

# Placement Brochure 2022-23

## MSc. Chemistry

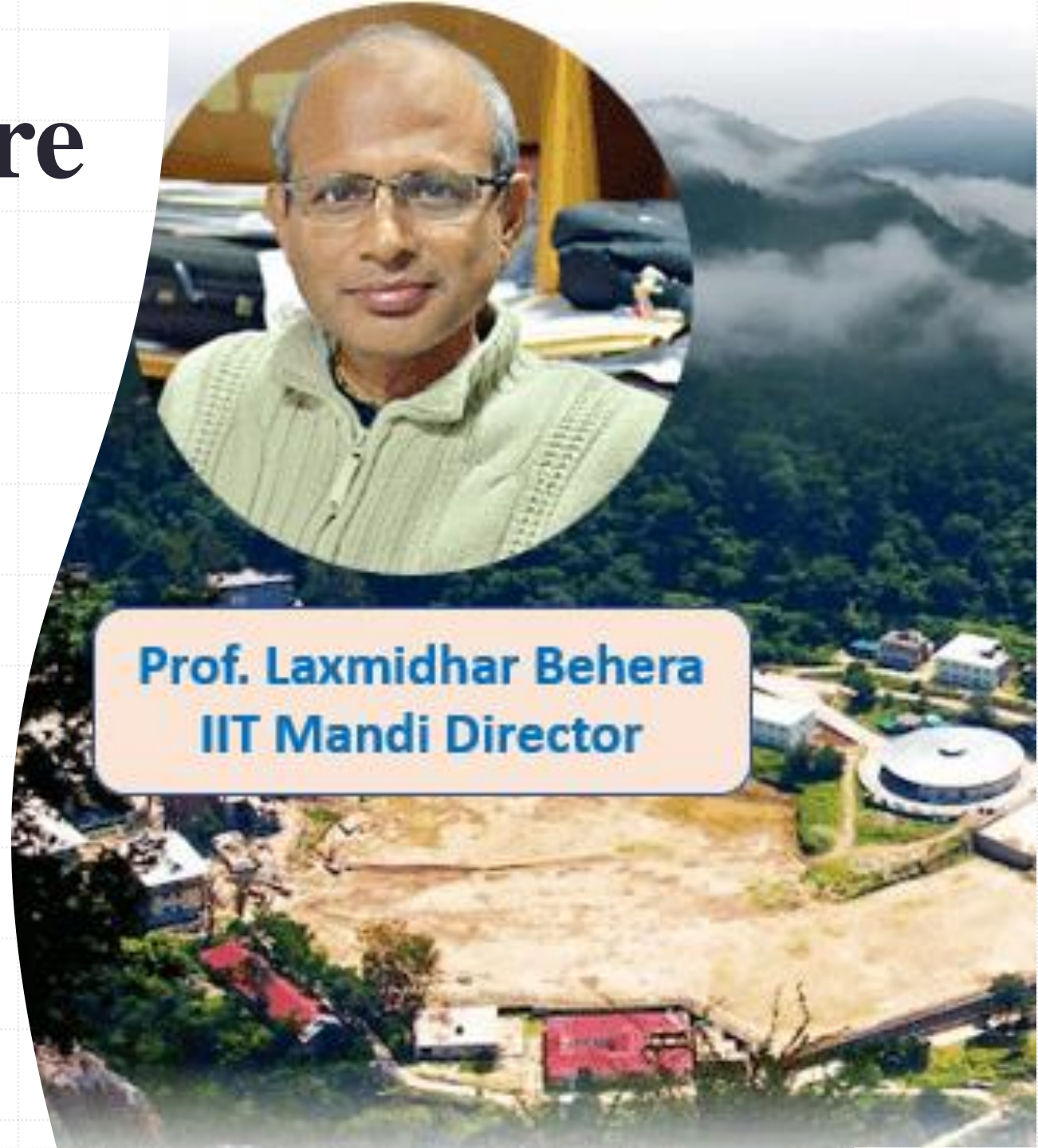
School of Chemical Sciences



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**Prof. Laxmidhar Behera**  
**IIT Mandi Director**



# About the Program

The M.Sc. Chemistry program is the flagship program offered by the School of Chemical Sciences at IIT Mandi. The program was started in August 2014 and remains to be one of the successful post-graduate programs at IIT Mandi. This program has been aimed at providing students with fundamental understanding of Chemistry through core courses, and at the same time expanding their knowledge in the allied areas and beyond through elective courses. The versatile curriculum has been designed to prepare the students to take up a research career either in academia or in industries. On completion of the program, the students will be efficiently equipped to take up professional career in chemistry or an allied areas. The syllabus of the laboratory courses has been thoroughly amended from the conventional chemistry programs across the country by including hands on training on the methods of synthesis, separation and application of most modern analytical tools. The program is very much research-oriented and designed to train students through a ‘learn-by-doing’ approach. The MSc program may lead to specialization in conventional (organic, inorganic, or physical chemistry) or relatively unconventional branches (e.g., nanoscience or theoretical chemistry) of chemistry. The curriculum focusses on an interdisciplinary approach wherein students learn about fabrication of small instruments (through mechanical and electronics workshop), which are required for understanding working principle of different instruments as well as fabricating new non-conventional instruments. The salient features of this program are given below.

- Broad curriculum featuring several free electives, specialization electives, and outside-discipline electives, without compromising the core Chemistry subjects.
- State-of-the-art laboratory courses – aligned to trendy research areas.
- Research-oriented curriculum to enable ‘learn-by-doing’.
- Adequate blend of theory, computation, and hands-on experiments.
- Unique courses on design and innovation practicum in first year.
- Practical learning on methods of synthesis, separation, and purification.

# Academic Curriculum & Courses

## Inorganic Chemistry

- Transition Elements & Coordination Compounds
- Organometallic Chemistry
- Bio-Inorganic Chemistry
- *s* and *p*-Block Elements
- Inorganic Spectroscopy

## Physical & Computational Chemistry

- Advanced Quantum Mechanics
- Group Theory and Molecular Spectroscopy
- Computational Chemistry
- Thermodynamics & Electrochemistry
- Reaction Dynamics, Kinetics & Catalysis
- Mathematics for Chemists

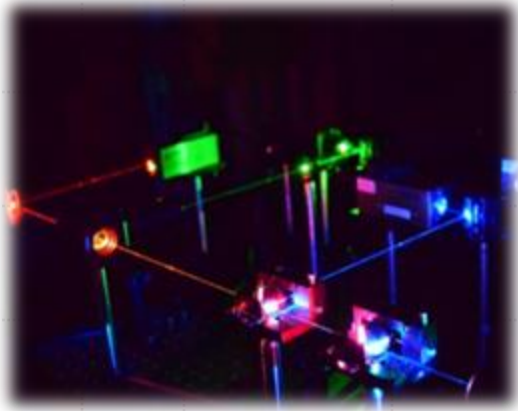
## Organic Chemistry

- Reaction Mechanisms and Stereochemistry
- Pericyclic Reactions and Photochemistry
- Heterocyclic Compounds
- Natural Products
- Organic Spectroscopy

## Elective Courses

- Nano Manufacturing
- Nano Biotechnology
- Biological Modelling
- Analytical Bio-techniques
- Polymer Chemistry
- Fluorescence Spectroscopy
- Basic Data Science

# Student's Skills



*Ultrafast Spectroscopy*



*TEM*



*Programming*



*High-Performance Computing*



*NMR*

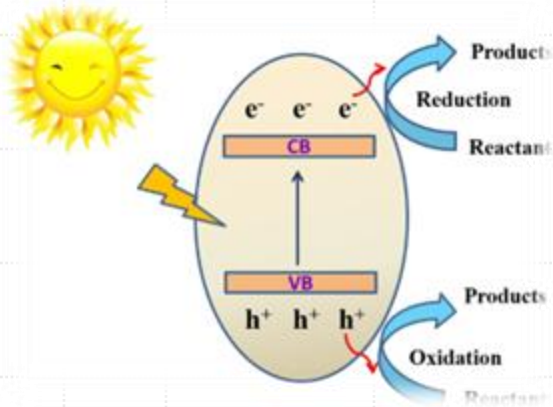
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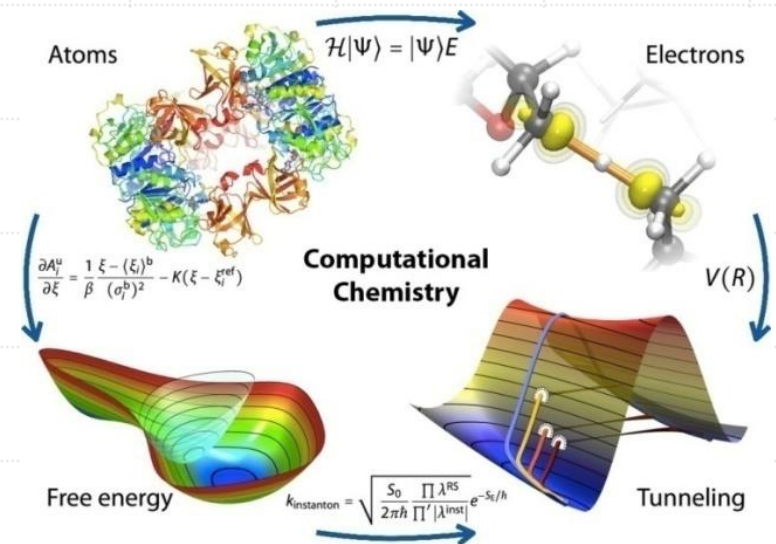
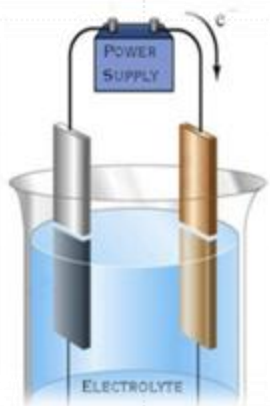
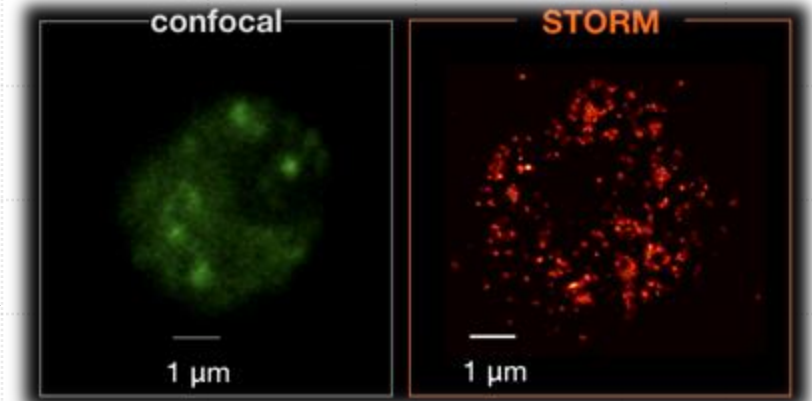
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# Student's Projects



- Photocatalysis
- Computational Chemistry
- Synthesis and Application of Nanomaterial
- Super Resolution Fluorescence Microscopy
- Organic Synthesis
- Food Packaging
- Energy Conversion
- Electrochemical Synthesis
- Metal-Based Catalysis
- Bio Hydrogen Production
- Biomass Conversion



# Contact Us: Career & Placement Cell, IIT Mandi

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