

Department of Chemical Sciences

Department of Chemical Sciences at I. K. Gujral Punjab Technical University strives to achieve excellence in research and teaching in Chemistry. The Department has well-furnished and centrally air conditioned laboratories. The laboratories are utilized for the day to day practical course work of the science students. The Department is well supported by the library possessing a vast variety of titles related to the different streams of Chemistry. The faculty is well qualified and motivated with a strong commitment to research which is reflected in the sanctioned projects sponsored by the Ministry of Human Resource Development, Department of Science and Technology, Department of Atomic Energy, and many other organizations.

Programme Offered:

Programme	Intake	Duration
MSc (Chemistry)	25	2 years

Research Areas:

- Analytical Chemistry
- Biochemistry
- Supramolecular Chemistry / Nanomaterials
- Organic Synthesis
- NMR Methodology
- Photochemistry
- Environmental Chemistry

Infrastructure / Labs / Any other Strengths:

Post-Graduation Laboratories:

The Department has four post-graduation laboratories; one each dedicated for inorganic chemistry, organic chemistry, and physical chemistry and one as instrumentation laboratory. The Department has licensed versions of different scientific softwares to explore the problems in theoretical chemistry and has online access for various journals of international repute.

Research Laboratories:

The Department has two research laboratories. High-tech instruments viz. FT-NMR, FT-IR, CHNS Analyser, LC-MS, GC-MS, HPLC, DTA/TGA, DSC, Particle Size Analyser, Electrochemical work station etc. are going to be procured shortly.

Faculty Members

Name	Designation	Specialisation	Experience (in years)
Dr. Gaurav Bhargava	Associate Professor	Organic Chemistry	16
Dr. Chander Prakash	Assistant Professor	Environmental Sciences	14
Dr. Vandana Naithani	Assistant Professor	Environmental Sciences	12
Dr. Rupesh Kumar	Assistant Professor	Organic Chemistry	10
Dr. Roopa	Assistant Professor	Organic Chemistry	04
Dr. Reshu Sanan	Assistant Professor	Physical/Analytical Chemistry	06

Projects Undertaken by Faculty:

Project Title	Sanctioned Amount	Funding Agency	Principal Investigator
Transition metal catalysed inter-/ intramolecular cycloaddition reactions of methylene-& vinylcyclopropanes: Synthesis of bi-/tricyclic systems	22 Lakh	Board of Research in Nuclear Sciences (BRNS)	Dr. Gaurav Bhargava
Synthesis, cycloaddition, biological evaluation and synthetic transformations of mono-/ polycyclic-b-lactams	23 Lakh	Department of Science and Technology (DST)	Dr. Gaurav Bhargava

Research Scholars:

Name	Title of Thesis	Funding Agency	PhD Supervisor
Maninder Jeet Kaur Maan	Synthesis and transformation of functionalized lactams	DST	Dr. Gaurav Bhargava
Priyanka Sharma	Synthetic transformation of functionalized lactams and cyclopropanes	DST	Dr. Gaurav Bhargava
Rayees Ahmad Naikoo	Synthesis of carbo-/heterocycles using cyclopropanes and pyrimidinones	-	Dr. Gaurav Bhargava
Anudeep Kaur	Heavy metal load in cancer patients and its relationship with environmental factors of Malwa region in Punjab (India)	UGC	Dr.Chander Prakash
Monika Thakur	Synthesis of some novel magnetic graphene oxide based nanocomposites and study of their applications in water treatment	-	Dr. Rupesh Kumar

Faculty Participation / Paper Presentation in Conferences

- Naithani, Vandana (2013), “**A Comparative Study of Clay Minerals of south-Western Region of Punjab, India**” presented at *Stockholm, 2nd International Conference on Environment, Chemistry and Biology, Stockholm, Sweden* [co-author-Anirudh P.Singh]
- Sanan, Reshu (2013), “**Electrochemical measurements of phenothiazine drugs in the presence of surface active ionic liquids**” presented at *Prague, 3rd International Conference on Materials and Applications for Sensors and Transducers, ICMAS 2013, Prague*

Faculty Publications

- Kumar, Yogesh; Bhargava, Gaurav and Nisha (2017) “**Copper (I)-Catalyzed Regioselective C-H Amination of N-Pyridyl Imines Using Azidotrimethylsilane**”

and TBHP: A One-Pot, Domino Approach to Substituted Imidazo [4, 5-b] pyridines”, *Chemistry Select*, Volume 26, Issue 2, 7827-7830.

- Naithani, Vandana; Singh, Anirudh P; Nautiyal, Mukesh Kumar (2017) “Spectroscopic Characterization of Humic acids extracted from different types of Soils of Punjab”, *Journal of Indian Society of Soil Science*, Volume 65, Issue 1, 24-31.
- Kaur, Rajwinder; Sanan, Reshu and Mahajan, Rakesh Kumar (2016) “Probing interactions of Neurotransmitters with twin tailed Anionic Surfactant: A detailed Physiochemical Study” *Journal of Colloid and Interface Science*, Volume 469, 38-46.
- Saini, Jasmine; Kumar, Rupesh; Rajput, Jaspreet Kaur and Kumar, Ashwani (2016) “Study Of $Zr_xZn_{0.5-x}Ni_{0.5}Fe_2O_4$ $0 \leq x \leq 0.25$: Synthesis, Structural, Magnetic And Electrical Properties” *Journal of Magnetism and Magnetic Material*, Volume 401, 770-774.
- Yusuf, Mohamad; Solanki, Indu; Jain, Payal and Kumar, Rupesh (2015) “Photochemical studies: Chromones, bischromones and anthraquinone derivatives” <http://dx.doi.org/10.1016/j.arabjc.2014.11.031>
- Kumar, Naresh; Qui, Pham Xuan; Roopa; Leray; Isabelle and Thi, Minh-Huong Ha (2017) “Calixarene-Based Fluorescent Molecular Sensors”, *Comprehensive Supramolecular Chemistry II*, Volume 8, 197-226.

Workshops / FDP / Summer School / Winter School / Refresher Course attended:

- Rupesh Kumar participated in “Short Summer Term Course (GIAN) on Nanotechnology: Synthesis, characterization, fabrication and applications” organised by *Dr. B.R. Ambedkar National Institute of Technology, Jalandhar* (June 6-11, 2016).
- Vandana Naithani participated in “Short Term Course on Water Quality Management” organised by *National Institute of Technology* (June 20-24, 2016).

Achievements of the Students

Name	Achievement / Award	Year
Yogesh Kumar (PhD student)	Post-Doctoral Associate in Belkent University, Turkey	2018
Bilash Kuila (PhD student)	Senior Research Scientist at Spharea Pharmaceuticals Inc.	2018
Ritika Sharma (MSc)	Summer intern at Transtational Health Research Institute, New Delhi	2018
Deeksha (MSc)	Summer intern at Transtational Health Research Institute, New Delhi	2018

Department/Students activities

Poster Making Competition (2017)



- Rangoli Competition (2017)



- Diwali Celebrations



- Students enjoying Fresher's Party

