

## **Blog 1: Mechanical Engineering: Know Everything About Mechanical Engineering Career, Course, Scope**

### **What is Mechanical Engineering All About?**

Mechanical Engineering is one of the oldest and diverse fields of engineering. It is all about applying the principles of motion, energy, and force in designing objects and mechanical systems while ensuring that they are cost-effective and function safely, efficiently, and reliably. It is also one of the most versatile fields of engineering that has a great impact on various other fields. It basically studies objects, systems and their functioning. It brings ideas of building complex machinery into reality through an amalgamation of creativity, knowledge and analytical tools. In today's world, which is highly dominated by rapid industrialization and technological advancements, mechanical engineering has touched human lives in many ways.

Mechanical engineering is very much in demand in the global market due to its presence right from the simplest of everyday used machines to highly complex industrial machinery! We find Mechanical Engineering on a micro-scale in objects like fans and switches to the macro level with Satellites, cars and huge industrial machinery. One can expect a lucrative career in this field with proper training and experience. In this blog, we will look at various aspects of mechanical engineering including its scope, eligibility, course details, admission process, specialization options, salary details and much more. So, dive in to decide if Mechanical Engineering is the best career choice for you!

### **What does a Mechanical Engineer Do?**

In simple words, Mechanical engineers help the smooth functioning of our everyday lives! Their job revolves around studying, creating and monitoring systems and machinery that are essential for human beings. If we go to see, a mechanical engineer is in some way responsible for every machine, system or a mechanical object that we see around us! He plays a major role in transforming a raw idea into a concrete sellable product in the marketplace! He determines the factors that may affect the manufactured object and ensures its durability, and functionality. He also checks for any difficulties or failures that the system may encounter and find the necessary solutions for it.

The key industries that involve Mechanical engineers are automotive, aerospace, biotechnology, computers, electronics, microelectromechanical systems, energy conversion, Robotics, and Manufacturing. Apart from that, it merges into many other disciplines as well. Basically, we can say that anything that involves moving parts needs the expertise of a Mechanical engineer.

## **What is the Scope of Mechanical Engineering?**

The field of Mechanical engineering offers students a variety of career options. This program equips them with creative engineering skills to design innovative objects or systems, analytical tools, problem solving skills, and the essential training needed to design, market, and produce a system. With these skills, you can achieve a rewarding career in diverse fields. Mechanical engineers deal with concepts of mechanics, thermodynamics, robotics, kinematics, structural mechanics, fluid mechanics, power sector, refrigeration, air conditioning sector and aerospace and can find employment in both the government as well as the private sector.

There are diverse job profiles for Mechanical Engineers in India. Following is the list of industries that involve Mechanical engineering: -

- Aerospace industry
- Chemical industry
- Construction industry
- Defence industry
- Electronics industry
- Marine industry
- Material and metal industry
- Rail industry
- Utility industry

## **What is the Salary of a Mechanical Engineer?**

Mechanical engineering is a highly lucrative field with a promising career and a myriad of job opportunities. In fact, if we compare it to the other engineering fields, mechanical engineers earn well above average at each stage of their careers. Due to the diverse nature of this field, there's a greater scope of employment with opportunities in industries like Aeronautical, Chemical, Automobile, Electronics, Construction, Power plants, Textile industries, etc. They may opt for various positions based on their preference including Mechanical engineer, Service Engineer, Consultant, Instructional designer, Mechanical designer, etc.

The salary that one gets depends on multiple factors including one's educational background, experience, knowledge, skills etc. But on an average the salary of this field roughly ranges between INR 5 to 10 Lacs. Top recruiters in this field are Mahindra & Mahindra Ltd., Larsen & Toubro Limited, Tata Motors, Eaton Corporation, Schlumberger, HCL Technologies Ltd. etc. Let's take a look at average salaries that one might expect depending upon the job profile: -

- Mechanical engineer- INR 6-7 Lacs
- Service engineer- INR 5- 6 Lacs
- Consultant engineer- INR 8- 9 Lacs

- Instructional designer- INR 7- 8 Lacs
- Mechanical designer- INR 5-6 Lacs

Source: - <https://collegedunia.com/courses/bachelor-of-engineing-be-mechanical-engineering>

### **What is the Required Qualification for Mechanical Engineering?**

The qualification required to enroll for a Bachelor's degree in Mechanical engineering is completion of 10+2 years or equivalent examination with minimum 50% of marks in core subjects of Physics, Chemistry, and Mathematics, from a recognized board. Some colleges also offer B.E. Mechanical Engineering Lateral entry course where candidates who have completed 3 years of Diploma in any stream from a recognized board are eligible to apply. Applications can be submitted through online portals to State Government Authorities (CET Cell).

### **Degrees and Specialties**

For those of you who wish to seek higher education after a B. Tech. degree can opt for a master's course in Mechanical Engineering with diverse fields of specialization depending upon your preference. It is a 2-year program. The minimum criteria for enrolment in the Master's program is passing B.E. or B.Tech. in one of the following fields- Mechanical, Production, Mechatronics, Automobile or Manufacturing with an aggregate of 55% marks and above. M.E. in Mechanical Engineering equips the student with skills and knowledge of the respective subject, which lead to a plethora of opportunities in the areas of automobile, oil exploration, research and development, defense forces and so on. Students can also opt for an academic career after this degree.

### **Is Mechanical Engineering Right for You? (Why you should choose?)**

The field of Mechanical Engineering involves dealing with the production, application and functioning of machines and other systems. Though this field is extremely popular and lucrative, being certain if it's the right career option for you is extremely essential. To help you decide this, we have a set of questions that you can answer, and if the majority of your answers are affirmative, you can go ahead with seeking a career in Mechanical Engineering!

- Are you curious about how various objects function?
- Do you have a habit of disassembling things to see what's inside?
- Do you love to assemble things and making them work more efficiently?
- Do you think you are good at problem solving?
- Do you like being creative and innovative?
- Do maths and science interest you?
- Do you like using tools?

- Is working with electronics an interesting thing for you?
- Do you wish to impact people's lives in many ways with your work?

## **Mechanical Engineering Curriculum & Syllabus**

Though the curriculum and syllabus may differ according to different colleges and universities, let's take a look at the semester wise distribution of courses.

### Semester 1

- English
- Mathematics
- Physics
- Chemistry
- Engineering graphics
- Environmental studies

### Semester 2

- Mathematics
- Physics
- Programming languages
- Electrical technology
- Electronics and instrumentation
- Engineering Mechanics

### Semester 3

- Mechanics of solids
- Applied Thermodynamics
- Theory of Mechanics
- Machine Drawing
- Computer graphics
- Mathematics
- Mechanics of solids practical
- Applied Thermodynamics practical
- Theory of Mechanics practical

### Semester 4

- Fluid mechanics
- Dynamics of Machinery
- Mechanical Engineering Design
- Electrical machines and control
- Numerical and statistical methods
- Mechanical Engineering Design practical
- Electrical machines and control practical
- Numerical and statistical practical

#### Semester 5

- Fluid machines
- Heat and Mass Transfer
- Production Technology I
- Advanced Mechanical Engineering design
- Industrial engineering and management
- Fluid machines practical
- Heat and Mass Transfer practical

#### Semester 6

- Internal Combustion Engines
- Mechanical Vibration
- Production Technology II
- Computer Aided Design
- Advanced Solid Mechanics
- Internal Combustion Engines practical
- Mechanical Vibration practical

#### Semester 7

- Measurement and Instrumentation
- Energy conversion equipment
- Operations research
- Industrial tribology
- Mechatronics
- Waste heat utilization
- Noise engineering
- Refrigeration and air conditioning
- Utilization of non-conventional energy
- Fracture mechanics
- Advanced mechanics

## Semester 8

- Advance fluid mechanics
- Computer-aided manufacturing
- Automobile engineering
- Finite element analysis
- Ergonomics
- Composite materials
- Power plant engineering
- Environmental engineering

## Admission Process for Mechanical Engineering

Following are the general ways for undergraduate Mechanical engineering courses admission in India -

- **Direct Admission-** Mechanical Engineering institutes that offer direct admission have certain eligibility criteria. The first is giving admissions based on merit. Merit based admissions require a candidate to pass a module of 10+2 years with a minimum 55% marks.
- **Direct Admission for Diploma holders-** Various engineering colleges in India also offer direct admission to ITI diploma holders in the second year of the course.
- **Entrance Exams-** There are several entrance exams in India at the national and state level among them **JEE Mains** is the most sought and MH-CET is must for Maharashtra state

Based on the passing criteria along with student's performance in the entrance exam, they will be selected for the program in the respected institutions.

## Fee Structure for Mechanical Engineering

Fee structure for Mechanical engineering colleges depends upon a lot of factors. But on an average the fee ranges up to INR 2 to 5 Lacs for complete engineering course. However, this amount may vary depending upon the grants received from the government, the scholarships and relaxation of fees due to various factors.

## **Why Choose Dr. D. Y. Patil Institute of Engineering, Management and Research, Akurdi?**

Dr. D. Y. Patil Pratishthan's [Dr. D. Y. Patil Institute of Engineering, Management and Research](#), Akurdi (DYPIEMR) was introduced in the academic year 2012-13. DYPIEMR is approved by the All India Council of Technical Education, New Delhi (AICTE), recognized by the Directorate of Technical Education (DTE) and affiliated to Savitribai Phule Pune University, Pune (SPPU). DYPIEMR offers a 4 years Bachelor's program in Mechanical engineering, the syllabus of which has been recently upgraded to meet the industrial needs of up-to-date technical knowledge, managerial skills, and exposure to quality management and computer training. The department of [Mechanical engineering](#) being one of the oldest and the finest departments of the college has a competent faculty, who trains the students in the latest trends and practical aspects of engineering. The department has excellent facilities for the students to enhance their skills in various fields of mechanical engineering. So, if you want to advance your career in Mechanical Engineering, [Dr. D.Y. Patil Institute of Engineering, Management and Research](#), Akurdi, is the best place for you!

Hence, all these factors sum up in proving that a career in [Mechanical Engineering](#) is one of the most rewarding and promising careers. With a diverse course curriculum and availability of various specialization areas, this field contains numerous job opportunities and great scope for experimentation. Given the current world scenario and the increasing indulgence of machinery in our lives, the demand for mechanical engineers with keep on increasing in the future. So, if you are interested in creating advanced machines and systems by applying engineering principles, creativity and innovation for the betterment of human life, Mechanical Engineering is definitely a suitable field for you.

### **Learn to design advanced machines with just a click!**

If you want any more details of the [Mechanical Engineering courses](#) offered by [Dr. D. Y. Patil Institute of Engineering, Management and Research](#), Akurdi, fill up our form and get answers to all your queries. Also, do visit our website for more information about the course and enrollment. Our admissions are open, what are you waiting for? Enroll yourself now and kickstart your career in Mechanical Engineering!