

# भारतीय प्रौद्योगिकी संस्थान पटना

INDIAN INSTITUTE OF TECHNOLOGY PATNA



## PLACEMENT BROCHURE

2023-24

## CHEMICAL ENGINEERING



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# OUR VISION



The Chemical and Biochemical Engineering department of IIT Patna was initiated in the year of 2013 and the B.Tech. program in Chemical Engineering commenced in the year 2016. With in the short duration since inception, the department has steadily grown in facilities, including teaching and research laboratories, and the number of faculty and students. The department has credible research output in terms of journal publications, external research funding, and collaborations.

Unique from other UG programs, internships, industrial visits, and talks by experts have been part of the B.Tech. Chemical Engineering curriculum to ensure that they are exposed to the numerous opportunities in chemical and allied industries. Similarly, the final year projects have also been spread across industrial and research topics to provide the students with a flavor of project implementation where they implement classroom knowledge in real-world scenarios.

# Message from the HOD

**HOD, Department of Chemical  
and Biochemical Engineering**

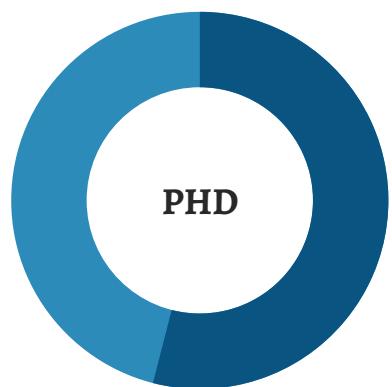
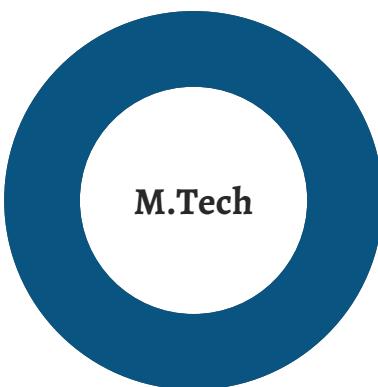
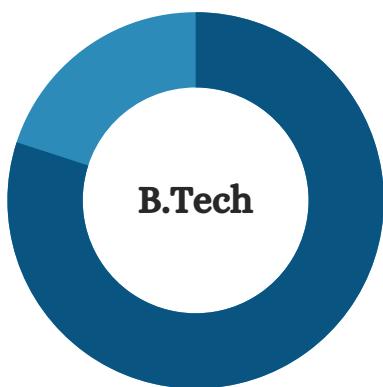


**DR. JOSE V PARAMBIL**

Greetings, Recruiters!

I am delighted to invite you to the Placements for the B.Tech. (Chemical Engineering) students at the Department of Chemical and Biochemical Engineering, IIT Patna. The department creates and maintains an academic and research atmosphere that is ideal for developing self-motivated, independent, and clear-thinking professionals. They become capable of handling the challenges associated with the multi-disciplinary nature genuinely committed to their specialization. They also have skills and characteristics that have been carefully developed during their time at the institute. The curriculum has been intended to produce a skill set that is optimally compatible with the competency set expected by employers in the chemical and associated industries.

# DEPARTMENT DEMOGRAPHICS



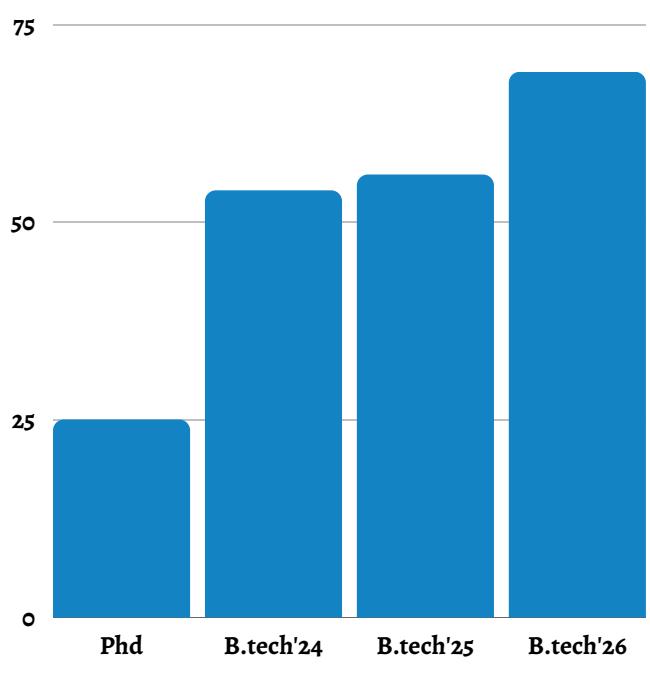
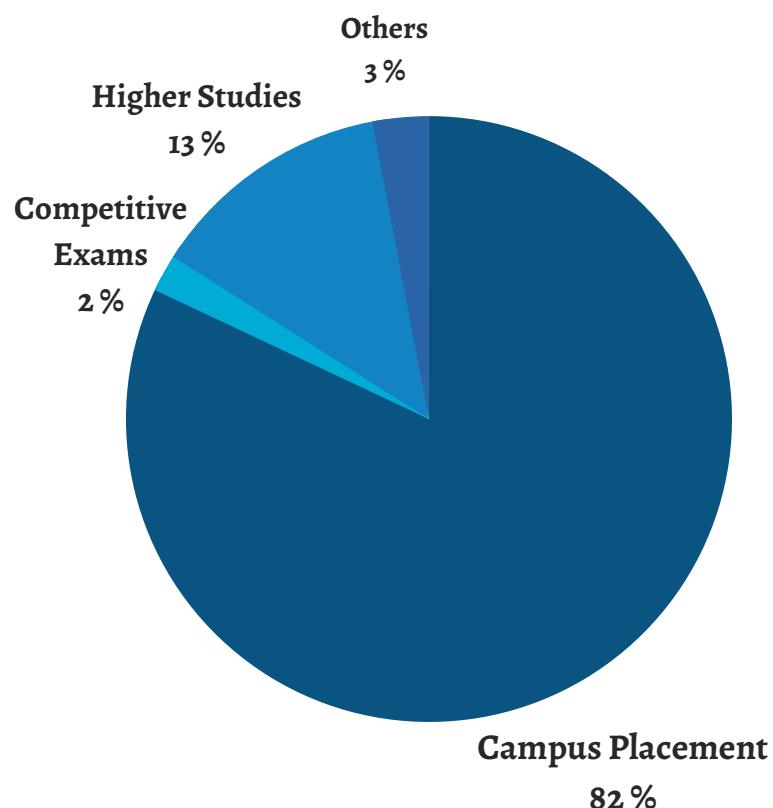
Male



Female

## FUTURE PERSPECTIVE FOR CLASS OF 2023

## BATCH STRENGTH



## COURSES OFFERED

- ∅ Chemical Process Calculations
- ∅ Fluid Mechanics Mechanical Operations
- ∅ Heat Transfer & Its Applications
- ∅ Mass Transfer & Its Applications
- ∅ Chemical Engineering and Thermodynamics
- ∅ Process Equipment and Design
- ∅ Chemical Process and Stimulation
- ∅ Process Controls and Instrumentation
- ∅ Transport Phenomena Process
- ∅ Plant Design and Economics
- ∅ Chemical Reaction Engineering
- ∅ Chemical Reaction Technology
- ∅ Chemical Reactor Design

## LAB COURSES OFFERED

- ∅ Mechanical Operations and Fluid Flow Lab
- ∅ Mass Transfer Lab
- ∅ Mass Transfer and Thermodynamics Lab
- ∅ Chemical Reaction Engineering and Environmental lab
- ∅ Process Controls Lab
- ∅ Chemical Process and Stimulation Lab

## DEPARTMENTAL ELECTIVES

- ∅ Catalysis Science and Engineering
- ∅ Energy Management
- ∅ Bio - Process Engineering
- ∅ Fuel and Combustion Technology
- ∅ Numerical Method in Chemical Engineering
- ∅ Petroleum Refinery and Petrochemicals
- ∅ Advanced Separation Process
- ∅ Renewable Energy Sources
- ∅ Molecular Modeling and Stimulation
- ∅ Heterogeneous Catalysis Fundamentals and applications
- ∅ Process Integration
- ∅ Renewable and Non-Conventional Energy Sources
- ∅ Non-Newtonian Flowsrheology and Heat Transfer

# RESEARCH AT IITP

Practical or informal knowledge manifests as skills or “knowing-how.” IIT Patna's research accolades are comparable to any of the premier technical institutes in our country. Excellent, innovative, and futuristic research papers are published not only by our faculty members but by our undergraduate students also. As a premier research institute, great emphasis is given to research areas. Our course structure shows that from the third semester ahead, undergraduates have multiple labs courses and encouragement from the institute to work on a research thesis.

Our faculty members have published research papers in many reputed international journals, including the Journal of Chemical Engineering of Japan, the International Journal of Heat and Mass Transfer, the Journal of Computational Chemistry, the Journal of Electrochemical Society, and many more. Information analytics sites such as Elsevier and Springer accept much of their research papers.

# RESEARCH AREAS



## PROCESS SYSTEMS ENGINEERING LABORATORY

- Dr. Nitin Dutt Chaturvedi

PSEL aims to develop process and product design with emphasis on conservation of natural resources; in particular, materials, energy and water which is the need of the hour. .

### CURRENT RESEARCH AREAS:

- Modeling and Simulation of Chemical processes
- Process system engineering
- Process Integration



## GAS-SOLID STATE INTERACTION LABORATORY

- Dr. Sushant Kumar

At GSIL, our research efforts are primarily directed in exploring novel catalysts/process routes for clean energy applications.

### CURRENT RESEARCH AREAS:

- Solar-to-fuel conversion
- Ammonia Synthesis
- Heterogeneous Catalysis



## CHEMICAL PROCESS DEVELOPMENT LABORATORY

- Dr. Jose V Parambil

PDL aims at developing novel processes for production and separation of chemicals with improved efficiency while ensuring sustainability.

### CURRENT RESEARCH AREAS:

- Development of a continuous separation process complementing continuous chemical synthesis
- Development of downstream processes for fermentation-based products
- Study of ayurvedic manufacturing processor streamlining and improving reproducibility on an industrial scale

## COMPUTATIONAL NANOSCIENCE LABORATORY

Dr. Sandip Khan



We are interested in understanding the structural, dynamical and interfacial properties of complex fluids at the nanoscale. We use Monte Carlo method, Molecular Dynamic Simulation and Density Functional Theory to probe the properties of fluids at molecular level.

### CURRENT RESEARCH AREAS:

- Surface Phase transition of polar molecules
- Development of Novel Materials like super-hydrophobic, super oleophobic, anti-fouling, anti-icing surfaces etc.
- Self-Assembled Monolayer (SAMs) in application of chemical sensor.
- Properties of confined fluids



## BIOCHEMICAL LABORATORY

Dr. S. K. Samanta

### CURRENT RESEARCH AREAS:

- UV/TiO<sub>2</sub> based Heterogeneous Photocatalysis for Degradation of Mixed Pollutants.
- Enhancement of UV/TiO<sub>2</sub> based Degradation Performance.
- Microwave-enhanced Advanced Oxidation Processes for the Degradation of Dyes.
- A Direct Method to Determine the Adsorbed Dyes on Adsorbent via Processing of DRS Data



## ENERGY AND THERMOFLUIDS LAB

Dr. Anoop Kumar Gupta

E-Therm Lab focuses on solving emerging and cutting-edge problems in fluid, energy and particle transport systems with the help of MPCMs, two-way coupled multiphase flow behaviour, flow and deposition of ultrafine particles in arteries, flow through porous media, etc., using CFD.

### CURRENT RESEARCH AREAS:

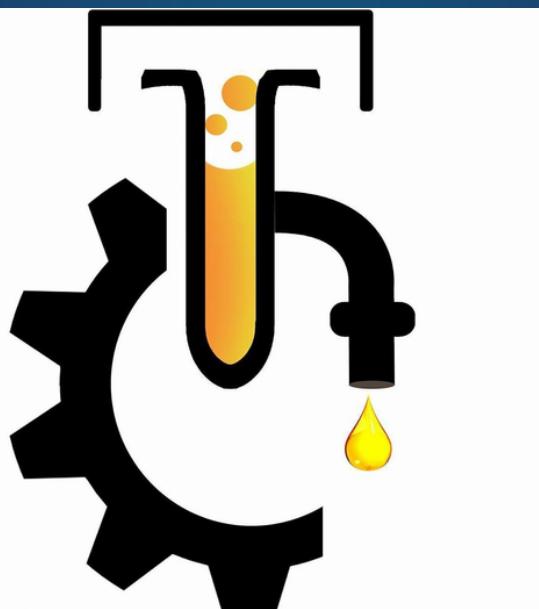
- Internal/external boundary layer flows in non-Newtonian media.
- Heat transfer augmentation in nanofluids.
- Utilizing PCMs for efficient thermal energy storage.
- Coupled CFD-DPM/CFD-DEM simulations

# STUDENT ACTIVITIES

## CHESSx CLUB

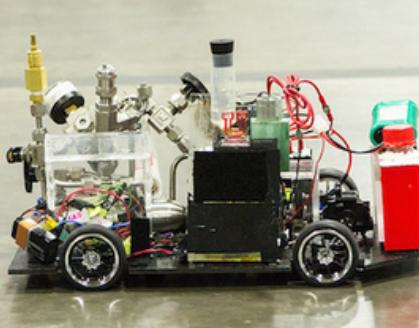
A student body dedicated to promoting the intellectual and cultural activities among students of Chemical Engineering department, IIT PATNA.

Assists students in identifying campus resources and fostering positive relationships amongst students, faculty, staff, and administration. This club also works to pique the interest of students in the field of chemical engineering by hosting various events that provide hands-on experience.



## CHEM-E-CAR

This event included designing and building a small-scale automobile that runs on chemicals. The power for the car model was derived from thermoelectric generators, and the stopping mechanism was based on the iodine clock reaction.



## CHEM-E-SWITCH

This exciting event explores the connectivity between multiple scientific disciplines by challenging contestants to create a mechanism to automate an electrical switch using any chemical they desire. Your chemistry and engineering abilities will be put to the test.



## ROCKET PROPULSION

The rocket design competition, in which participants need to use chemicals to transform a simple bottle into a sky-reaching weapon of mass destruction. In this project, we created a model out of an alcoholic spark plug.



# STUDENT ACHIEVEMENTS

## ACADEMIC INTERN

- Final year student Siddharth Merukar has secured a research internship at IIT Kharagpur as well as a research intern in IISc Bangalore.
- Final year student Utkarsh Patil secured an internship at foundation for innovators in Science and Technology(FIST), IIT Patna.
- Two final year students has secured the MITACS Globalink Summer Internship at University of Calgary, Canada and University of British Columbia, Vancouver.
- Final year student Arijit Das has secured an internship in SPARK, a research internship program at IIT Roorkee in core chemical engineering field.
- Final year student Kawade Rohit Chandrashekhar secured a research internship in core chemical engineering at IISER Bhopal
- Final year student Ujjwal Anand has secured the Summer Research Fellowship Program (SRFP) research internship at IIT Kanpur in Aerospace Engineering.
- Final year student Syed Shaheer Tanveer secured a research internship at IIT Delhi as well as in IISc Bangalore at the Solid State and Structural Chemistry Unit.
- Junior year student Abhilasha secured a research intern in core chemical engineering at IIT Kanpur
- Junior year student Sharique Ahmad Azizy secured a strategy research internship at IIM Bangalore.
- Junior year student Shivam Yadav got a research internship in core chemical engineering at IIT BHU.

## INDUSTRIAL INTERN

- Final year students Jayant Yadav, Aaryan Dhakad and Abhay Panwar secured internship at BIS (Bureau of Indian Standards)
- Final year student Arijit Das worked as a chemical engineering intern at ONGC
- Final year student Ashfaq Ahmed secured a consulting internship at Ernst & Young (EY)
- Final year student Utkarsh patil secured a data analyst internship at Axxela
- Final year student Jatin Kumawat secured a SDE internship at Darwin Digitech
- Junior year student Sunny Kumar secured a quantitative research internship at WorldQuant.

## TECH ACHIEVEMENTS



Ayush Srivastava and Anushka Chakraborty got selected by organizations for GSOC'21



IIT Patna is ranked 7th among 23 participating IITs in the Grand Championship of the 11th Inter IIT Tech meet 2023, moving 2 places up from last year's ranking

# Past Recruiters



L&T Heavy Engineering

# ALUMNI NETWORK



## SOURADEEP DAS (BATCH OF 2021)

### GATE AIR -74/ MTECH IIT BOMBAY

Seniors and faculties of the Chemical department have always motivated me to keep improving and provided guidance throughout the 4 years of B.Tech journey. Apart from the academics, IIT Patna has also provided an enormous opportunity for personality building and leadership skills. Thank you IITP community for all these exposures and opportunities provided.

## VIVEK GARG (BATCH OF 2021)

### PPO LTI

I will always be utterly grateful to the IITP fraternity for the amazing four years it gave to me. Through fests and clubs, I found great opportunities to improve my social and management skills. I will be forever thankful to my professors and peers for their motivation and unconditional support in every problem I faced.



## ATHARVA EKATPURE (BATCH OF 2021)

### MS ENVIRONMENTAL ENGINEERING, STANFORD UNIVERSITY

The atmosphere in IIT Patna not only encourages research and engineering, but, My four years as an undergraduate at IIT Patna were definitive in developing communication, marketing and other industrial skills that are just as important as the knowledge of chemical courses. It inculcated competitive and entrepreneurial mindset which helped me a lot during my corporate internship at ERC Group.

## PARTH PATEL (BATCH OF 2020)

### LNT VADODARA

IIT Patna has played a vital role in building my carrier. Seniors and faculties of the CBE department have always pushed me to keep improving and provided the necessary mentorship throughout the journey. I am grateful to them for guiding me to success in my education and eventually to a good career.



## NISHANT KULSHRESTHA (BATCH OF 2020)

### HPCL, MUMBAI

IITs are known as land of opportunities and IIT Patna is no different. My four years of B.Tech degree has showered me with invaluable experiences. In these years, I learnt many skills (both technical and soft) which will continue to play a crucial role in my career and life. Chemical Engineering department is very well equipped which gave me an opportunity to understand the theoretical learnings by practical experience

# Placement Procedure

1

Companies are contacted by the Placement office or Placement cell by authorized student representatives and invitations are extended, providing relevant information.

2

Companies are given unique IDs for logging into the TPC website after they submit the filled-in Job Announcement Forms (JAFs) by email or fax. These JAFs are made available online, allowing interested students to register for the company.

3

The Placement Cell and the Company confer and decide upon the date for the pre-placement talks, if necessary. Every registered student submits their resume so that the company can shortlist them accordingly.

4

A detailed schedule is prepared by the Placement Cell evaluating the job offer, prospects, student intake and the likeliness. The schedule is confirmed with all the companies.

5

Representatives from the companies/organization's visit the campus, meet the registered (or shortlisted) students, and conduct the interviews, tests, or group discussion sessions in accordance with their recruitment process.

6

The companies are required to prepare and submit in writing, a confirmation letter, with the list of students who are selected after the interview process, on the day of the interview itself.

7

The job offer letters reach the Placement Cell. In case a student gets a job offer, they are not entitled to appear further for any tests/interviews by other companies

# CONTACT US



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