Prof. S.G. Deshmukh
Head of The Department

“Mechanical Engineering Department at IIT Delhi (one of premier Institutes of Eminence in INDIA) has been consistent in its pursuit of excellence, and enjoys an international QS ranking-2020 of 51-100. Our students are highly competitive and well versed in both academics and extra-curriculars. We are proud of our strong alumni base occupying leadership positions in industry. We look forward to hosting a session to explore placement of our students. (B.Tech/M.Tech./MS(R)/Ph.D).”

Prof. Bhupinder Godara
Faculty Coordinator

“We are delighted to invite corporates to join the placement process at IIT Delhi. Students who have honed their skills in the rigor of Mechanical Engineering are now ready to make contributions as they look forward to the challenges of real life. We take pride in the quality of our programs and the potential of our students. They will be an asset for the companies they work for. We look forward to welcoming corporates to explore employment opportunities with our students.”
About Us

Department of Mechanical Engineering at IIT Delhi is one of the well-established departments having a large faculty strength and 29 different laboratories that are equipped with cutting edge technology catering to various fields of Mechanical Engineering. The students get good exposure to industry trends and the latest technological practices. The department offers students an exemplary learning environment where new ideas are encouraged. The programs of study transforms bright students into technically skilled and industry-oriented engineers whose excellence is well accepted in India and overseas.

Only those students who have cleared the highly competitive JEE AIR (445-936) for B.Tech., GATE with a score of (785-840) for M.Tech. are admitted into the programs. This rigorous selection process ensures that only the very best and the brightest make it to the department.

The masters or PG program includes both Master of Technology (M.Tech) and Master of Science(Research) (MS(R)) programs and are offered under 4 subject disciplines, namely:

Thermo-Fluids Engineering | Production Engineering | Mechanical Design | Industrial Engineering

Previous Recruiters
Thermo-fluids Engineering

Thermo-fluids Engineering is uniquely relevant today to sustainability and climate change. Students learn to analyze, design and model fluid flow, thermal systems and energy conversion processes to obtain high performance with minimal use of resources. Hands-on learning in research labs leads to unique skills with real systems, as well as computational software and programming languages. Whether automobiles or aeroplanes, smartphones or satellites, power generation or energy efficiency, oil pipelines or turbines, air conditioning or combustion the areas Thermofluids engineers can contribute to are endless.

Production Engineering

The Production Engineering (PE) course curriculum and academic research projects are not only industrial driven, but also covers aspects such as analysis, design, simulation and automation in addition to conventional manufacturing technologies. The program is committed to nurture able professionals in the fields of optimization of manufacturing process, processes and product planning, Supply chain optimization, Mathematical & physical modelling of manufacturing processes, additive manufacturing and the like.

Industrial Engineering

Industrial Engineering (IE) is a highly specialized techno-managerial area which integrates the entire organization as a single entity. Industrial engineers are system integrators who focus on end-to-end solutions and use specialized knowledge and skills in the mathematical, physical, and social sciences, together with the principles of engineering analysis, to predict and evaluate the results obtained from systems and processes. Broad areas of application are in manufacturing systems, supply chains, analytics, machine learning, forecasting, logistics, transportation, e-commerce, finance, services, health care and other major industrial operations.

Mechanical Design

Mechanical Design focuses on the mechanical aspects and modern practices of design. This PG program comprises of highly demanding coursework followed by a rigorous research project. It mainly deals with the analysis, design, simulation and control of mechanical equipment/process emphasizing on application-based course projects and practical sessions including both experiments and simulations.
**Thermo-Fluids Engineering**

**Major Courses:**
- Advanced Fluids Mechanics
- Computational Heat Transfer
- Thermal Design
- Design of Wind Power Farms
- Gas Dynamics
- Combustion
- Advanced Power Generation systems
- Heating, Ventilation and Air Conditioning
- Applied Mathematics for Thermo fluids
- Introduction to Microfluidics
- Advanced Heat Transfer
- Advanced Thermodynamics

**Ongoing PG Projects**

**Applied Fluids Dynamics | Heat Transfer**

Study of continuous deposition of liquid thread onto a moving substrate.

Innovative techniques to capture PM2.5.

Effective friction factor of zero shear stress surfaces.

Effect of wind gust on the Aerodynamic

Solidification/ Heat transfer in continuous casting

**Thermal Design | Optimization**

Design of air/water cleaning device by bubbles.

Development of dynamic lift and drag models for wind turbine.

Design and fabrication of an experimental test Rig for combustion dynamics studies.

**Renewable Energy | Fluids | Heat Transfer**

Modelling of Joule-Thompson Miniature Coolers.

Modelling and Analysis of Electric Hybrid Vehicles running on Indian Urban Driving Cycle.

Development of a flameless burner.

**CFD | Experimental | Combustion**

Pressurized Drop Tube Furnace (PDTF) experiments and simulations to study combustion of Indian coal and coal blends.

Study on combustion of a swirl based dual fuel combustor.

Numerical model for analysis of Lithium-Sulfur batteries

Numerical stimulations of Electrodynamic jetting.

Numerical modelling of atomization of injectors.

Experimental analysis of deformation and breakup of droplets under electric field.
Production Engineering

Major Courses:
Mechanics of Composite materials
Additive Manufacturing.
Finite Element Method.
Computer Aided Manufacturing.
Computational methods.
Automation in Manufacturing
Welding Science and technology
Metal Forming Analysis.
Machining Process and Analysis
Metrology
Industrial Engineering Systems
Operational Planning and Control

Composites | Simulation | Fabrication | FEA
Fabrication and testing of bullet and blast resistant solutions.
Development of high aspect ratio structures on quartz for bio sensing applications.
Laser machining of thin metals and polymers for biomedical applications.
Finite element analysis of deep drawing of Al-Mg alloys using different hardening models.

Ongoing PG Projects
Automation | Fabrication
Development of Machine OS for Smart Manufacturing.
Development of Cyber Physical Robotic Welding System.

Nano Mechanics | Surface Engineering
High speed end milling of super alloys using Nano fluids.
Microcellular Extrusion/ injection molding of polymers - for light weight industrial solutions
Diffusion bonding with potential interlayers.

Additive Manufacturing
Design and Fabrication of functionally graded material.

Software & Tools:
- ANSYS
- PTC Creo
- MATLAB
- CATIA
- AutoCAD
- Dynaform DFM
- SolidWorks
- Abaqus
- Siemens NX
- Moldflow
Mechanical Design

Major Courses:
- Design & Optimization
- Vibration & Noise Engineering
- Design of Precision machines
- CAD & FEA
- Designing with advanced materials
- Experimental Modal Analysis
- Robotics & Multibody Dynamics
- Advanced mechanisms
- Analytical Dynamics
- Automotive design
- Control Engineering
- Rotor Dynamics
- Lubrication

Ongoing PG Projects

Experimental | Design and Optimization
- Studying blast injuries for lying down vs. standing persons & Experimental study of effectiveness of blast mitigation materials.

- Sub micron accuracy air bearing stage and actively controlled magnetic bearing system - design and fabrication.

- Development of an in-situ bone loading device.

Vibration & Noise | Robotics and Control


- Gearbox health monitoring (Funded by ARDB).

- Design and Development of Hold-Down Mechanism for vibration isolation (ISRO).

- Health Monitoring of a Railway bogie
- Flexible body dynamics of robotic manipulators.

- Study of gait change post knee replacement.

- Design and development of material for hip implant bio tribology (in collab with Kyushu University, Japan)

Software & Tools:
- Hyperworks
- MATLAB
- Autodesk Inventor
- Abaqus
- Solidworks
- PTC Creo
- LS-DYNA
- RecurDyn
- Madymo
- Adams
- ANSYS
Industrial Engineering

**Major Courses:**
Stochastic Modelling & Simulation
Probability & Statistics
Operations Research
Advanced Operations Research
Supply Chain Management
Project Management
Industrial Engineering Systems
Operations Planning & Control
Maintenance Planning & Control
Reliability, Availability & Maintainability
Entrepreneurship
Project Management
Value Engineering & Life Cycle Costing
Logistics

**Transportation**
• Dynamic Route allocation and scheduling of Electric buses with fixed depot by Optimizing operating, fixed, user (overcrowding, waiting) costs
• Creation of heuristic for reducing computational time for electric bus route allocation model
• Optimization of the existing schedule of BMTC buses by reducing overlapping in schedules and including consistent headway
• Finding the weightage of attributes that contributes to bus service by using AHP and to find relative importance of these attributes by using logit model for different socio economic and demographic categories

**Scheduling & Optimization**
• Election schedule optimization modelling
• Simulation Modelling of liver allocation and transplantation
• Optimization of kidney allocation policies and transportation system

**Skills learnt:** Automated Data Downloading, Data Cleaning and Preparation, Data Basing, Data Visualization, Data Analysis & Exploration, Modelling, ML techniques & Statistics, Dashboards & Reporting, Transportation Optimization, Linear/Non-linear/Integer Programming, Discrete Event Simulation, AHP, Writing & Documentation Skills, Problem-Solving Skills.

**Applications:**
• Data Analytics
• Supply Chain Management
• E-Commerce
• FMCG
• Transportation
• Logistics
• Operation Management
• Project Management
• Quality Management
• Health Care
• Production & Manufacturing
• Banking Sector

**IE Tools:**
• Value Stream Mapping (VSM)
• Analytic Hierarchy process (AHP)
• Lean Six Sigma
• 7 QC Tools
• SWOT Analysis
• Theory of Constraints
• Poka-Yoke
• BPR
• S & OP
• DDMRP
• IBP
• KaiZen
• Kano's Model
• Kanban

**Software:**
• Excel
• Python
• R
• SQL
• MATLAB
• IBM CPLEX
• Java, HTML
• Anylogic
• Tableau
• Power BI
• AWS/Cloud Computing
• Hadoop
• Minitab
• SPSS

**Ongoing PG Projects**
**Analytics**
• Data driven analysis of the Indian Judicial System using Mathematical Modelling and Machine Learning Techniques
• Revenue Management in the hotel industry
• Provide Support to the Food Corporation of India (FCI) and State of Uttarakhand in Supply Chain Optimization

**Skills learnt:** Automated Data Downloading, Data Cleaning and Preparation, Data Basing, Data Visualization, Data Analysis & Exploration, Modelling, ML techniques & Statistics, Dashboards & Reporting, Transportation Optimization, Linear/Non-linear/Integer Programming, Discrete Event Simulation, AHP, Writing & Documentation Skills, Problem-Solving Skills.
Research Facilities

The department houses over 29 different lab facilities that are equipped with the latest cutting edge technology and encompasses all aspects of mechanical engineering.

**Mechanical Design**
- Vibration & Instrumentation Lab
- Design Research Lab
- Dynamic Impact Lab
- Mechatronics Lab
- Impact simulation Lab
- Vibration Research Lab
- CAD and Graphics Lab
- Mechanics & Materials Characterization Lab
- Program for Autonomous Robotics Lab

**Thermo-Fluids Engineering**
- Combustion Research Lab
- Heat Transfer Research Lab
- I.C. Engines Lab
- Micro and Nano Fluidics Lab
- Thermo-fluids and Energy Systems Lab
- Refrigeration and Air Conditioning Lab
- Cool-Tech (Cooling Technologies) Lab
- Mechanical Core Lab

**Production Engineering**
- Production Engineering Lab
- Automation Lab
- Flexible Smart Manufacturing Lab (Industry4.0)
- Rapid prototyping Lab
- Computer Aided Graphics Interface Lab
- CNC Lab
- Design Manufacturing Lab
- Machine Tool Lab
- Welding Lab

**Industrial Engineering**
- Industrial Engineering Lab
- Simulation lab
- Operational research lab

**Mechanical Core Lab**
- Production Engineering Lab
- Automation Lab
- Flexible Smart Manufacturing Lab (Industry4.0)
- Rapid prototyping Lab
- Computer Aided Graphics Interface Lab
- CNC Lab
- Design Manufacturing Lab
- Machine Tool Lab
- Welding Lab
Placement Procedure

Interested companies contact Faculty Coordinator or placement officer, Office of Career Services (OCS) for a Job Notification Form (JNF) at placement@admin.iitd.ac.in.

JNF requires the companies to fill in mandatory details of the job profile – role offered, pay package, place of posting, eligible departments.

Once the filled-in-JNF with all the required details is received, companies are assigned username/password to access their online account on OCS website.

Companies are also assigned space on the server on which they may upload any presentation, videos, data or other information they want the students to see.

The JNF has to be frozen on the OCS website by the company till a deadline, after which the students shall be able to view all the details, and the eligible students may apply.

After the application deadline for the students, the resumes are visible to the company. The company submits shortlist on its online account before a deadline.

Shortlisted students get notified. The placement office allots the dates for the campus interviews.

After the completion of the selection procedure on campus, company is required to announce the final list of the students on the same day itself.

If a student is selected, the job is registered against him/her and he/she would not be allowed to appear for more interviews as per placement policy.

Looking forward to fruitful professional relationship..........Welcome to Campus!
Contact Us

Department Website: [https://mech.iitd.ac.in/](https://mech.iitd.ac.in/)
Placement Office: [placement@admin.iitd.ac.in](mailto:placement@admin.iitd.ac.in)

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