M.Sc. Chemistry

Department of Science, School of Technology

Specialization:

- Organic Chemistry
- Analytical Chemistry
- Industrial Chemistry
- Pharmaceuticals Chemistry

MISSION

Department of Science of the School of Technology offers well-designed program curricula to provide in-depth knowledge related to the application of Chemical and the Physical Sciences and inculcate scientific temper to students interested in the Engineering and Technology.

In order to contribute and to provide assistance to PDPU to achieve its mission of academic excellence, the program integrates a judiciously-designed comprehensive curriculum and a research module for a sound academic, professional, and personal development of students.

VISION:

" The Department has a vision to graduate admitted students as life-long learners and leaders in the diverse science programs. "

- To create and maintain the programs of excellence in the areas of research, education and public outreach.
- To promote, inspire and nurture the fundamentals of chemistry through M.Sc. courses offered for the basic sciences students.
- To offer research projects with high emphasis on concept-theory-practical training to build up research interest for the transformation of budding chemists into productive scientists, excellent teachers, entrepreneurs and innovative independent researchers.
- Our specific goal is to become a nationally recognised department of chemical sciences for modern education with a state of art research facility.
- To aspire for excellence in chemical education and research.
- To prepares students for a diverse and changing world.
- Contribute to a chemically literate society through teaching (with classrooms, labs, and research) and service.
- Strong cross-disciplinary collaborations both within and outside the university.
- The Department of Science aims to be recognised in (1) student success in the chemical sciences, (2) research contributions and impact, and (3) disciplinary engagement. This will be accomplished by leveraging our strengths, urban location, and student, faculty, and staff capabilities.

Philosophy of the program

The Department pursues the following primary objectives:

- Create an academic environment which promotes the intellectual and professional development of students and faculty.
- Develop and maintain a commitment to scholarly activities in research and education which is commensurate with the goals and mission of PDPU.
- Train M.Sc. students in the theoretical and practical skills required for employment or admission to higher education.
- The training of M.Sc. chemists in the theory of chemistry, the ability to conduct independent research, the clear expression of scientific ideas, and the teaching of chemistry.
- Provide programs for all students which meet the educational and technical demands of the sub-disciplines represented in the Department.
- Offer courses in cognate academic disciplines and professional fields which provide the necessary base for the career goals of students and faculty.
- Provide the public with service commensurate with a University.
- Implicit in these objectives is our responsibility as teachers, which includes but is not limited to, educating students and providing continuing education while promoting and clarifying the role and philosophy of education.
- A strong commitment to research means creating and maintaining a rigorous intellectual environment and achieving our broader commitments to the advancement of knowledge and service to the public.

Eligibility Criteria

B.Sc. / B.Sc.(Hons) with Chemistry/ Applied Chemistry/ Industrial Chemistry as a major subject or equivalent degree in offered specialization with minimum 50% marks aggregate of all semester/years or CPI 5.5 on 10 point scale or equivalent score from a recognized university/institute.

Strength

- Curriculum based on NET, GATE, JEST.
- Project Based Learning
- Student Research Projects funded by University
- Internship in Start-up Projects
- International Exposure Programme
- Highly qualified team of faculty members graduated from IITs, IISc, NCL, PRL and other premiere institutes with postdoctoral experience abroad (Humboldt-Germany, Fulbright-USA & JSPS-Japan)

Our Strength (Faculty)

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Our Strength (Faculty)

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Our Strength (Faculty)

Dr. Anu Manhas (to join) – Assistant Professor

Dr. Megha Balha (to join) – Assistant Professor

Our Strength (Laboratory)

1. Chemistry Laboratory:

UV-Vis Spectrophotometer, Glove box , Flash chromatography, Muffle furnace, Centrifuge, Ampere meter, Tablet dissolution test apparatus, Dissolution test apparatus, Carbon filter (Photocatalytic system), pH meter, Conductivity meter, UV Chamber, Polarimeter, Potentiometer, Ultrasonic probe sonicator, Tablet disintegration test apparatus, Infrared spectroscopy, High Performance Liquid Chromatography, Potentiostat/Galvanostat, Auto-titrator, Gas Chromatography

2. Materials Characterization Laboratory:

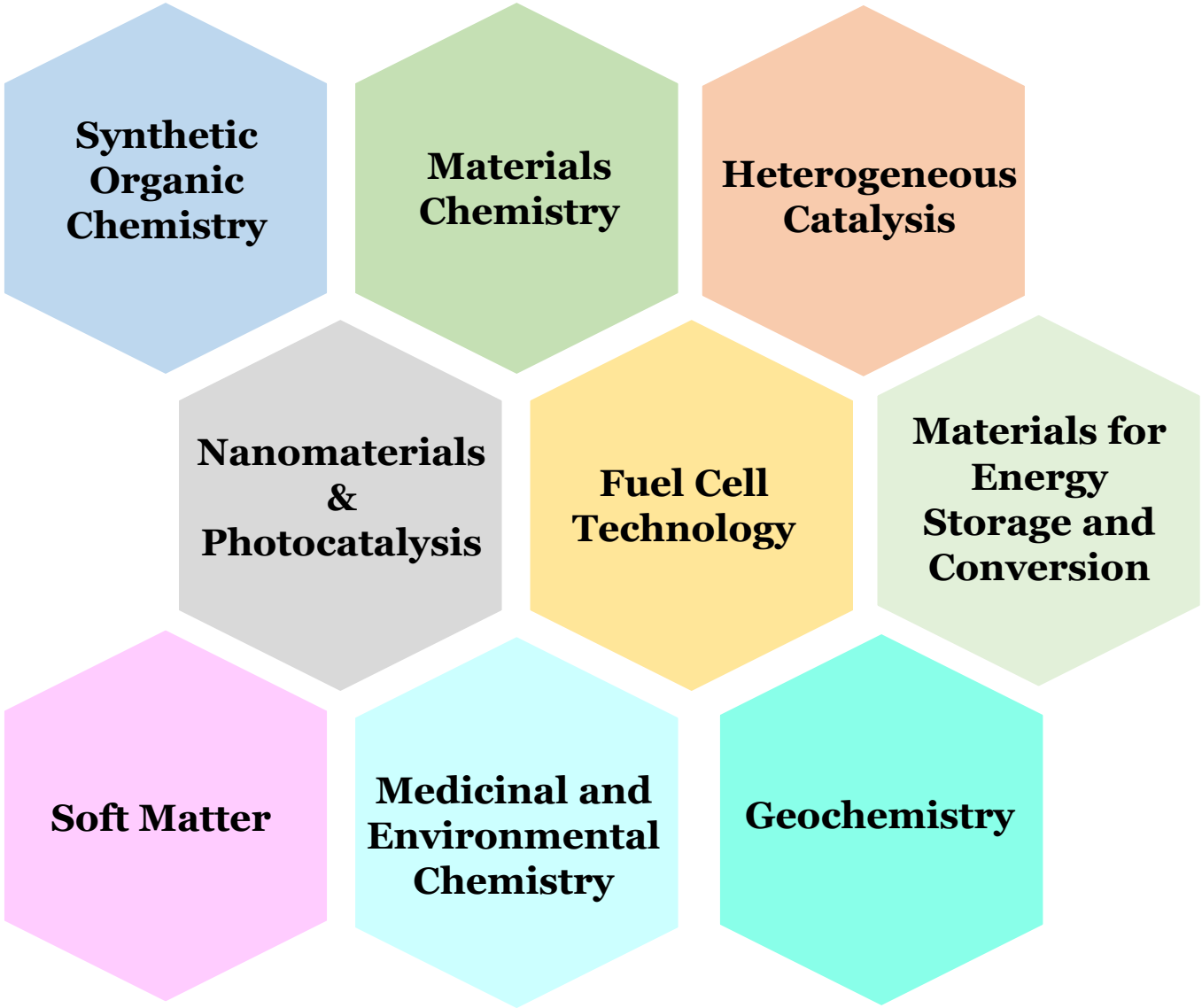
Infrared spectroscopy, Atomic Absorption Spectroscopy, Gas Chromatography, Gas Chromatography-Mass Spectrometry, High Performance Liquid Chromatography, X-ray Diffraction analyzer, Scanning Electron Microscopy, BET surface analyzer, Thermo gravimetric analyzer

Our Strength (Laboratory)

Department offers:

- Curriculum designed based on current and futuristic industry-academia demand
- Industry oriented specialization in Organic, Analytical, Industrial and Pharmaceuticals chemistry
- Credit based stream elective concept to allow the student have in depth understanding
- Exposure to applied research at early stage of the program
- Scholarships to students
- More than 50 % of lab and research work to train them for future projects in academic research.
- Industry collaboration and internships

Areas of research



Courses offered

Core Course | **Stream Elective course** | **Lab Course** | **Project**

Core Course

- Organic Chemistry
- Inorganic Chemistry
- Physical Chemistry
- Analytical Chemistry
- Environmental & Green Chemistry
- Intellectual Property Rights
- Computational & Theoretical Chemistry
- Seminar & Technical Writing
- Research Methodology

Analytical Chemistry

- Spectroscopy
- Advanced Instrumental Techniques
- Electro analytical & radio analytical methods of analysis
- Method development and validation

Pharmaceuticals Chemistry

- Chemical Biology
- Medicinal Chemistry
- Pharmaceutical & Biochemistry
- Formulation development

Industrial Chemistry

- Paints, pigments & cosmetics
- Polymer Chemistry & Composite Materials
- Materials and Nano Chemistry
- Fine chemicals (Petrochemicals, oil, soap and pesticides)
- Petroleum Chemistry & Catalysis

Organic Chemistry

- Reagents & organic synthesis
- Stereochemistry & Photochemistry
- Heterocycles & vitamins
- Chemistry of Natural Products
- Asymmetric synthesis/catalysis

Lab Course

- Organic Chemistry Lab
- Inorganic Chemistry Lab
- Physical Chemistry Lab
- Computational Lab
- Stream Elective Lab

Research Project & Industry Internship