

DYPIEMR

Blog 1: Civil Engineering: Know Everything About Civil Engineering Career, Course, Scope, Degree, Specializations

What is Civil Engineering All About?

Civil engineering was practiced by humans right from the beginning of civilization, though it was established as a formal discipline in the 18th century. Man has been constructing settlements, towns, great monuments, etc. since ages but with the establishment and advancement in this field, an amalgamation of science, technology, economics, and geology has come into play. It involves planning, designing, constructing, maintaining and supervising infrastructures providing facilities ranging from airports, highways, bridges, tunnels, to schools, hospitals, and other buildings. It involves protecting the public and environmental health as well as improving existing infrastructure by building and maintaining sewage systems and water treatment facilities as well.

There are at least ten sub-disciplines within this field that involve various other fields in science. National development is driven by its infrastructural development which includes wide spectrum of construction ranging from a small dwelling to a gigantic dam and hence, Civil engineering can be considered as one of the most thriving professions around the globe. This blog will elaborately cover all the important aspects of Civil Engineering including its scope, opportunities, career options, the role of a civil engineer, their annual income, qualification required and a lot more.

What Does Civil Engineer Do?

Civil engineers are responsible for all the infrastructure that exists around us. Ranging from some of the world's greatest buildings, bridges, airports, railway stations to buildings, roads, etc. have actually come to reality because of civil engineers. They are involved in every step of a particular project right from the raw design at the beginning which requires software knowledge to the actual construction and supervision followed by maintenance when the job project is completed. So broadly their job responsibilities involve survey, mapping, planning, execution, supervision, and maintenance in a particular project. It can also involve duties like deriving an estimate of construction costs that include equipment and labor, considering government regulations, potential environmental hazards, performing experiments like soil testing, assessing building materials, determining whether, and other such factors that would work best for a certain project. Civil engineers may work for state or local governments or in the private sector at

construction firms. Some civil engineers hold supervisory or administrative positions, while others pursue careers in design, construction or teaching.

What Is the Scope in Civil Engineering?

Civil engineering is a vast field that incorporates many other subfields in it. Construction engineers, Geotechnical engineers, Structural engineers, Transportation engineers, etc are some of the areas that Civil engineers specialize in. Construction engineers manage construction projects and are responsible for the design and safety of temporary structures used during construction along with overseeing budgetary, time-management, and communications aspects of a project at times. Geotechnical engineers' job includes making sure that the foundation for any structure in a project is solid. Structural engineers are responsible for designing and assessing all projects, to ensure their strength and durability. Transportation engineers are responsible for planning, designing, operating and maintaining routine systems that are used every day. That's not all. Civil engineering also has many other specializations to choose from like Coastal and Ocean Engineering, Fire protection engineering, Bridge Engineering, Irrigation Engineering, Land development, Materials Engineering, Urban Engineering, Hydraulic Engineering, Water resources Engineering, Environmental Engineering, etc.

The job profile of a civil engineer may include supervisory or administrative positions ranging from supervisor of a construction site to city engineer, public works director, and city manager. They make sure that projects comply with federal, state, and local legal requirements.

What is The Salary of Civil Engineers?

The salary of a civil engineer is determined by various factors such as the institution of education, your experience, your region of work, your area of interest or specialization, if you are working in India or abroad, the current market situation etc. But let's take a look at the salary keeping in mind the average limit. An entry-level Civil Engineer with less than a year's experience can expect to earn an average total compensation (includes tips, bonus, and overtime pay) of ₹245,426. One with an experience of 1-4 years in this field earns an average total compensation of ₹294,053. A mid-level career experience in Civil Engineer with 5-9 years of experience earns an average total compensation of ₹477,649. An experienced Civil Engineer with 10-19 years of experience earns an average total compensation of ₹689,924. In their late career (20 years and higher), employees earn an average total compensation of ₹967,082. As mentioned above, these numbers may differ depending on various factors.

What is the Required Qualification for Civil Engineering?

Let's take a look at the eligibility criteria for courses in Civil engineering. If a student is planning to have a career in Civil Engineering, then he/she should have to pursue an undergraduate engineering program (BTech) after completion of which students can opt for a job or for a postgraduation program in the same stream. A basic 10+2 model in Science with Physics, Chemistry and Math is mandatory for seeking an admission for the Bachelor's degree program in Civil Engineering. The admission process of the BTech program is done through the entrance exams such as - JEE Main, JEE Advanced, MHCET, KCET and other exams at both the national and state level. Further for an admission into M.Tech, the student must have a B.Tech degree with a minimum passing percentage in the aggregation of all subjects studied in the undergraduate program. The admissions are done through the entrance exam such as - GATE score merit list. Diploma course for the position of junior engineer can be taken up after Class 10.

Degrees and Specialties

A candidate can have a bachelor's degree, master's degree or a diploma in Civil Engineering. There are many interesting specializations that one may seek in accordance to Civil engineering. Some of these fields are, Geotechnical engineering, Structural engineering, Transportation engineering, Coastal and Ocean Engineering, Fire protection engineering, Bridge Engineering, Irrigation Engineering, Land development, Materials Engineering, Urban Engineering, Hydraulic Engineering, Water resources Engineering, Environmental Engineering, etc.

Is Civil Engineering Right for You? (Why you should choose?)

Civil engineering is one of the most prominent fields today but along with that comes the question if it's the right career option for you. If you possess the following qualities you can definitely seek a career in civil engineering.

- Understanding Building Concepts
- Visualization and imagination
- Loving science and math
- Technicality along with creativity
- Planning, organization
- Research and survey
- Patience
- Decisive

Civil 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

- Engineering Mathematics-I
- Applied Science – I
- Fundamentals of Programming languages.
- Basic Electrical Engineering
- Basic Civil and Environmental Engineering
- Engineering Graphics – I
- Manufacturing Practices

Semester 2

- Engineering Mathematics-II
- Applied Science – II
- Engineering Mechanics
- Basic Electronics Engineering
- Engineering Graphics – II
- Basic Mechanical Engineering
- Communication Skill

Semester 3

- Engineering Mathematics III
- Building Materials and Construction
- Strength of Materials
- Engineering Geology
- Geotechnical Engineering

Semester 4

- Fluid Mechanics I
- Building Planning
- Surveying
- Concrete Technology
- Structural Analysis – I

Semester 5

- Structural Analysis - II
- Infrastructure Engg. and Construction Techniques
- Structural Design I
- Fluid Mechanics - II
- Advanced Surveying

Semester 6

- Hydrology & Water Resources Engg.
- Project Management & Engineering Economics
- Structural Design II
- Environmental Engineering I
- Foundation Engg.
- Seminar

Semester 7

- Environmental Engineering-II
- Dams and Hydraulic Structures
- Structural Design-III
- Elective -I
- Elective -II
- Project Work

Semester 8

- Elective -III
- Elective-IV
- Quantity Surveying, Contracts and Tenders
- Transportation Engineering-II
- Project Work

List of Electives: -

Elective-I

- Structural Design of Bridges
- Systems Approach in Civil Engineering

- Air Pollution and Control
- Architecture and Town Planning
- Advanced Geotechnical Engineering

Elective-II

- Matrix Methods of Structural Analysis
- Hydro informatics
- TQM & MIS in Civil Engineering
- Earthquake Engineering
- Advanced Concrete Technology

Elective-III

- Advanced Structural Design
- Advanced Foundation Engineering
- Advanced Engineering Geology with Rock Mechanics
- Advanced Environmental Management
- Construction Management

Elective-IV

- Integrated Water Resources and Planning
- Advanced Transportation Engineering
- Statistical Analysis and Computational Methods in Civil Engg.

Open Elective

- Finite Element Method in civil engg.
- Geoinformatics
- Hydropower Engineering
- Industrial Waste Water Management

Admission Process for Civil Engineering

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

- **Direct Admission-** Engineering institutes which offer direct admission have certain eligibility criteria. Either they offer admission on the basis of merit in qualifying exam i.e. 10+2 or equivalent or there are some management seats reserved in private engineering colleges.

- **Direct Admission for Diploma holders-** Various engineering colleges in India also offer direct admission to ITI diploma holders in second year of the course through centralized admission process.
- **Entrance Exams-** There are several entrance exams in India at national and state level among them **JEE Mains** is the most sought after engineering entrance test. For Maharashtra state, MH-CET examination is necessary.

Based on the course and the program that you wish to follow you can prepare for one of the follow admissions process

Fee Structure for Civil Engineering

Fee structure for Civil engineering colleges depends upon a lot of factors. But on an average the fee ranges up to INR 2 to 4 Lacs in Public Institutes for complete engineering course and INR 3 to 6 Lacs in Private Institutes. However, this amount may vary depending upon the grants received by the 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?

D.Y.Patil Pratishthan Educational complex, Akurdi is in proximity to Pimpri Chinchwad Industrial belt, IT Park of Hinjewadi & Automobile hub of Talegaon. The Pratishthan is spread over 29 acres of land at Akurdi, which is in the vicinity of Akurdi Railway station & Mumbai - Pune Express highway. [Dr. D. Y. Patil Institute of Engineering, Management and Research](#), Akurdi (DYPIEMR) offers Bachelor of Engineering program in Civil engineering along with many other courses. To enhance the teaching learning process all class rooms are connected with an Over Head Projector facility. The college provides other facilities under the title 'Best practices' for an overall development of students. These include 'Career Augmentation Training for Students', 'Industry Institute Participation Cell' etc. excellent faculty members ensure the process of churning out engineers with professional excellence, and preparing them for better career opportunities. An Internal Quality Assurance Cell (IQAC) is setup at the institute level for framing policies to enhance quality in every activity.

A bachelor's degree in [Civil engineering](#) from DYPIEMR is a 4-year fulltime program. To enhance the technical skills of students, the department has a team of experienced and qualified faculty who is committed to serve students with untiring zeal and enthusiasm. Well-equipped laboratories to perform experiments and valuable hands-on experience is another special feature of the department. Hence, the department is all set to provide excellent Civil engineers well trained in all

aspects and adequately prepared to be accepted globally. So, if you are seeking a career in [Civil engineering, Dr. D. Y. Patil Institute of Engineering, Management and Research](#), Akurdi is the best place for you.

Hence, taking into consideration all these factors it's safe to say that a career in Civil Engineering is one of the most rewarding and promising careers. It offers a wide array of subjects for specialization and a myriad of job opportunities later. It also has a diverse job profile which allows a greater scope for experimentation. So, if you think you have a good visualization, are good with math and science and can build things, Civil engineering is the perfect career for you.

Your chance to build anything and everything is a click away

For any more details fill up our form and ask your queries. Also, do visit our website <https://www.dypiemr.ac.in/> for more information about the course and enrollment. Our admissions are open, what are you waiting for? Enroll yourself now and build a phenomenal career in civil engineering!