

# IIT PATNA

## Chemical Engineering Placement Brochure 2020 - 2021

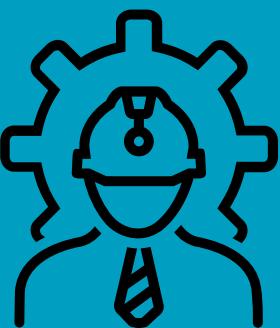


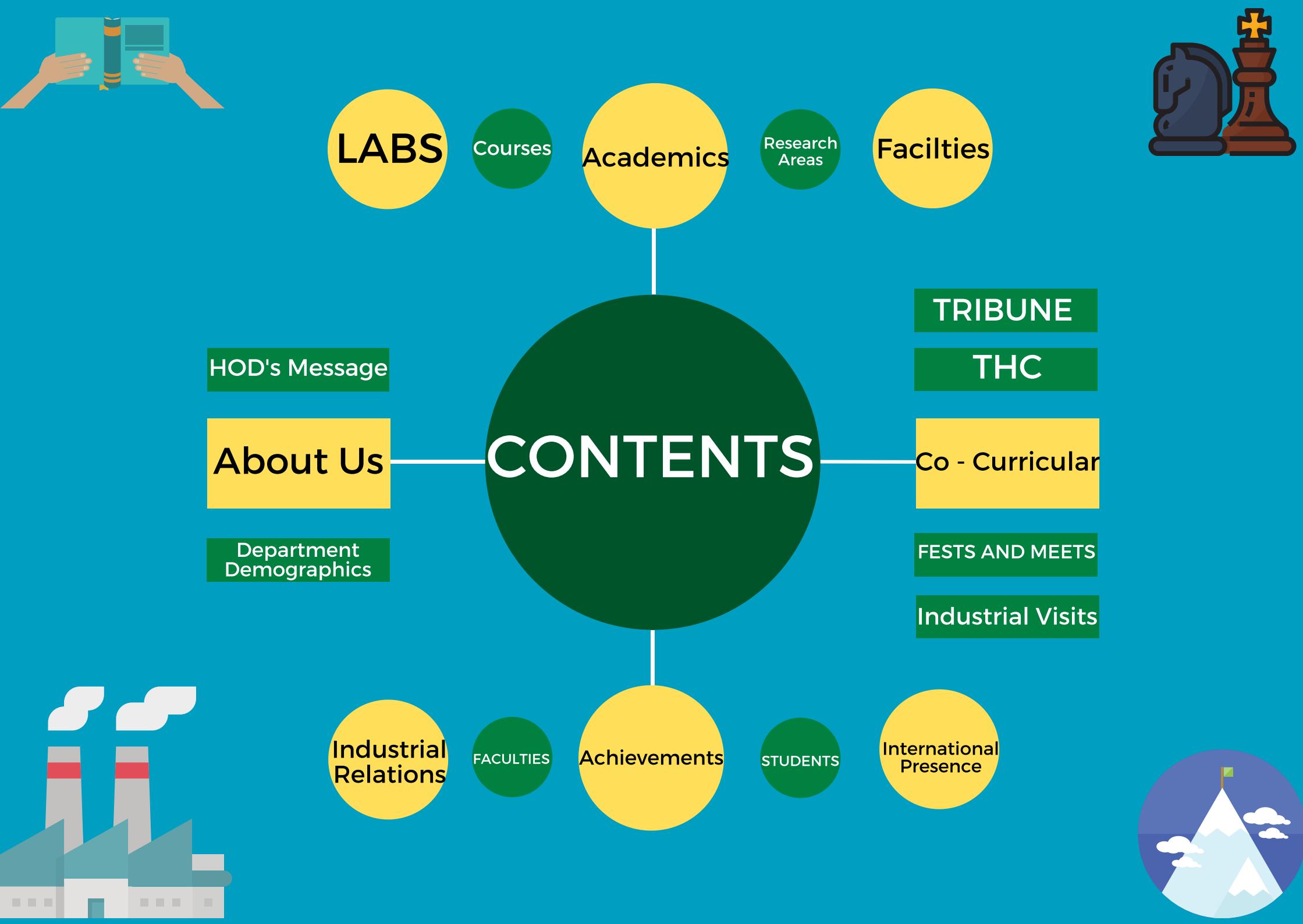
# Chemical Engineering

For decades, Chemical Engineers have earned their place amongst the top departments of engineering due to -

- Real Life Problem Solving Abilities
- Flexibility to tackle obstacles from a wide range of field
- Applying the knowledge of Physics, Mathematics and Chemistry and engineer it to benefit the masses

We invite our beloved Recruiters to this journey on why we nurture and produce the best Chemical Engineers in this country





# Message from the HOD

## Dear Recruiters

It gives me great pleasure in inviting you to the Placements for the B.Tech. (Chemical Engineering) students at the Department of Chemical and Biochemical Engineering, IIT Patna. The department provides and ensures an academic and research environment, which is highly conducive to preparing professionals who are self-motivated, independent, and clear thinking individuals. They become capable of handling the challenges associated with the multidisciplinary nature genuinely committed to their specialization. They also have skills and traits that are methodically cultivated during their stay at the institute. The curriculum has been designed in such a fashion that it yields a skill-set that has optimal compatibility with the competency set, anticipated by employers in chemical and related industries.

In addition to academics, the department encourages a variety of co-curricular activities that are managed by students themselves with due support of faculty members. They are motivated to take part in a number of competitions and activities.

I am delighted to present the 2019-20 batch of Chemical Engineering B.Tech. students. They are intelligent and academically robust. Their varied skill-set and work experience will give you diverse options as you pursue intellectual young men and women to join your esteemed organization. I am confident that students selected from our department will perform as per the expectation and satisfaction of the employers.



**DR. NITIN DUTT  
CHATURVEDI**

HEAD, CHEMICAL AND BIOCHEMICAL  
ENGINEERING DEPARTMENT



# Gain an Inside View of the Department

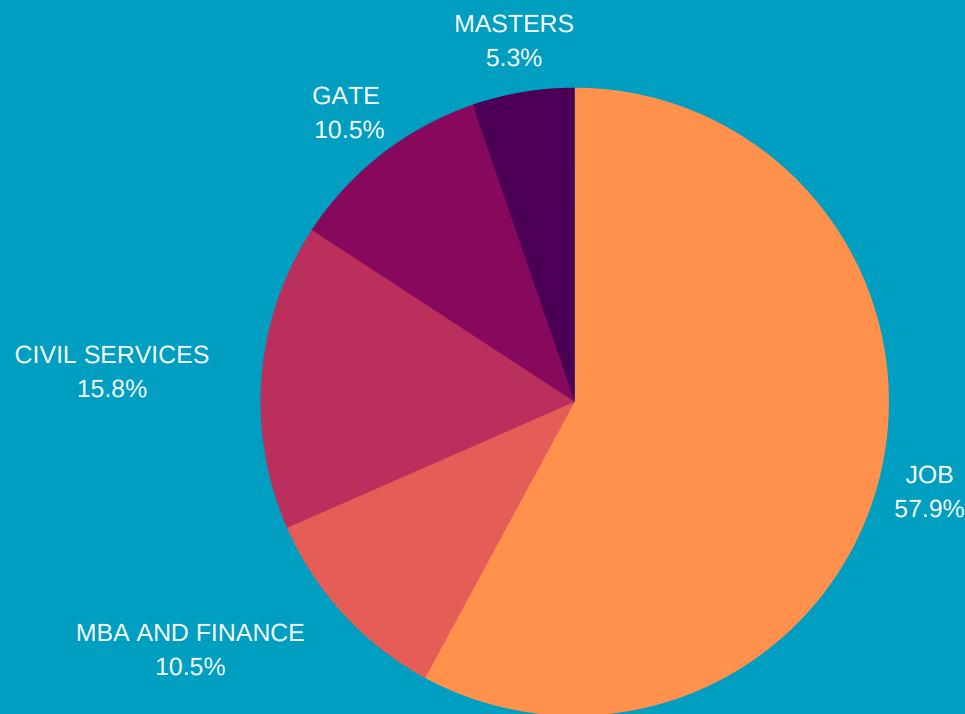
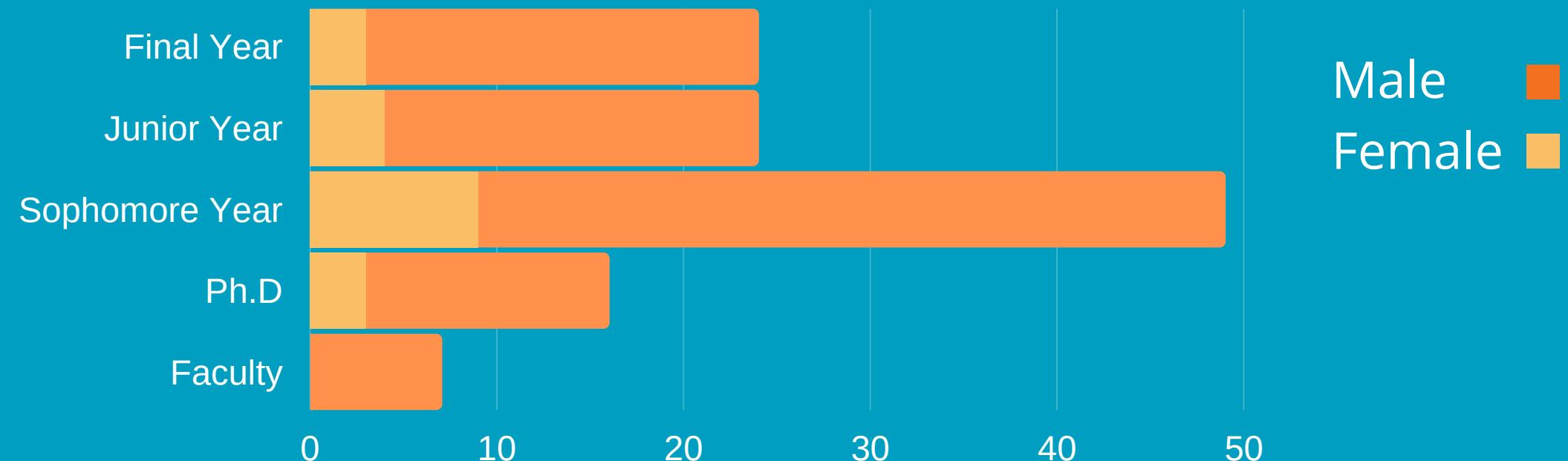


# **ABOUT US**

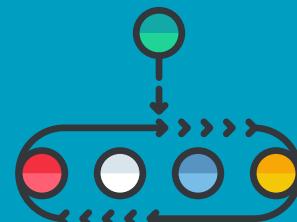
The Chemical and Biochemical Engineering department of IIT Patna was initiated in the year of 2013 and the B.Tech. program in Chemical Engineering commenced in the year 2016. Within the short duration since inception, the department has steadily grown in facilities, including teaching and research laboratories, and the number of faculty and students. The department has credible research output in terms of journal publications, external research funding, and collaborations. With the first batch of undergraduate students graduating in 2020, the department is looking forward to a good placement record too. The students have been trained well in both technical and soft skills keeping their employability in focus. Almost every UG student in the department has undergone summer-internship to earn them valuable experience that will help them select their career path.

Many of the students, despite being in the tumultuous times of the pandemic, have resorted to remote internship opportunities and online learning platforms to ensure a thorough use of this lockdown. 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.

# DEPARTMENT DEMOGRAPHICS



FUTURE  
PROSPECTS OF  
2017 BATCH



- Chemical Process Calculations
- Fluid Mechanics
- Mechanical Operations
- Heat Transfer
- Mass Transfer - I & II
- Chemical Engineering Thermodynamics
- Process Equipment Design - I & II
- Chemical Reaction Engineering
- Chemical Process Technology
- Chemical Reactor Design
- Chemical Process Modeling and Simulation
- Process Control and Instrumentation
- Transport Phenomena
- Process Plant Design and Economics

- **Data Science**
- **Python**
- **Computational Topology**
- **Humanities and Social Science**
  - **Economics and Financial Analytics**
  - **Sociology**
  - **Linguistics**
  - **Entrepreneurship**

# OPEN ELECTIVES COURSES OFFERED

DEPARTMENTAL ELECTIVES →

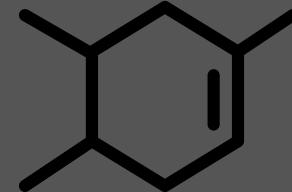
← CORE

- Catalysis Science and Engineering
- Energy Management
- Bio-Process Engineering
- Fuel and Combustion Technology
- Numerical Methods in Chemical Engineering
- Petroleum Refinery and Petrochemicals
- Renewable Energy Sources
- Molecular Modeling and Simulation
- Heterogeneous Catalysis - Fundamentals and Applications
- Process Integration
- Renewable and Non-Conventional Energy Sources
- Non-Newtonian Flows - Rheology and Heat Transfer
- Advanced Separation Process

# Areas of Research



## Process Integration & Separation Processes



Wastewater  
Treatment



Catalysts for Clean  
Energy Applications &  
Renewable Energy  
Sources



CO<sub>2</sub>  
Utilization and  
Capture



Fuel Cell &  
Batteries

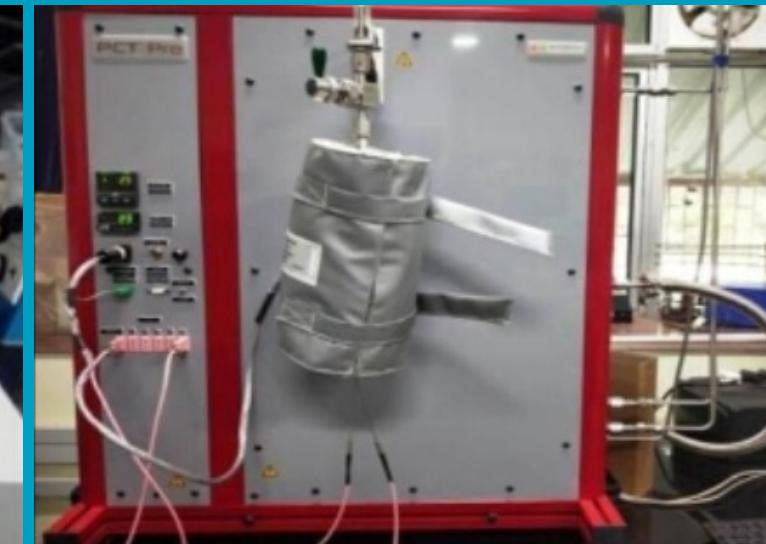


Molecular  
Modeling &  
Simulation



Computational  
Fluid Dynamics  
& Heat Transfer

- IN-SITU FOURIER TRANSFORM INFRARRED SPECTROSCOPYR )
- GAS CHROMATOGRAPH
- FIXED BED REACTOR
- GAS PHOTO CHEMICAL REACTOR
- SIEVERETS APPARATUS
- BIOGAS ANALYSER
- ALGAL GROWTH CHAMBER
- MULTIMODE READER
- AUTOCLAVE
- REFRIGERATED CENTRIFUGE
- FLUOROSENSE MICROSCOPE
- HOT AIR OVEN
- LABARATORY FREEZER AND LAB REFRIGERATOR



## DEPARTMENTAL FACILITIES

- INCUBATOR
- UV - VISIBLE SPECTROSCOPY
- DIGITAL COLONY COUNTER
- DIGITAL PHOTO REACTION SYSTEM
- MICROWAVE REACTION SYSTEM
- BIOSAFETY CABINET CLASS 2 B2
- VECTOR NETWORK ANALYZER
- LIQUID CHROMATOGRAPHY - MASS SPECTROPHOTOMETRY
- TOTAL ORGANIC CARBON (TOC) ANALYZER

# Research Laboratories

## Some Key Experiments

### HEAT TRANSFER

- Shell and Tube Exchanger
- Stefann Boltzmann Apparatus
- Lagged Pipe HT
- Drop-Wise and Film Wise Condensation
- Natural and Forced Convection

### PROCESS CONTROL

- PID Controller Characteristics
- Control Valve
- Flapper Nozzle
- Flow and Temp. Control Process
- Programmable Logic Controller

### SIMULATION

- Ansys and ICEM CFD
- MATLAB
- Aspen Plus

### CHEMICAL REACTION ENGINEERING

- Adsorption and Absorption in Packed Bed
- Simple and Packed Bed Distillation
- Spray Dryer and Forced Draft Tray Dryer

### FLUID FLOW AND MECHANICAL OPERATIONS

- Isothermal Batch and C.S.T.R
- Plug Flow Reactors
- Hydrodynamics of Trickle Bed Reactors



# CO-CURRICULAR ACTIVITIES

What makes us different?



# THRESHOLD CLUB

- Chemical engineering is a highly open-ended and flexible area of study with branches extending to economics, biotechnology, electronics, policy-making, and much more. The Threshold Club is aimed at providing the right support to produce the best chemical engineering graduates of tomorrow. It promotes interaction within the department and implements academic, social, and other programs of interest to its members. It fosters relations within the batch by conducting year-round activities such as departmental sports events, chemical quizzes, etc.



- Our department students have designed and released twelve issues of our magazine named '**Tribune**' which covers various research in chemistry and chemical engineering conducted across the globe, the recruitment process for major chemical companies of India, Nobel Prize winners in Chemistry, department club's events during college fests, internship experience of department students and much more captivating stuff. Find all the magazines [here](#).

# CHEM-E-CAR



- Students actively participate in industrial visits to supplement and enhance theoretical knowledge and to get first-hand experience on industrial challenges and the latest technology coming up in the industries. Past prospective industrial visits sites include a visit to Indian Oil Corporation Limited (IOCL), Barauni, and Sudha Dairy, Patna.

- Our department students actively participate in designing and building a small-scale automobile that operates by chemical means for various events and competitions across the nation. The purpose of Chem-e-Car is to enhance the experimental knowledge of the students. The previously built car model derived power from thermoelectric generators and the stopping mechanism was based on the iodine clock reaction.

## INDUSTRIAL VISITS



Many of our students organize and take part in overall technical and cultural fests such as Celesta and Anwesha. They conduct, manage and be part of various events such as

- Rocket Propulsion
- Chem-E-Switch
- Chem-o-Quest
- Chem Charades

Many of our undergraduates take part in Annual Inter IIT Technical, Cultural and Sports Meet. They recently were part of Campus Sustainability Challenge in the meet discussing environmental solutions for sustainable energy consumption.



# ACHIEVEMENTS

What makes us the best ?



# INTERNATIONAL PRESENCE

## MOU's, POST GRADUATE and INTERNSHIP



- Other collaborations include internships under field leaders and professors at **ICT Mumbai, IIT BHU, IISc Bangalore, IIM Bangalore, IIT Guwahati**, etc. which gave way to 87.5% of the batch being a part of summer internships for the year 2019-20.
- Our 2016 Batch Alumni, **Aswin Krishna** has been selected for Post-graduate studies at ETH Zürich, ranked 6th in the world by QS Rankings 2021.
- Our 2014 Batch Alumni, **Akshay Ajagekar** has completed his masters in chemical engineering and has been accepted as a PhD Student in 2020 at the prestigious Cornell University.
- Final Year Student **Bhavani Sushmita** has published research works at I&EC ( Industrial And Engineering Chemistry ) and has been selected for an academic internship at the renowned Imperial College London.
- Final Year Student **Priyansh Singh Rao** has published a paper in the Industrial and Engineering Chemistry Research journal and has been selected as remote intern developing disease detection tools in collaboration with the University of Cambridge - MIT.
- Final Year Student **Atharva Ekatpure** is a co-author of 2 research papers, which have been accepted at the International Conference on Sustainable Waste Management and IEEE Transactions on Plasma Science. He was also selected for the prestigious Mitacs Globalink Internship Program at University of British Columbia, Canada.
- Final Year Teams **Thunder Buddies** and **Chemi Bois** were 2 of the 10 teams selected for the National Chemical Industrial Competition, MindFizz, Organised by Jubilant Life Sciences.
- Final Year Students **Vikas Soni, Pranshu Chandani, Rohit Kumar and Bhavani** were four of the 45 students to be selected nationwide for The Soft Matter Spring School, IIT Ropar.

# Industrial Partners and Recruiters



**L&T Infotech**



**unacademy**



**GAIL (India) Limited**



**Futures  
First**



**Feasopt**



**L&T Heavy Engineering**



**TATA**

**TATA CONSULTANCY SERVICES**



**Broadridge®**

# FACULTY Achievements

Total Number of Newly Published Articles in Prestigious Journals such

15

BHARAT VIKAS AWARD

Dr. Anoop Kumar Gupta, Assistant Professor of CBE was honored with this prestigious award for the period 2018-23

DST INSPIRE FACULTY AWARD

Numbers and Titles in 2019 -20

4

Invitation to International Conferences and talks such around the globe

8

T- SERIES

Awarded to Dr. Sandip Khan, Assistant Professors in regards to his numerous Achievements in Research and Teaching

Ongoing Projects affiliated to our faculty awarded by SERB - DST, DAE - BRNS, and SERN Early Career Research Award Team

On the extra - curricular front, Dr.S.K. Samantha, Assistant Professor, being a noted singer, lyricist and music composer debuted with his studio album launched by noted Recording Label T-Series

CBE Department hosts an excellent faculty, with leaders in various research areas and a plethora of experience. They are an integral part of the department as they inculcate academics and various other life lessons among the students -

- Dr. Sujoy Kumar Samanta
- Dr. Prolay Das
- Dr. Nitin Dutt Chaturvedi
- Dr. Sandip Khan
- Dr. Sushant Kumar
- Dr. Jose V Parambil
- Dr. Anoop Kumar Gupta



# PLACEMENT PROCEDURE



THE TRAINING & PLACEMENT CELL (NODAL POINT FOR PLACEMENTS AT IIT PATNA), ASSISTED BY STUDENT REPRESENTATIVES, SENDS INVITATIONS TO COMPANIES ALONG WITH RELEVANT INFORMATION AND DOCUMENTS - PLACEMENT BROCHURE, JOB ANNOUNCEMENT FORM (JAF), ETC.

COMPANIES ARE GIVEN AN EXCLUSIVE LOGIN ID IN THE WEBSITE AFTER THEY SUBMIT THE FILLED-IN JOB ANNOUNCEMENT FORMS (JAF) VIA EMAIL OR FAX. THE JAFS ARE MADE AVAILABLE ONLINE, WHICH HELPS THE WILLING STUDENTS TO REGISTER FOR THE SAME

SUITABLE DATE FOR THE PRE-PLACEMENT TALK (PPT) IS DECIDED BY THE DISCUSSIONS BETWEEN THE COMPANIES AND THE T&P CELL. AFTER CONFIRMATION FROM THE COMPANIES, STUDENTS ARE NOTIFIED OF THE PPT DATE. IMPORTANT POINTS REGARDING THE PROCEDURE ARE PROVIDED BY THE COMPANY TO THE STUDENTS THROUGH PPT

INTERESTED STUDENTS SHOW THEIR WILLINGNESS TO APPEAR FOR THE RECRUITMENT PROCESS OF A COMPANY BY SIGNING ITS JAF. COMPANIES CAN VIEW RESUMES OF INTERESTED STUDENTS AND SHORTLIST STUDENTS USING THEIR ONLINE ACCOUNT.

TPC PROVIDES A COMPREHENSIVE SCHEDULE INCLUDING INTERVIEW DATES AND CONFIRMING IT WITH THE COMPANY. THE SHORTLISTED STUDENTS ARE INFORMED REGARDING ANY PRE-REQUISITES OF THE COMPANY.

COMPANIES COME DOWN TO THE CAMPUS ON THE ALLOTTED DATE/S AND CONDUCT TESTS AND/OR INTERVIEWS ACCORDING TO THEIR RECRUITMENT PROCESS. TPC WILL MAKE THE NECESSARY MANAGEMENT AND ASSISTANCE FOR A SMOOTH RECRUITMENT PROCESS.

THE COMPANY/ORGANIZATION IS REQUIRED TO FURNISH THE FINAL LIST OF STUDENTS PREFERABLY ON THE DATE OF INTERVIEW. A WRITTEN CONFIRMATION LETTER OUTLINING THE SELECTED CANDIDATES, LOCATION, AND OTHER TERMS AND CONDITIONS NEED TO BE PROVIDED.

THE PLACEMENT OFFICE RECORDS JOBS CORRESPONDING TO THE STUDENTS SELECTED AND THE COMPANY IS REQUIRED TO PROVIDE JOB OFFER LETTERS. STUDENTS ONCE PLACED IS NOT ENTITLED TO APPEAR FOR OTHER INTERVIEWS AS PER THE INSTITUTE PLACEMENT POLICY.



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# CONTACT US

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