisheries, Zebrafish Neurotoxicology and Fish Biomaterials. For assisting the students with their research work, department has central sophisticated instrumentation laboratories, which are well equipped with scientific instruments such as thermal cyclers, different types of gel electrophoresis, different types of microscopes, gel documentation system, spectrophotometers, deep freezers and many minor equipments.The department also has a well-equipped library, which is stocked with highly informative text and reference books in addition to national and international journals. The department houses two state of the art museums having more than 5500 specimens covering the whole Animal Kingdom. The museums have an extensive collection of skeletons, mounted animals and specimens preserved in formalin, models and fossils. Museums are well curated with stock registers wherein the collections are listed and classified under the scheduled and non-scheduled categories as per the Wildlife Protection Act, 1972.Besides running academic curriculum based teaching, the department has been organizing, national conferences, seminars, symposia, workshops and lectures of eminent academicians for students of this as well as of other institutes. Department also has a society 'Panjab University Zoological Society' having faculty and students as its members. This society organizes extra-curricular activities from time to time for overall development of the students.

FACULTY

Designation	Name	Field of Research Specialization
Professors	Sukhbir Kaur	Parasitology, Immunology
	Harpreet Kaur	Parasitology
	Y.K. Rawal	Fish taxonomy and age determination
Associate Professors	Ravneet Kaur	Zebrafish Neurotoxicology& Fish Biomaterials, Wetland Ecology
	Mani Chopra	Cytogenetics, Cell Biology, Molecular toxicology
Assistant Professors	Archana Chauhan	Molecular Biology, Genomics, Ecology
	Ravneet Kaur	Molecular skin biology, Stem Cell
	Indu Sharma	Reproductive Physiology, Molecular Biology
	Vijay Kumar	Human Genetics, Molecular Biology
	Ranjana Jaiswara	Entomology

COURSES OFFERD (SEMESTER SYSTEM)

Course	Seats	Duration	Eligibility*	Admission Criteria
B.Sc. (Hons.) Zoology as per NEP 2020 under the framework of Honours School System	25+4 NRI+6 Foreign National	4 years	Passed 10+2 examination with at least 50% marks with Physics, Chemistry, Biology and English	Based on CET (UG) CET (UG) -75% Academics - 25%
M.Sc. with Research/M.Sc. (two year programme) under the Honours School System	14+2 NRI+4 Foreign National	2 years	i) Passed B.Sc. (3-year) degree with at least 50% marks in the framework of NEP-2020 OR the Choice Based Credit System (CBCS) OR 10+2+3 system of education from Panjab University or its equivalent examination from a UGC-recognized Indian/Foreign University or Institute. ii) The candidate must have studied Zoology as major discipline OR one of the major disciplines/subjects, OR a minor/additional course with at least 24 credits under NEP-2020 OR Generic Elective (GE)/Additional course under CBCS system in the B.Sc. degree with at least 24 credits	Based on CET (PG) CET (PG) – 60% Academics – 40%
Ph. D.	Subject to availability of seats	3-6 years	See Ph.D Prospectus 2026	

*5% Concession in admissible in eligibility marks to SC/ST/BC/PWD Candidates

Note:

(i) Concession admissible in eligibility marks to SC/ST/BC/PWD candidates as per rules.

(ii) The candidates shall be admitted to the common First Year of the Two-Year Postgraduate Programmes - M.Sc. (Honours)

with Research/M.Sc. (Honours) as per seats, eligibility and admission criteria specified in the table above.
(iii) The students will be allocated to the M.Sc. (Honours) with Research/M.Sc. (Honours) in second year as per the criteria laid down by the Board of Control (BOC) of the department of Zoology. At least 25% of the total strength of students admitted in the First Year shall be considered for allocating students to M.Sc. (Honours) with Research in second year.

TITLES OF SYLLABI: Detailed course curriculum is available at https://puchd.ac.in/syllabus

B.Sc. (Honours) (Zoology) as per NEP 2020 under the framework of Honours School System

SEMESTER I		**SEMESTER II**	
ZOO-DSC-1	Diversity of Non-Chordates	ZOO-DSC-2	Diversity of Chordates
MINOR	One course to be opted by students from options given by University	MINOR	One course to be opted by students from options given by University
IDC	One course to be opted by students from options given by University	IDC	One course to be opted by students from options given by University
ENG-AEC-1	English	ENG-AEC-3	English
PUN-AEC-2/ HIN-AEC-2/ URD-AEC-2	One course to be opted by students from these three options given by University	PUN-AEC-4/ HIN-AEC-4/ URD-AEC-4	One course to be opted by students from these three options given by University
ZOO-SEC-1	Vermiculture and Vermicompost	ZOO-SEC-2	Apiculture
VAC	One course to be opted by students from options given by University	VAC	One course to be opted by students from options given by University
Students exiting the programme after securing 48 credits will be awarded UG Certificate in the relevant Discipline/ Subject, provided they secure 4 credits in work based vocational courses offered during summer term or internship/ Apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester.			
SEMESTER III		**SEMESTER IV**	
ZOO-DSC-3	Comparative Account of Non- Chordates	ZOO-DSC-5	Cell Biology
ZOO-DSC-4	Principles of Ecology	ZOO -DSC-6	Comparative Anatomy of Vertebrates
MINOR	One course to be opted by students from options given by University	ZOO -DSC-7	Evolutionary Biology
IDC	One course to be opted by students from options given by University	MINOR	One course to be opted by students from options given by University
ZOO-SEC-3	Aquarium Fish Keeping		
Students exiting the programme after securing 96 credits will be awarded UG Diploma in the relevant Discipline/ Subject provided they secure additional 4 credits in skill based vocational courses offered during first year or second year summer term.			
SEMESTER V		**SEMESTER VI**	
ZOO-DSC-8	Fundamentals of Biochemistry	ZOO-DSC-11	Embryology
ZOO -DSC-9	Human Physiology	ZOO -DSC-12	Molecular Biology
ZOO -DSC-10	Principles of Genetics	ZOO -DSC-13	Fish and Fisheries
MINOR	One course to be opted by students from options given by University	MINOR	One course to be opted by students from options given by University
VAC	One course to be opted by students from options given by University	INT-1	Internship
Students who want to undertake 3-year UG programme will be awarded UG degree in the relevant discipline/subject upon securing 144 credits. Subject to minimum credit requirement in respective subject.			
SEMESTER VII For students of BSc (Hons.)		**SEMESTER VIII For students of BSc (Hons.)**	
ZOO-DSC-14	Environmental Biology	ZOO-DSC-17	Endocrinology
ZOO-DSC-15	Biology of Parasites	ZOO-DSC-18	Methods and Applications of Molecular Biology
ZOO-DSC-16	Advanced Cell Biology	ZOO-DSC-19	Insect Physiology and Applied Entomology
ZOO-P-1	Laboratory Techniques in Zoology-I (DSC-14, DSC-15, DSC-16)	ZOO-P-2	Laboratory Techniques in Zoology-II (DSC-17, DSC- 18, DSC-19)
ZOO-DSC-20A	Immunology	ZOO-DSC-20B	Aquaculture and Fisheries
ZOO-M-7	Embryology	ZOO-M-8	Genetics
SEMESTER VII For students of BSc (Hons.) with Research		**SEMESTER VIII For students of BSc (Hons.) with Research**	
ZOO-DSC-14	Environmental Biology	ZOO-DSC-17	Endocrinology
ZOO-DSC-15	Biology of Parasites	ZOO-DSC-18	Methods and Applications of Molecular Biology

ZOO-DSC-16	Advanced Cell Biology	ZOO-DSC-19	Insect Physiology and Applied Entomology
ZOO-P-1A	Laboratory Techniques in Zoology-I (DSC-14, DSC-15, DSC-16, RM-1)	ZOO-P-2	Laboratory Techniques in Zoology-II (DSC-17, DSC-18, DSC-19)
ZOO-D-1	Project Proposal/Synopsis	ZOO-D-2	Dissertation
ZOO-RM-1	Methodology and Instrumentation	ZOO-M-8	Genetics
ZOO-M-7	Embryology		

AEC: Ability Enhancement Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; IDC: Interdisciplinary Course; VAC: Value Added Course;RM- Research Methodology; M-Minor; P- Practical, D- Dissertation.

M.Sc. (Honours) with research/ M.Sc. (Honours) (two year programme) under the Honours School System

First year shall be common for M.Sc. (Honours) with research/ M.Sc. (Honours) (two year programme)

SEMESTER I		SEMESTER II	
PG-ZOO-DSC-1	Environmental Biology	PG-ZOO-DSC-4	Endocrinology
PG-ZOO-DSC-2	Biology of Parasites	PG-ZOO-DSC-5	Methods and Applications of Molecular Biology
PG-ZOO-DSC-3	Laboratory Techniques in Zoology-I (DSC-1, DSC-2, DSE-1, DSE-2)	PG-ZOO-DSC-6	Laboratory Techniques in Zoology-II (DSC-4, DSC-5, DSE-3, DSE-4)
PG-ZOO-DSE-1	Advanced Cell Biology	PG-ZOO-DSE-3	Insect Physiology and Applied Entomology
PG-ZOO-DSE-2	Methodology and Instrumentation	PG-ZOO-DSE-4	Aquaculture and Fisheries

Second year of M.Sc. (Honours) (two year programme)

SEMESTER III		SEMESTER IV	
PG-ZOO-DSC-7	Biology of Vertebrate Immune System	PG-ZOO-DSC-10	Animal Biochemistry
PG-ZOO-DSC-8	Laboratory Techniques in Zoology-III (DSC-7, DSC-9, DSE-5, DSE-6)	PG-ZOO-DSC-11	Laboratory Techniques in Zoology-IV(DSC-10, DSC-12)
PG-ZOO-DSC-9	Biostatistics and Bioinformatics	PG-ZOO-DSC-12	Tools and Techniques in Zoology
PG-ZOO-DSE-5	Developmental Biology	PG-ZOO-DSE-7	Animal Cell Culture and its Applications
PG-ZOO-DSE-6	Animal Physiology	PG-ZOO-DSE-8*	Specialization

The students have to choose any one option from following courses:

For PG-ZOO-DSE-8,	**(Option i)**	Concepts of Parasitology
	(Option ii)	Economic Entomology
	(Option iii)	Fish, Fisheries and Aquaculture
	(Option iv)	Molecular Cytogenetics
	(Option v)	Molecular Endocrinology and Reproductive Physiology

Second year of M.Sc. (Honours) with Research (two year programme)

SEMESTER III		SEMESTER IV	
PG-ZOO-DSC-7	Biology of Vertebrate Immune System	PG-ZOO-DSC-10	Animal Biochemistry
PG-ZOO-DSC-8A	Laboratory Techniques in Zoology-III (DSC-7, RM-1, DSE-5)	PG-ZOO-RM-2	Tools and Techniques in Zoology
PG-ZOO-RM-1	Biostatistics and Bioinformatics	PG-ZOO-D-2	Thesis
PG-ZOO-DSE-5	Developmental Biology	PG-ZOO-DSE-8*	Specialization
PG-ZOO-D-1	Synopsis		

For PG-ZOO-DSE-8, the students have to choose any one option from following courses:

(Option i)	Concepts of Parasitology
(Option ii)	Economic Entomology
(Option iii)	Fish, Fisheries and Aquaculture
(Option iv)	Molecular Cytogenetics
(Option v)	Molecular Endocrinology and Reproductive Physiology

THRUST AREAS: Cell & Molecular Biology, Entomology, Fish & Fisheries, Parasitology and Reproductive Physiology**.**

PLACEMENTS: Department has a faculty member as Coordinator of placement cell. Department in association with the Central Placement Cell, Panjab University holds various workshops related to placement of students. Students have various

opportunities in teaching (School, College or University), Research (in national and international institutes), Ministry of Environment, Forest and Climate Change, Indian Forest Service or State Government Forest Services, Indian or State administrative services, Departments of environment, wildlife, Forests, Zoological survey, forensics etc.

ALUMNI RELATIONS: The department also has an Alumni Association. Alumni from this department occupy important positions in academic and administrative areas. The details about alumni can be found at https://zdaa.puchd.ac.in/.

UNIVERSITY INSTITUTE OF FASHION TECHNOLOGY AND VOCATIONAL DEVELOPMENT

ABOUT THE INSTITUTE

University Institute of Fashion Technology and Vocational Development (UIFT&VD) is an in-campus Institute, established by the Panjab University, Chandigarh in 2007, with a commitment to carry forward the evolving goals envisaged by the National Education Policy: to impart vocational training skills and to provide professionals for the fast-growing fashion, apparel, and textile industry in the region in particular and the country in general.

The Curriculum and Credit Framework at UIFT&VD, for Undergraduate Program at present, incorporates a flexible choice-based credit system with extensive use of technology. The program has multiple entry and exit points, flexible degree options with single major and choices in minor, multi-inter-disciplinary choices, and a curriculum built with self-sustaining vocational training in Fashion and Lifestyle Technology and employability skills in additional academic subjects.

A student can choose to undertake an undergraduate degree of either 3 or 4-year duration, with or without honours with multiple exit and re-entry options within this 3- or 4-year duration, with appropriate certifications, as a UG certificate after completing 1 year (2 semesters) in the discipline including vocational and professional areas, or a UG diploma after 2 years (4 semesters) of study, or a Bachelor's degree after a 3-year (6 semesters) program of study.

The 4-year (8 semesters) multidisciplinary Bachelor's program is a preferred option since it allows the opportunity to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per the choices of the student.

A candidate can complete a rigorous design/research project in the major area(s) of study in the 4th year of a Bachelor's Degree (Honours with Research).

Students undertaking 3-year UG programme, after completion of 144 credits in the subject will be awarded with B.Sc. Degree in Fashion & Lifestyle Technology. These students can opt for the 2-year M.Sc. program as an Integrated Degree of B.Sc. & M.Sc. in Fashion & Lifestyle Technology. Students will be awarded B.Sc. Degree in Fashion & Lifestyle Technology (Honours) in the discipline upon securing minimum 192 credits completing 4 years of their undergraduate programme. B.Sc. Fashion & Lifestyle Technology (Honours with Research) is for the students who secure 75% marks in aggregate in all 6 semesters.

The institute will now offer a one-year M.Sc. programme to students who have completed a four-year undergraduate programme with a minimum of 192 credits. Students who complete a three-year undergraduate programme with 144 credits will be eligible for admission to the two-year M.Sc. programme. Additionally, the institute provides students with the option to pursue the Master's programme with or without a research component, each supported by a distinct curriculum designed to address evolving industry demands and support advanced specialization. The programme enables students to explore craft centres across various states for the purpose of craft study and documentation. It incorporates extensive specialized research, complemented by seminars and presentations. Furthermore, an intensive focus on organizational and management skills required to run a fashion and lifestyle business equips students to identify their niche and succeed in the professional sphere.

Highly trained and experienced faculty members provide students with thorough theoretical and practical knowledge, ensuring a strong academic foundation. In addition to this, students are guided through task-based studies, helping them sharpen their skills and prepare for the dynamic challenges of the fashion industry. To further enhance their learning experience, a variety of multidisciplinary activities and workshops are regularly conducted, offering students opportunities to engage in diverse perspectives and creative problem-solving, thereby enriching their professional development and preparing them for real-world scenarios.

To move into the global mainstream of intense economic competition and to reckon with requirement of the Fashion Industry of India in totality, the Department liaises with fashion related organizations for guiding the students in handling latest technology. There is regular interaction with experts at Design Studios, Production Houses, Distribution Centres and Retail Establishments as well as the Industry to form a vital bridge between University Institute of Fashion Technology and the larger community. Through an MOU with Nottingham Trent University, U.K. and collaborative academic exchanges between University of the Fraser Valley, Canada, Toronto Metropolitan University, Canada, Belfast School of Art, Ulster University, UK and University of Technology, Sydney, Australia, series of exchanges have begun, giving rise to cross cultural teaching and learning process.

FACULTY

Designation	**Name**	**Field of Research Specialization**
Professors	Prabhdip Brar **(Chairperson)**	Apparel Design, Art History & Fine Arts
Associate Professors	Anu H. Gupta	Clothing & Textiles

COURSE OFFERED (SEMESTER SYSTEM)

Course	**Seats**	**Duration**	**Eligibility***	**Admission Criteria**
B.Sc. Fashion & Lifestyle Technology	46+6 NRI+12 Foreign National	4 Years	Passed 10+2 Examination with atleast 50% marks in aggregate from CBSE or any other recognized Board.	Based on Aptitude Test** Academics: 20% Aptitude Test: 60% Preference Criteria: 10% Interview: 10%
M.Sc. Fashion & Lifestyle Technology	46+6 NRI+12 Foreign	2 years	Candidate who have obtained a 3-year B.Sc. Degree in Fashion & Lifestyle	Based on Aptitude Test*** Academics: 40%

with Research under the Honours School System	National		Technology/ Fashion Designing/B.Des. in Fashion Design/B.Voc./ Textile/Apparel Design/Apparel Technology with 50% marks from P.U. or any other University recognized as equivalent thereto.	Aptitude Test: 45% Group Discussion: 05% Interview: 10%
M.Sc. Fashion & Lifestyle Technology with Research under the Honours School System	46+6 NRI+12 Foreign National	1 year	Candidate who have obtained a 4-years Honours B.Sc. Degree in Fashion & Lifestyle Technology/ Fashion Designing / B.Des. in Fashion Design / B.Voc. / Textile / Apparel Design / Apparel Technology with 50% marks from P.U. or any other University recognized as equivalent thereto	Based on Aptitude Test*** Academics: 40% Aptitude Test: 45% Group Discussion: 05% Interview: 10%
Ph.D.	Subject to availability	3-5 years	See Ph.D. Prospectus 2026	As per UGC/P.U. norms

Concession admissible in eligibility marks to SC/ST/BC/PwD candidates as per rules.

** **For B.Sc. (Honours)** : Aptitude test will comprise of **(a) General Ability Test** : There will be a written test for analytical reasoning, quantitative aptitude, communication skills in English, General Knowledge and current affairs. **(b) Creative Ability Test :** There will be a practical test of creative skill, freehand drawing, sketching and development of a 3D model for any given theme (material list will be provided in advance so that the candidate can bring their own material for the test). Candidates who have studied Fashion Design / Fine arts subjects in 10+2 will be given 10% weightage in the total marks scored. Candidate must score at least 50% marks in aggregate (Aptitude Test + Academics Exam + Preference Criteria + Interview).

***For M.Sc. (Honours): Aptitude test will comprise of **written test** to evaluate general ability and subject knowledge and **practical test** to evaluate creative ability. **Creative ability test**: Material list will be provided in advance so that the candidates can bring their own material for the test. Group Discussion will be on the topics related to Fashion and Lifestyle Technology. Candidate must score at least 50% marks in aggregate (Aptitude Test + Academics + Group Discussion + Interview).

NOTE: Multiple Entry and Exit option are available as per NEP 2020 leading to one year UG Certificate Course; Two years UG Diploma Course

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B.Sc. (Honours) in Fashion & Lifestyle Technology (4 Years Programme as per NEP-2020)Under the Framework of Honours School System

B.SC. (HONS.) SEMESTER-I			B.SC. (HONS.) SEMESTER-II		
Sr.No.	**Subject**	**Name of the Course**	**Sr.No.**	**Subject**	**Name of the Course**
1.	Major	Visualizing Fashion –I (Pr.)	**1.**	Major	Visualizing Fashion-II (Pr.)
		Fabric Technology-I (Th.)			Sewing Techniques (Pr.)
		Introduction to Sewing Techniques (Pr.)			Pattern Development (Pr.)
2.	Minor	Indian Textiles (Th.)	**2.**	Minor	Fabric Technology-II ***Choose any one subject out of the following to qualify for a minor degree in***
					Name of Minor degree: Merchandising **Subject-** Fashion Marketing
3.	Interdisciplinary Course	Fashion and Culture (Th.)			**Name of Minor degree:** Apparel Manufacturing Technology **Subject-** Introduction to Apparel Industry
		Fashion Studies-I	**3.**	Interdisciplinary Course	History of Indian Costumes (Th.)
4.	Ability Enhancement Course	English-I (Th.)	**4.**	Ability Enhancement Course	AECC-3 (English-II) (Th.)
		AECC-2 (MIL)			AECC-4 (MIL)
5.	Skill Enhancement Course (SEC)	Creative Techniques and Embroideries (Pr.)	**5.**	Skill Enhancement Course (SEC)	Basics of Draping (Pr.)
6.	Common Value-Added Course	Introduction to Fashion (Th.)		Common Value-Added Course	Basics of Sustainable Fashion (Th.)
	Lifestyle Management I/Tutorial	LSM-I		Lifestyle Management II/Tutorial	LSM-II

B.SC. (HONS.) SEMESTER-III			**B.SC. (HONS.) SEMESTER-IV**		
Sr.No.	**Subject**	**Name of the Course**	**Sr.No.**	**Subject**	**Name of the Course**
1.	Major	Design Process –I	**1.**	Major	Design Process - II
		Garment Construction Technology –I			Garment Construction Technology II
		Advance Pattern Development-I(			Advanced Pattern Development-II
		FLT-211: Fabric Technology –III (Theory)			Traditional Indian Textiles & Embroideries
		Fashion Studies-I (Th.)			Trend Forecasting -II
2.	Minor	Trend Forecasting-I (Th.+ Pr.)			Industrial Report Writing- I
		English for Business Communication and Journalism-I			Fashion Designers
3.	Interdisciplinary Course	History of World Costumes	**2.**	Minor	Fabric Technology -IV
4.	Ability Enhancement Course	-			English for Business Communication and Journalism-II
5.	Skill Enhancement Course (SEC)	Digital Design-I			***Choose any one subject out of the following to qualify for a minor degree in***
	Lifestyle Management III/Tutorial	LSM-III			**Name of Minor degree:** Merchandising **Subject-** Fashion Merchandising
					Name of Minor degree: Apparel Manufacturing Technology **Subject-** Spreading and Cutting of Apparels
					Name of Minor degree: Merchandising
					Apparel Manufacturing Technology
				Lifestyle Management IV/Tutorial	LSM-IV

B.SC. (HONS.) SEMESTER-V			**B.SC. (HONS.) SEMESTER-VI**		
Sr.No.	**Subject**	**Name of the Course**	**Sr.No.**	**Subject**	**Name of the Course**
1.	Major	Advancec pattern Development & Grading (Pr.)	**1.**	Major	Apparel Production Control
		Commercial clothing (Pr.)			Apparel Quality Management
		Visualizing Fashion-V (Pr.)			Sustaniable Fashion
		Introduction to Entrepreneurship (Th.)			Pattern Making through CAD
		Digital Design (Adobe Illustrator) (Pr.)			Fashion Styling & Image Management
		Industrial Report Writing-II (Th.)			Fashion Photography
	Minor	Global Sourcing (Project Based) (Pr.)			Basics of Weaving Technology
		Choose any one subject out of the following to qualify for minor degree in)			
		Name of the minor degree: Merchandising subject: Basics of Knitting Technology			Name of Minor degree: Merchandising Subject: Visual Merchandising
		Name of Minor degree:			Name of Minor degree:Textiles

		Apparel Manufacutring Technology subject: Garments Analysis			& Apparel Manufactruing Technology Subject: Work Study for Apparel Manufacturing
	Skill Enhancement Course	In plant Training Projet & Seminar		Common Value-Added Course	Cultural Heritage of Punjab: Textiles & Crafts
		Name of Minor degree: Merchandsing Name of Minor degree: Apparel Manufacturing Technology			Name of the minor Degree: Apparel Manufacturing Technology
	Lifestyle Management V/Tutorial	LSM-V		Lifestyle Management VI/Tutorial	LSM-VI
B.SC. (HONS.) SEMESTER-VII			**B.SC. (HONS.) SEMESTER-VIII**		
Sr.No.	**Subject**	**Name of the Course**	**Sr.No.**	**Subject**	**Name of the Course**
1.	Major	Fundamentals of Research and Statistics (Th.)	**1.**	Major	Display/Seminar in FLT
		Fundamentals of Research and Statistics (Pr.)			Intellectual Property Rights (Th.)
		Capstome Project-Socially Responsible Design Project			Intellectual Property Rights (Pr.)
		Dissertation Following subjects are for those who want to do B.Sc. (Honours)			Field study on Textiles and Embroidery Traditions of Punjab
		Business Development Model (Th.)			International Business Management
		Business Development Model (Pr.)			Dissertation Followingsubjects are for those who want ot do B.Sc. (Honours)
2.	Minor	Portfolio Making (Pr.)			Adavanced Digital Design (Pr.)
		Costing			Ethics in Fashion
	Lifestyle Management VII/Tutorial	LSM-VII			Multi Disciplinary: MOOC Course
				Lifestyle Management VIII/ Tutorial	LSM VIII

M.Sc. (Honours) Fashion & Lifestyle Technology (FLT) (one/Two Year Programme) Honours/With Research under the Honours School System (NEP-2020)

M.SC. (HONS.) SEMESTER-I			**M.SC. (HONS.) SEMESTER-II**		
Sr. No.	**Subject**	**Name of the Course**	**Sr. No.**	**Subject**	**Name of the Course**
1.	Discipline Specific Courses	Fundamentals of Research and Statisitcs (Th.)	**1.**	Discipline Specific Courses	Display/ Seminar in FLT
		Fundamentals of Research and Statisitcs (Pr.)			Intellectual Property Rights (Th.)
		Business Development Model (Th.)			Intellectual Property Rights (Pr.)
		Business Development Model (Pr.)			International Business Management
2.	Discipline Specific Elective Courses	Capstone Project- Sociallty Responsible Design Proejct			Ethics in Fashion
	Lifestyle Management I/Tutorial	LSM-VII			Advanced Digital Design
					Field Study on Textiles and Embroidery Traditions of Punjab
				Lifestyle Management I/Tutorial	LSM-VII
M.SC. (HONS.) SEMESTER-III			**M.SC. (HONS.) SEMESTER-IV**		
Sr. No.	**Subject**	**Name of the Course**	**Sr. No.**	**Subject**	Name of the Course

1.	Discipline Specific Courses	Textile Testing (Th.)	**1.**	Discipline Specific Courses	Textile Chemistry and Technical Advanced in Textiles (th.)
		Textile Testing (Pr.)			Textile Chemistry (Pr.)
		Apparel Core	**2.**	Discipline Specific Elective Courses	Portfolio Making
2.	Discipline Specific Elective Courses	Design Thinking (Pr.)	**3.**	Research	Stastical TEchiques in FLT (Th.)
		Design Thinking (Th.)			Thesis Reseach Work (Th.)
3.	Research	Research Methodology in FLT (Th.)		Lifestyle Management II/Tutorial	LSM-II
4.	Synopsis	Synopsis of proposed Research (Th.)			
	Lifestyle Management I/Tutorial	LSM-I			

THRUST AREAS: Research, Product & Line Development, Fashion Event Management & Showcasing, Design Copyright, Patenting, Portfolio Illustration, Traditional Textile Surface Embroidery & Design, Craft Projects and Documentation, CAD, Textile Technology, Visual Merchandizing, Fashion Forecasting and Media Reporting**.**

PLACEMENTS: The Department continues to support students by arranging for on-campus and off-campus placements in reputed organizations. Many students opt for self-employment and spring up as successful entrepreneurs. The students who opt for placements are helped in securing good jobs in different organizations of their own choices.

ALUMNI RELATION: Alumni from this department have been suitably employed in academics, industry and many have been able to establish themselves as successful entrepreneurs. They are regularly supporting the department in terms of lectures and suggestions from their industrial experience. They interact with current batches of students to share their journey and with faculty to give newer inputs based on their experience with the fashion industry. They contribute towards industrial and job placements of students. A face book page supports the activities of the department where Alumni are also members.