

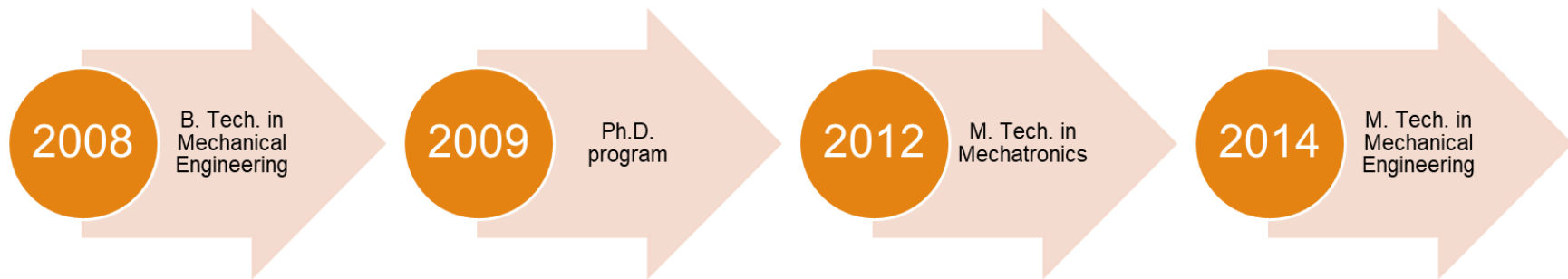


DEPARTMENT OF MECHANICAL ENGINEERING IIT PATNA



ABOUT US

Mechanical Engineering is one of the first three departments that started with the establishment of IIT Patna in the year 2008. The Department offers Bachelor of Technology degree in Mechanical Engineering, Master of Technology degree in Mechanical Engineering with specialization in Thermal and Fluids, Manufacturing, and Master of Technology degree in Mechatronics streams. In addition, the Department has a Ph.D. program wherein state-of-the-art research in all the key areas of Mechanical Engineering stream is conducted.



Transit campus
August 2008 to July 2015



Moved to permanent campus in
July 2015

Brief Journey of the Department

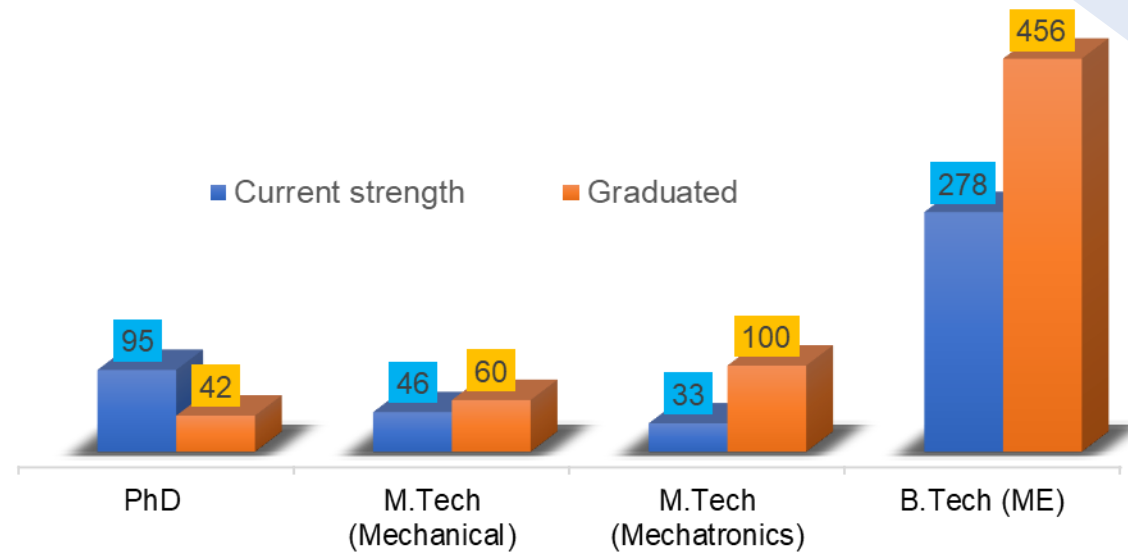
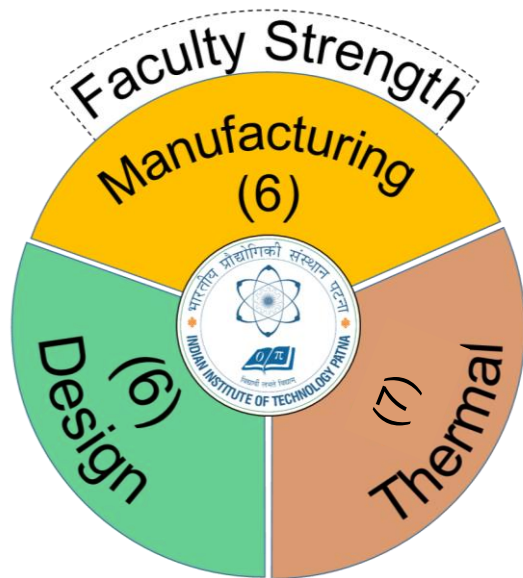
OUR VISION

The department aims to train the young undergraduate minds into dynamic and technically sound professionals capable of dealing with real world problems of industry as well as the academic research. Vision of the department is to produce high quality engineers who can engage in the frontiers of the field and channelize the state-of-the-art knowledge to solve problems of relevance to the country and society at large. While imparting high-quality education, emphasis is laid on taking up innovative ideas from concept to final product development via the route of fundamental research, feasibility studies, technology improvement, demonstration, and product development. Further, the department wishes to fulfill these objectives through our state-of-the-art facilities and well-trained and qualified faculty and staff members.



BRIEF OUTLINE OF THE DEPARTMENT

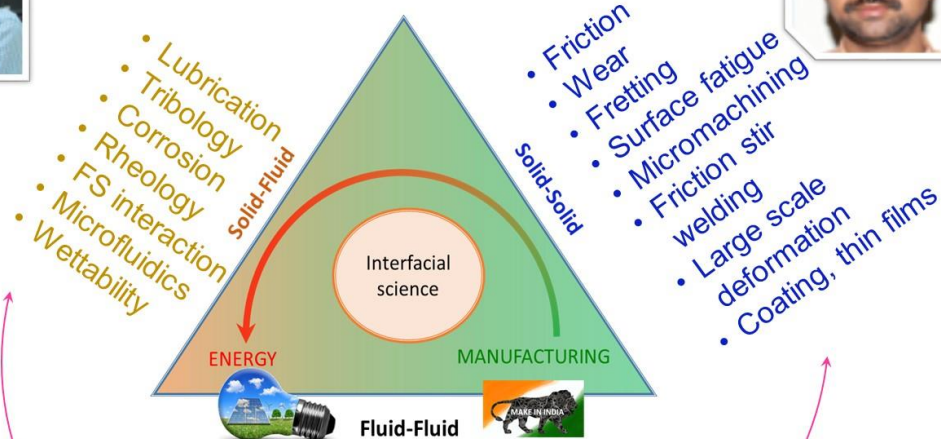
Presently, the Department of Mechanical Engineering has 19 young and dynamic faculty members, and 9 trained technical staff members. The present strength of students in the department is 452 with 278 undergraduate, 79 postgraduate, and 95 doctoral students. 42 PhD, 160 M.Tech, and 456 B.Tech students have successfully graduated from the Department so far.



Current and graduated student strength



THRUST AREAS



- Lubrication
- Tribology
- Corrosion
- Rheology
- FS interaction
- Microfluidics
- Wettability

- Friction
- Wear
- Fretting
- Surface fatigue
- Micromachining
- Friction stir welding
- Large scale deformation
- Coating, thin films

- Energy
- Two-phase flows in microgravity
- Electronic cooling
- Emulsions
- Heat Exchangers



TEACHING AND RESEARCH

The department has all the required undergraduate teaching labs and state-of-the-art research facilities. Some of the facilities are shown below:

Thermal and Fluid Transport Lab



Sustainable Energy Research Lab



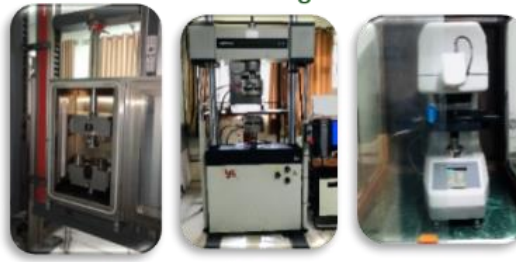
Tribology Lab



Robotics Lab



Material Testing Lab



Facilities: Sponsored Projects



Surface Engg. & Manufacturing Lab



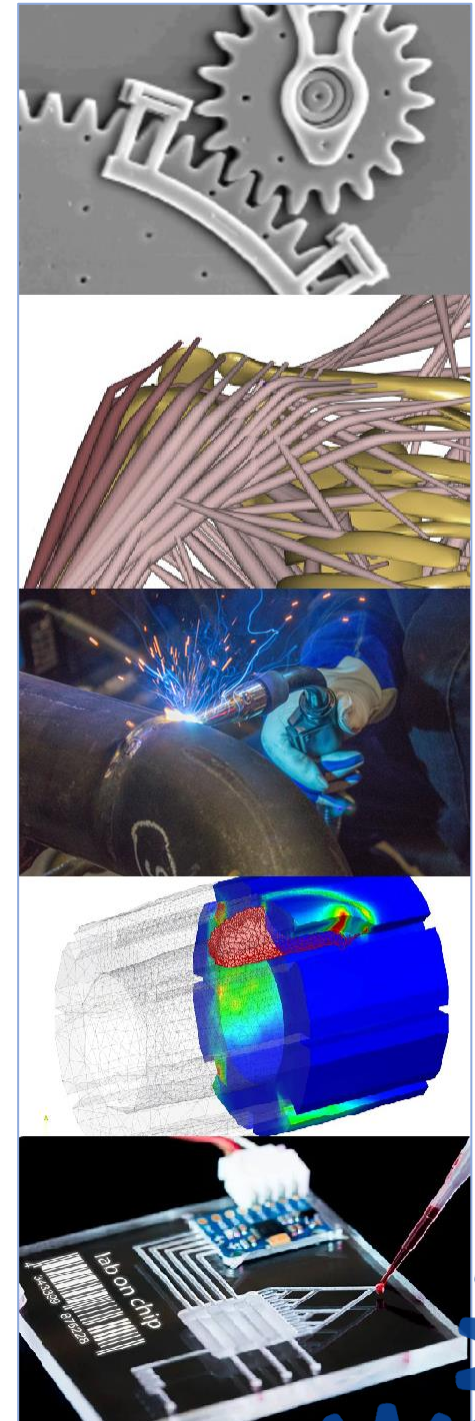
Advanced Manufacturing Lab

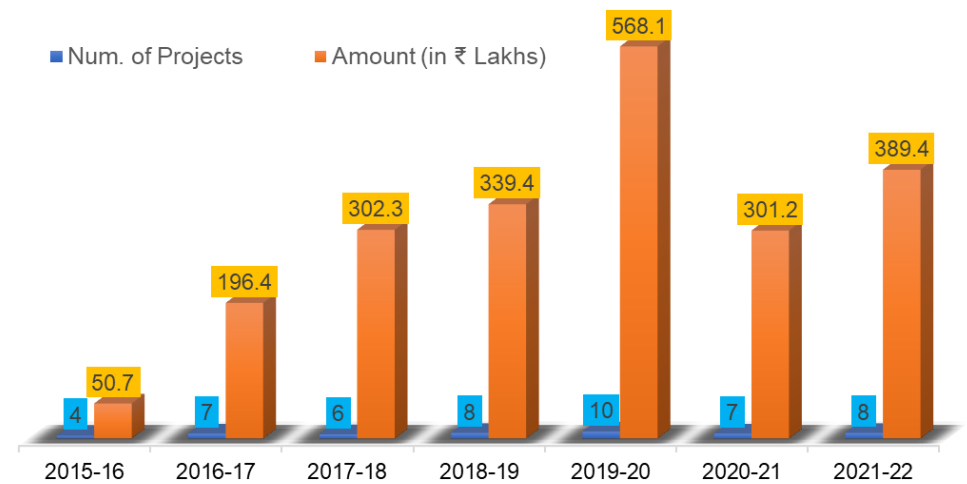
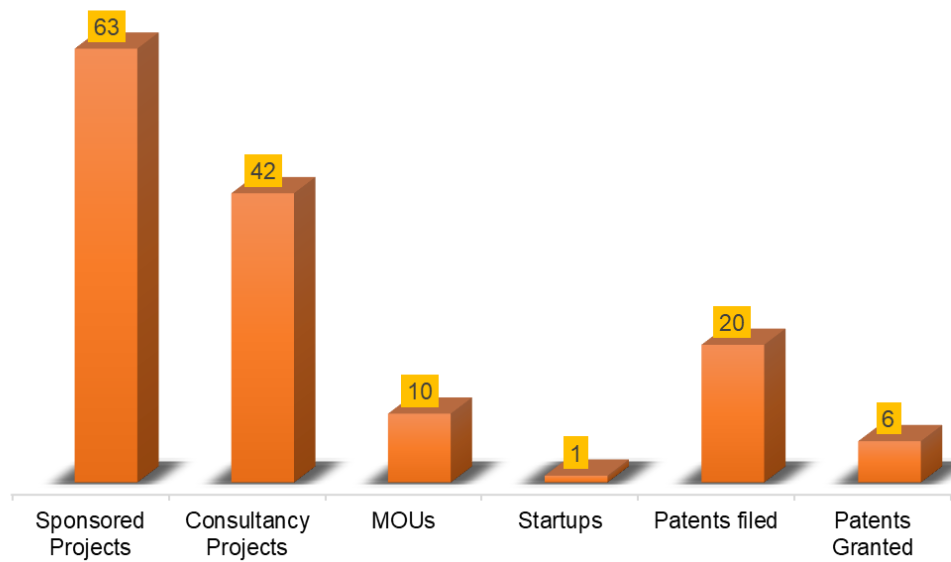


A Glimpse of teaching and research facilities in the Department

The faculty members of the department are actively involved in research and teaching. The research excellence of the department is reflected in more than 600 journal, 500 conference publications, and 3 books published by the faculty members. Sponsored and consultancy projects exceeding Rs. 20 Crores have been awarded by various external funding agencies. Research efforts in the department have resulted in one technology transfer and more than twenty patent applications have been filed out of which four patents have been granted.

The students of the department have incubated two companies in the area of medical electronics. Students of the department have also been awarded best presentation and poster awards multiple times in various national/international conferences. The faculty members and the students in the department venture in diverse multidisciplinary fields including tribology, soft-tissue mechanics, non-traditional manufacturing, advanced welding technology, additive manufacturing, laser material processing, condition monitoring, biomedical robotics, biomedical bone drilling, computational mechanics, fracture, finite element modelling, composites, fluid flow and heat transfer, micro- and nano-scale heat transfer, Microfluidics and BioMEMS, boiling, condensation, two-phase flows, refrigeration and air-conditioning, computational fluid dynamics, interfacial flows, fluid-structure interaction, soft computing, microgravity, among others. Such activities are supported by 20 state-of-the-art research-cum-teaching laboratories.





Research Project details of the department





KEY PLACEMENT STATISTICS

Indian Institute of Technology Patna aims at building a strong interface between the corporate world and the institute. We have currently completed the 10th Placement Season for IIT Patna and have been moving forward setting new benchmarks with each passing year. The students of Mechanical Engineering have been placed in various MNCs like Codenation, Gameskraft, Heromoto corp, Topper, Addverb Technologies, ZS associates, and many more.

IIT Patna has been contributing to nation-building by providing the best talent to various PSUs like IOCL, HPCL, ISRO, DRDO, BPCL, MECON, etc. The students through the intense curriculum have been placed in various domains ranging from consulting, finance, information technology, analytics, core engineering, etc. with GET, Analyst, Associate Engineer, SDE, Consultant etc. as roles.

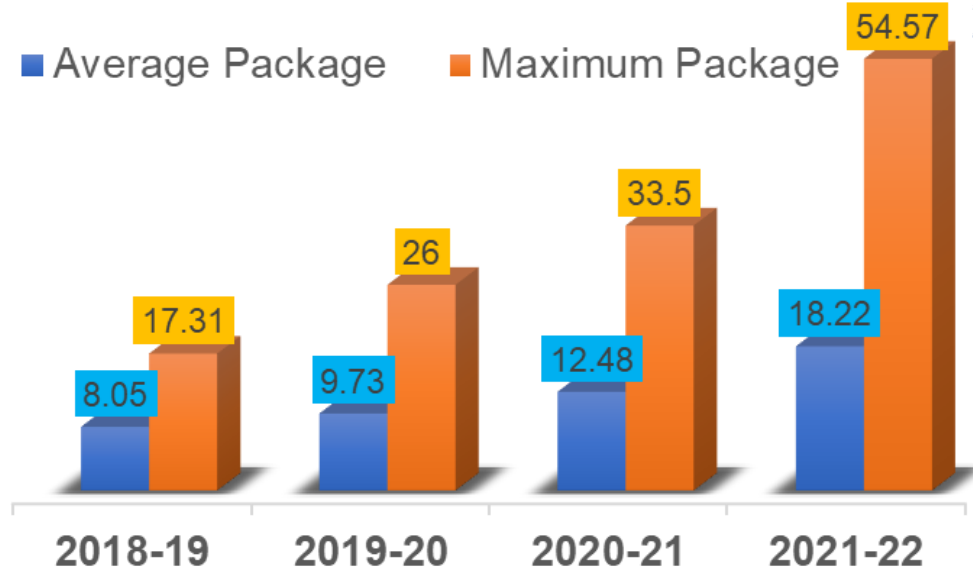
The placements of the graduating students from the Mechanical domain have been growing every year beating the previous record. The highest packages of students from the academic year 2021-22 have been recorded as 54.57 LPA. For the batch of 2022 top PSUs like BPCL and BEL have also recruited the student.



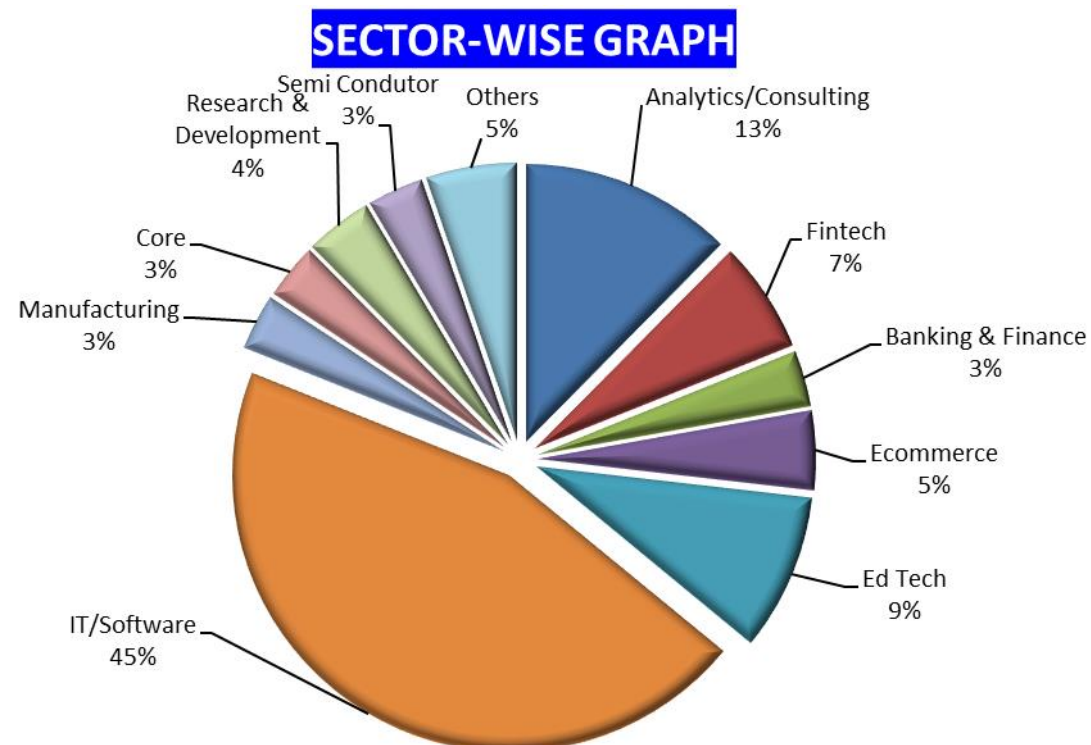
Some other notable highlights are:

- 100 percent placement in the last year for the eligible and interested students
- The average package increased from ~ Rs. 12.48 lakhs per annum in 2020-21 to ~ Rs. 18.22 lakhs per annum in 2021-22.
- Maximum package increased from Rs. 33.5 lakhs per annum in 2020-21 to Rs. 54.57 lakhs per annum in 2021-22.

Owing to research being an intricate part of the department, our graduating students have also opted for higher studies in top global universities and premier institutes of the country such as IITs, IIMs, etc.



Trends in offers in the past years in Mechanical Engineering




Sector-wise distribution of companies participating in the placement processes



STUDENT ACTIVITIES AND CLUBS

The undergraduate students have participated and secured positions in the national level events such as BAJA, SUPRA, ESI, Robocon and ASME-HPVC. Competitions like SUPRA, BAJA, HPVC lets an undergraduate student design professional level vehicles with specific objectives such as Formula-1 racing, All Terrain motorable Vehicles etc. These activities are mentored by the distinguish faculties of the department. Such technical participations and activities with ample guidance give them exposure to practical and useful skills that can be implemented in industrial jobs.

Mechanical Engineering Department also takes pride in being the General Champion for last two editions of Sports event conducted between departments during Research Scholar Day, which is an annual celebration of research and researchers across the institute.





Robocon



BAJA: All Terrain Vehicle



SUPRA: Racing Car

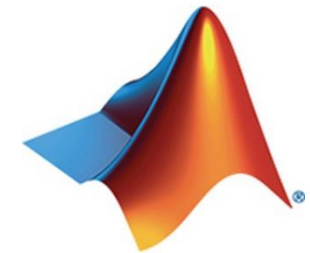


ASME HPVC



Students' participation in various technical events

The trends in industry jobs have lately shifted from purely engineering based work towards data driven, automation and AI based technologies. The 'Coding and Machine Learning Club' enables the students to learn the basics of platforms like Python, C, C++, and MATLAB. In addition, they get to learn machine learning (ML) and artificial Intelligence (AI) concepts that can either be applied to their research or directly in the industrial jobs.



During the COVID-19 pandemic, our students have also been engaged in developing various educational platforms online. One such notable effort has been building of a mobile app and website for virtual fluid mechanics laboratory.

Virtual Laboratory Teaching Initiative during COVID-19 Pandemic

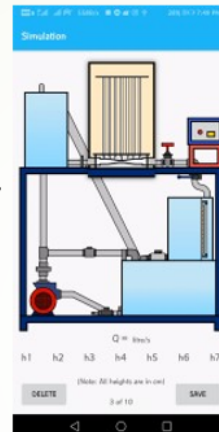
Following 3rd year B. Tech. students developed an Inhouse **Virtual Fluid Lab** mobile App consisting of 6 virtual experiments as a part of their Engineering practicum course:

1. Akshat Jain
2. Aman Kumar
3. Ashutosh Anand
4. Ashutosh Maurya
5. Diptanil Sarkar

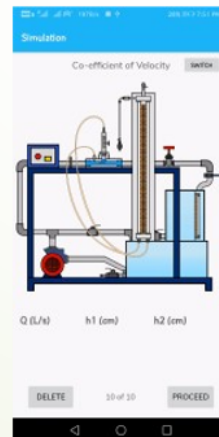
Under the supervision of:

1. Dr. M.K. Khan
2. Dr. M. Pathak
3. Dr. A. Assam

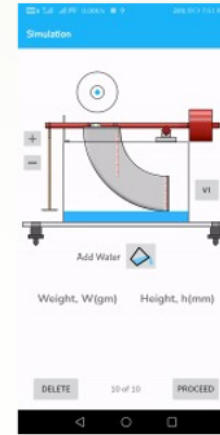
Bernoulli's experiment



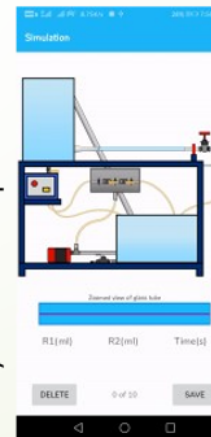
Pitot Static Tube



Centre of Pressure



Reynolds' experiment




Implemented in ME216 course from spring session of AY 2020-21

Key Features:

- ✓ It is an android app
- ✓ No internet connection required
- ✓ Randomness is introduced to mimic random error experienced during lab experiments
- ✓ The observation data from the app is close to the lab experimental data
- ✓ The generated data is downloadable in xlsx format



NOTABLE ACHIEVEMENTS BY THE STUDENTS OF THE DEPARTMENT

- Best B. Tech. project awards by INAE, 2011, 2012, 2014, 2015
 - 'Biaxial Testing Device' by Sujit Sahu and Dilshad Ahmad selected among the top six best business ideas in Business Plan Competition 2018, organized by BIA and Venture Park, Patna, Bihar.
 - A paper by Mr. Nirbhay Kumar and Md. Qaisar Raza received best poster award to in 10th International Conference on Boiling and Condensation Heat Transfer, Nagasaki, Japan, 2018.
 - M.E. Department (IITP) team "INVINCIBLES IITP (Baja)" awarded 2nd position in national level quiz conducted by Enduro Student India 2017.
 - Mr. Binayak Krishna Swami was the winner in "Intel Higher Education Challenge -2017" on Cyber-Physical Systems. An innovation challenge Organized by Intel India in association with FICE India at SJBIT, Bangalore. (October-2017).
 - Best paper award to Mr. Siddharth Suman in 2017 5th International Conference on Energy Engineering and Environmental Engineering, 15-16 April, China.
 - IITP student team secured 2nd runner-up in ASME HPVC 2017.
 - Best paper award is to two final years B.Tech. mechanical students Mr. Vishal Nagarkoti, and Mr. Omprakash Sahu in the 6th International and 43rd National Conference on Fluid Mechanics and Fluid Power (FMFP2016) held in MNNITA, Allahabad, India during December 15-17, 2016.
 - A biaxial stretching device for simultaneously stretching of an elastomer sample, patent no. 378456 dt. 30.09.2021 [Granted] [Team included two Btech Students Chennamalla Mahender, Devapujula Siddhartha]
 - Biaxial planar tensile testing device, patent no. 378451 dt. 30.09.2021 [Granted]
- 

- Best poster award to Mr. Deepak Kumar Prajapati, Ph.D. scholar, Mechanical Engineering Department in National Tribology Conference (NTC 2016) IIT BHU, India during December 8-10, 2016.
- Paper by Kumar Nishant Ranjan Sinha, Durgesh Ranjan, Nirbhay Kumar, Md Qaisar Raza received Prof. P K Sharma best paper award in IHMTTC, 2019.



Graduating batch of 2018 with ME faculty and staff members

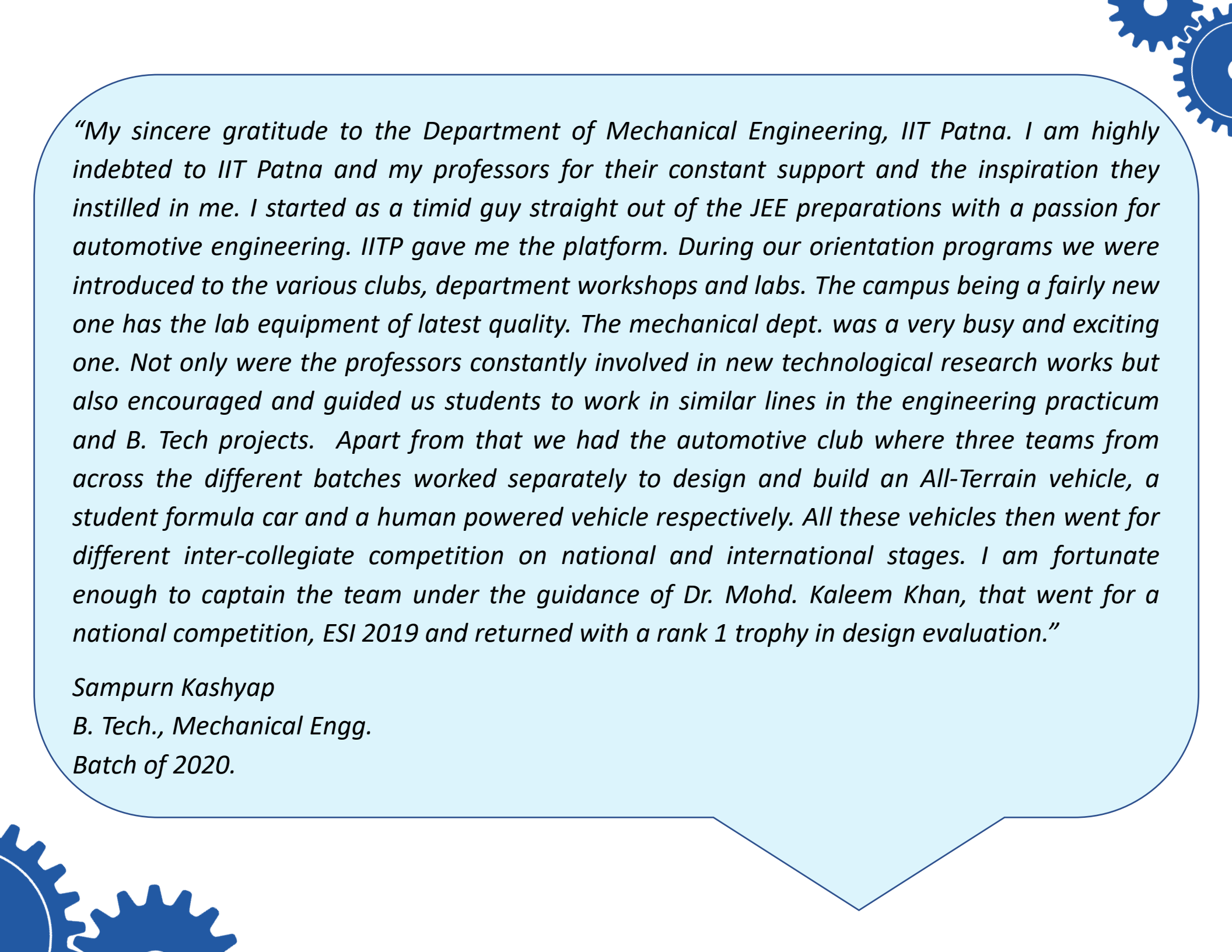


TESTIMONIALS

“The Department of Mechanical Engineering, IIT Patna, provides such a beautiful learning environment that has not only helped me to gain technical knowledge but has also helped me to grow as an individual. The department, though being in a new IIT, receives tremendous amount of funding from organizations and industries. And one such funding from General Electric gave me the opportunity to be back into the campus to pursue Ph.D in 2018 after graduation from ME Department in 2015. The freedom that the department provides in terms of inculcating new ideas and research, has helped me to take onus of my research. The facilities and machines in laboratories can be compared with any good institute globally and that what makes it amazing to pursue a degree from the mechanical department.”

*Aman K Srivastava
B.Tech, Mechanical Engg.,
Batch of 2015*





“My sincere gratitude to the Department of Mechanical Engineering, IIT Patna. I am highly indebted to IIT Patna and my professors for their constant support and the inspiration they instilled in me. I started as a timid guy straight out of the JEE preparations with a passion for automotive engineering. IITP gave me the platform. During our orientation programs we were introduced to the various clubs, department workshops and labs. The campus being a fairly new one has the lab equipment of latest quality. The mechanical dept. was a very busy and exciting one. Not only were the professors constantly involved in new technological research works but also encouraged and guided us students to work in similar lines in the engineering practicum and B. Tech projects. Apart from that we had the automotive club where three teams from across the different batches worked separately to design and build an All-Terrain vehicle, a student formula car and a human powered vehicle respectively. All these vehicles then went for different inter-collegiate competition on national and international stages. I am fortunate enough to captain the team under the guidance of Dr. Mohd. Kaleem Khan, that went for a national competition, ESI 2019 and returned with a rank 1 trophy in design evaluation.”

Sampurn Kashyap

B. Tech., Mechanical Engg.

Batch of 2020.

For more information about the department click on the following links:

[Department Website](#)

[Department Video](#)

Designed by :
Aman & Priyanshu