## Why B Tech in Mechanical Engineering

Mechanical engineering is the evergreen branch among all other branches of engineering. They deal with the concepts of mechanics, thermodynamics, robotics, kinematics, structural mechanics, fluid mechanics, drilling technology, power sector, design, refrigeration, air conditioning sector and aerospace. There is a great scope of mechanical engineering now-a-days. It is expanding beyond its boundaries and more of interdisciplinary in nature.

Mechanical engineering is one of the oldest branches of engineering. This field of engineering is the broadest of all engineering fields, job prospects on offer for skilled engineer are plenty and unending. They can find employment in both government as well as private sector. Mechanical engineers are required to design, test, manufacture, install, operate and maintain a wide array of machines and mechanical systems that are used in industries.

**"Mechanical Engineering"** is the mother of all engineering branches, and it has got its own demand in the market. This degree provides a solid foundation in core mechanical engineering disciplines, critical thinking and problem-solving skills. Through the academic program students also develop excellent written and oral communication skills, learn to work as a team and project management.

## The objectives of this undergraduate program are:

- To provide the highest level of education in technology and science and to produce competent, creative and imaginative engineers.
- To promote a spirit of free and objective enquiry in different fields of knowledge.
- To make a significant contribution towards the development of skilled technical manpower to create an intellectual reservoir to meet the growing demands of the nation.
- The undergraduate programs are designed to achieve these objectives and to inculcate in the student concepts and intellectual skills, courage and integrity, awareness of and sensitivity to the needs and aspirations of the society.

## Career Prospect

Breakthroughs in materials and analytical tools have opened new frontiers for mechanical engineers. Nanotechnology, biotechnology, composites, computational fluid dynamics (CFD), and acoustical engineering have all expanded the mechanical engineering toolbox. A drilling engineer's career path can take various directions. They can move into a drilling supervisor or general manager role, overseeing drilling operations or managing a team. They can also transition into a production or manufacturing manager role, focusing on optimizing operations

and ensuring efficiency. Nanotechnology allows for the engineering of materials on the smallest of scales. With the ability to design and manufacture down to the elemental level, the possibilities for objects grows immensely. Composites are another area where the manipulation of materials allows for new manufacturing opportunities. By combining materials with different characteristics in innovative ways, the best of each material can be employed and new solutions found. CFD gives mechanical engineers the opportunity to study complex fluid flows analysed with algorithms. This allows for the modeling of situations that would previously have been impossible. Acoustical engineering examines vibration and sound, providing the opportunity to reduce noise in devices and increase efficiency in everything from biotechnology to architecture.

**Scope for employment**: Here are some job possibilities in various sectors for mechanical engineering graduates: Petroleum Sectors, Drilling Sector, Manufacturing Sector, Production Engineer, Quality Control Engineer, Process Engineer, Plant Manager, Maintenance Engineer, Operations Manager etc.

## Course Module

During the course, students will learn:

- In first year, students will learn basic science (IS), and institute engineering (IE) courses such as Classical Physics (IS), Inorganic & Physical Chemistry (IS), Organic & Hydrocarbon Synthesis (IS), Modern Physics (IS), Applied Mathematics (IS), Engineering Thermodynamics (IE), Computer Programming (IE)etc. Apart from this, they will learn some workshop courses Workshop Practices (EP), Engineering Graphics (EP) and Computer Programming Lab (IE).
- In second year, they will learn some institute engineering course (IE) along with relevant department core (DC) courses of Mechanical background such as Fluid Machinery (DC), Engineering Mechanics (DC), Applied Thermodynamics (DC), Theory of Machines (DC), Fluid Machinery Lab (DC), Heat & Mass Transfer (IE) etc. Apart from this, they will learn some important courses dedicated to Drilling & Electrical background such as Drilling Technology (DC), Fundamental of Electrical & Electronics Engineering (IE) etc.
- In third year as well, they will learn some necessary only department core courses (DC) like Design of Machine Elements (DC), I.C. Engine (DC), Manufacturing Process - I (DC), Refrigeration & Air-Conditioning (DC), Measurement, Metrology, and Control (DC), Vibrations and Equipment design (DC), Power Plant Engineering (DC), Production Planning and Control (DC) etc. Apart from that there is course which focus on corrosion like Corrosion Technology (DC).

- In the fourth year, the students have very little subject load which creates space to prepare them for their better career opportunities. In this year, two department core subject, two department elective, and one open elective course is there in both semesters. Apart from this, they will be fortunate to study some management courses and humanities courses such as Foundations of management, sociology, phycology etc.
- In the list of fourth year department elective (DE), the department have offered three relevant optional courses are Drilling Engineering, Thermal Engineering & Manufacturing Engineering. In Drilling Engineering courses are Drilling vibrations and telemetry, Advanced drilling engineering, Drilling system design, Computational Fluid Dynamics/Pipeline transportation of oil and gas. In Thermal Engineering such as Turbo Machinery, Thermal Environment Control, CAD of thermal system, Computational Fluid Dynamics. In Manufacturing Engineering courses are Manufacturing Processes – II, Additive manufacturing, Micro-manufacturing process/Total quality management, Computer Integrated Manufacturing.
- The department offers B.Tech project in three consecutive semesters starting from third year odd semester i.e. 5th semester which is a very good opportunity for a student to enhance his/her technical ability and ability to work as a team. Apart from this, the students learn to solve real-world challenges in the industries as an intern. They can opt for long term internships at industries that helps them in getting good placement offers.

## Why RGIPT

We are committed to our mission of hands-on education of our mechanical engineering students, by world-class faculty, through innovative teaching, mentoring, and knowledge creation. By pursuing a B.Tech degree in Mechanical Engineering, you will gain a comprehensive understanding & Bridging the gap between industry requirements and academic curriculum which is very crucial for equipping engineers with the necessary skills. All the necessary subjects of Mechanical Engineering are included in the curriculum which make them eligible to pursue GATE, IES, and other PSUs.