

Chemical Engineering: Scope, Career Opportunities, Salary, Skill & More

Introduction –

The history of chemical engineering can be traced back to the early days of the Industrial Revolution when chemists began to apply their knowledge to the manufacturing process. Since then, the field has grown tremendously and today, there are thousands of chemical engineers working in a variety of industries. The future looks bright for the chemical engineering industry, as new technologies and processes are constantly being developed. This ever-changing field offers a challenge for those who are looking for a career that is both exciting and rewarding.

The chemical engineering industry is responsible for the production of a wide range of chemicals and products, from medicines and food additives to cosmetics and cleaning products. Usually, they hold a bachelor's degree. However, many companies are now requiring their employees to have a master's degree or higher. In addition to their education, most chemical engineers also have several years of experience working in the field. This combination of education and experience makes them uniquely qualified to work in this exciting and ever-changing industry.

So, are you the one who is interested to learn more about chemical engineering? *Then, scroll down to understand the future scope, career opportunities, salary and skills involved in this field.*

What is Chemical Engineering Degree All about?

Chemical engineering is a branch of engineering that applies physical and chemical principles to the design, manufacture and operation of processes and products. The chemical engineering industry is involved in the development and production of a wide variety of products from food and drugs to cosmetics and explosives.

One of the most important aspects of their job is safely handling and storing dangerous chemicals. They also work to minimize the environmental impact of their work by developing new ways to recycle waste products. To be successful in this field, chemical engineers must have a strong understanding of both chemistry and engineering.

Is Chemical Engineering a Good Career?

Chemical engineering is a challenging and rewarding career. It offers the opportunity to solve complex problems and to make a positive impact on the world. With a degree in chemical engineering, you can find a job in almost any country in the world. The demand for chemical engineers is expected to grow in the coming years as the world population continues to increase and more industries move towards sustainable practices. Salaries for chemical engineers are very competitive and there is potential for career advancement.

What is the Future Scope of Chemical Engineering in India & Overseas

In India, the scope for chemical engineering is particularly strong.

According to India Today, "India is now the world's sixth-largest producer of chemicals, and its chemical sector is expanding. By 2025, it is predicted that the chemical sector would have doubled in size, reaching \$300 billion."

The country is home to many large chemical companies and there is a growing need for qualified professionals in this field. In addition, the Indian government has been investing heavily in research and development in recent years, which has created even more opportunities for chemical engineers. Overseas, the picture is similar. Countries like the United States, Germany and Japan are all major markets for chemical engineers and there is a growing demand for qualified professionals in these countries as well.

Therefore, the future looks bright for chemical engineers both in India and overseas. With the world becoming increasingly reliant on technology, the demand for qualified professionals in this field is only likely to grow. If you are interested in a career in chemical engineering, now is the time to get started.

Career Prospects and Job Opportunities After Chemical Engineering Degree

Chemical engineering is a versatile field that can lead to many different career opportunities. Graduates with a chemical engineering degree can find jobs in a wide variety of industries, including manufacturing, pharmaceuticals, biotech, energy, and environmental engineering. No matter what path they choose, chemical engineers play a vital role in improving our world.

Here are a few top job opportunities:

Chemical Engineer

Chemical engineers typically work in companies that produce energy and are responsible for the design and monitoring of chemical reactions. In addition to designing machinery and techniques for mass production, chemical engineers may also oversee manufacturing operations.

Energy Engineer

These engineers create methods to reduce energy use and consumption. They implement green solutions, reducing the negative effects on the environment and costs, via research, planning, documentation and implementation.

Petroleum Engineer

A petroleum engineer oversees the creation of strategies for removing gas and oil from reservoirs. They collaborate with a group of experts to identify natural repositories of petroleum resources and to create the most economical, effective ways to extract petroleum.

Nuclear Engineer

Operations at nuclear facilities are observed by nuclear engineers. Nuclear engineers conduct research, develop initiatives or tackle issues relating to the distribution, management and use of nuclear energy as well as the disposal of nuclear waste. New reactor designs are investigated by some of these engineers.

Product Process Engineer

A process engineer's mission is to design systems that efficiently utilise labour, equipment, supplies, data and energy. They examine workflows, design requirements, production schedules and other data to comprehend and improve the processes used by their organization.

Analytical Chemist

Scientists who research the chemical makeup and interactions of various materials are known as analytical chemists. An analytical chemist might carry out fundamental laboratory research, develop processes and products, design tools for analytical analysis or work in marketing and law.

Mining Engineer

Mining engineers plan, manage and optimise the removal of both surface and underground resources by evaluating the viability, safety and effectiveness of the mine locations. Mining engineers assure that underlying resources like metals, oil, gas and minerals are extracted effectively and safely.

Environmental Engineer

Environmental engineers are creative problem-solvers who identify and address environmental problems. Their main responsibilities include gathering and evaluating environmental data, researching how humans affect the environment and enhancing environmental management.

Food Scientist

Food scientists investigate food items and processes in industrial and research environments by using their scientific knowledge and technological concepts. To ensure that the ingredients and food are safe for customers, they examine the microbiological, physical and chemical qualities of the components and food.

Water Resources Engineer

Engineers of water resources create and carry out plans for creating water systems that deliver fresh, safe drinking water in an effective manner. Additionally, they provide, manage, and maintain services for clean water, sewage and wastewater, as well as guard against flooding. Designing and supervising the construction of new reservoirs, dams, channels and pipelines are the responsibilities of a water resources engineer.

Biotechnologist

They are researchers who utilize biological systems to develop new goods or address issues. The biotechnologist oversees creating and implementation of procedures for producing proteins, enzymes and other macromolecules.

Colour technologist

In the manufacturing sector, the colour application is the responsibility of a colour technologist. From design to testing to marketing, colour technologists will be participating in every step of the production process. The typical duties of the position can involve creating new pigments and hues and changing existing ones.

Materials engineer

Materials engineers find, test, and evaluate the building materials. Based on each material's unique features, project costs and deadlines, they guarantee that the construction principles and components are adequate and provide advice on the best elements to employ.

Quality manager

A quality manager oversees creating and putting into practice procedures for examining, testing, and assessing product quality in compliance with the company's requirements. When creating reports, they gather information about inspections and other topics like the safety of the assembly line, which is then thoroughly analysed.

Waste management officer

Officers in charge of the waste management plan, coordinate, and monitor the transportation and collection of both domestic and commercial waste. Garbage management professionals provide facilities with advice and enforce laws governing waste disposal, collection and recycling.

Top Companies Hiring Chemical Engineer Graduates

The job market is saturated with competition, and it can be difficult to stand out from the crowd. However, certain industries are always in need of qualified workers. One of these industries is the chemical engineering field. As a result, chemical engineering graduates are in high demand.

Some of these companies include-

- Procter & Gamble
- DuPont
- ExxonMobil
- Chevron
- Shell
- The Dow Chemical Company
- Coal India Limited
- Reliance Industries Ltd.
- Indian Oil Corporation
- Schlumberger Limited
- GlaxoSmithKline
- Arofine Polymers Ltd
- ONGC
- SAIL
- BHEL
- GAIL
- NTPC, etc.

Chemical Engineer - Salary Trends in India

The salary of chemical engineering graduates in India is dependent on several variables, including the availability of projects, the candidates' skill sets, their experience in the industry, etc. According to Glassdoor, the average salary for a Chemical Engineer is ₹5,73,548 per year in India.

What are the Skills Required to become Chemical Engineer?

It is essential to have the skill set needed to succeed in this profession, which combines technical and non-technical skills. Let's explore the top skills that a chemical engineer must possess-

- Calculation & Maths skills
- Science skills
- Analytical skills
- Interpersonal skills
- Computer skills
- Problem-solving skills
- Data analytics skills
- Decision-making skills
- Science skills
- Attention to detail skills
- Resource management skills
- Critical thinking skills
- Visualisation skills
- Design skills
- Research skills

Closing!

The fourth industrial revolution has brought about a few technological advancements that engineers must learn to keep abreast of. The next trend that will influence the future is robotics, machine learning, and the internet of things. To keep up with technological development, the industry will

welcome engineers who think creatively. Every prospective engineer must now upgrade their skills and can rethink their procedures and methods. However, considering the new industrial revolution, it is now crucial to combine and improve already-existing degrees as well as overhaul the engineering curriculum by adding advanced courses that are in line with modern demands. And, with a chemical engineering degree, the sky is the limit for professional advancement! Without any further ado, connect with admission counsellors *from Dr. D Y Patil Institute of Engineering Management and Research Akurdi, Pune!*