Engineering as a Career

Engineers specialize in different branches of engineering e.g. Mechanical, Electrical, Electronics, Chemical, Biomedical etc. They work in designing, planning large structures, maintenance, production, or testing of machines and equipment used in different sectors. Many engineers study management where their engineering background facilitates the marketing process and installation planning of engineering goods.

Pros and Cons of being an Engineer

Pros

- Irrespective of trends in the markets, engineers are always in demand especially those in electrical, civil, mechanical and computer
- Growth opportunities as India is an open economy with multinationals opening their offices in India
- Indian engineers are good in their logical and mathematical skills. Their demand is always high in the US and other foreign countries

Cons

- Demanding career as one might have to stay for long hours in the office till they fix the problem.

- One might have to stay away from home for projects that require onsite engineer
- Though all good institutes have campus placements, yet not all engineers are well placed
- Today, MBA has almost become synonymous with engineering. Most engineers opt for MBA after engineering and therefore demand for engineers without an MBA has dropped sharply

Perks

Entry level engineers from reputed institutes can expect a good pay package starting at Rs 30, 000. However, salaries vary form industry to industry. A mid-level engineer can earn anything between Rs 50, 000 to Rs 60, 000. If you are armed with an MBA from a reputed institutes, your perks can reach any limit. It can even reach Rs1.5 lakh per month for an MBA from a reputed institute.

Engineering Career Options in India

- Agricultural Engineer
- Aeronautical Engineer
- Architect
- Automobile Engineer
- Biomedical Engineer
- Biotechnologist
- Broadcast Engineer
- Communication Engineer
- Ceramic Engineer
- Chemical Engineer
- Civil Engineer
- Computer Engineer
- Environmental Engineer
- Electrical Engineer
- Earthquake Engineer
- Electronics Engineer
- Fire Engineer
- Genetic Engineer
- Industrial & Production Engineer
- Instrumentation Engineer
- Marine Engineer
- Mechanical Engineer
- Metallurgical Engineer
- Mining Engineer
- Material Engineer
- Nuclear Engineer

- Ocean Engineer
- Petroleum Engineer
- Plastic Technologist
- Polymer Engineer
- Rubber Technologist
- Space Technologist
- Textile Engineer

Selection Process

- **JEE(Joint Entrance Examination)** selects students for admission to various engineering colleges in India. There are 2 different exams JEE Main and JEE Advanced. JEE Main is conducted by CBSE while JEE-Advanced is conducted by different IITs as decided on rotation basis.

  JEE-Mains selects students for admission to BE or B.Tech courses, Integrated MSc's, B.Arch/B.Planning courses in the NITs, IIITs and all GFTIs (Government – Center & State Funded Technical Institutes).
- **JEE-Advanced** Students qualifying JEE Mains through the prescribed cut-off marks are eligible to appear for JEE Advanced.
- JEE Advanced score is required for admission into the IITs (Indian Institute of Technology) , ISM-Dhanbad, Indian Institute of Science (IISC), Rajiv Gandhi Institute of Petroleum Technology and the Indian Institute of Science Education and Research (IISER).
- **JEE Main Exam Pattern**- There are 2 papers
- Paper 1-Engineering Entrance Exam for B.Tech/B.E.(3 hrs objective test on PCM of Class XII level) The test has negative marking. Exam can be taken as a paper pencil test or online.
- Paper 2-Architecture Entrance exam for B. Arch/ B.Planning. This is a 3 hr paper and has 3 parts. 1-Objective test PCM, 2-Aptitude Test, 3-Drawing test
- Eligibility: XII PCM from a recognised Board, minimum aggregate 75% or in the top 20 percentile in the XII examination.(65% for Sc/ST)
- **Diploma courses are followed by accreditation exams. For diploma holders in different branches of engineering the Institute of Engineers/Institute of Telecommunication Engineers/Institute of Aeronautical Engineers conducts membership examinations which have been recognized as being equivalent to engineering degree courses. Diploma holders can specialize through Advanced training institutes set up by the Ministry of Labour (GOI) in all states. They offer short term job oriented and skill enhancement courses in several branches of engineering.

- ***Post graduate degree** - Post-graduate courses with scholarship/assistantship, are open to students who have qualified in the Graduate Aptitude Test in Engineering (GATE) or National Eligibility Test (NET of UGC). Graduate Engineers, Associate members of the Institute of Engineers, postgraduates in Physics/ Chemistry/ Maths/ Statistics/ Computer Applications can appear for GATE conducted by IITs and Indian Institute of Sciences, Bangalore jointly. Postgraduates can pursue research in research centers such as BARC, ISRO etc. Many graduate/postgraduate engineers opt for government service. Engineering Services Examination is conducted every year by the Union Public Service Commission for selecting candidates to serve with Government Departments and Public Sector units in Mechanical, Civil, Electrical, Electronics and Telecommunication branches.
- Candidates will be able to check the participating institutes of JEE Main to know which colleges they can apply for admissions from the official website. JEE Main participating institutes 2021 will consist of **31 National Institute of Technology (NITs), 25 Indian Institute of Information Technology (IIITs), and 28 Centrally Funded Technical Institutes (CFTIs).** Other than JEE Main 2021 participating institutes, many **states and private colleges** also offer admissions on the basis of the national level entrance examination (JEE Mains).

NIRF Ranking for Engineering Colleges

Here is the list of top 15 engineering colleges in India as per NIRF Rankings 2020 -

Name	City	State	Score	2020 Rank	2019 Rank	2018 Rank
Indian Institute of Technology Madras	Chennai	Tamil Nadu	89.93	1	1	1
Indian Institute of Technology Delhi	New Delhi	Delhi	88.08	2	2	3
Indian Institute of Technology Bombay	Mumbai	Maharashtra	85.08	3	3	2
Indian Institute of Technology Kanpur	Kanpur	Uttar Pradesh	82.18	4	5	5

Indian Institute of Technology Kharagpur	Kharagpur	West Bengal	80.56	5	4	4
Indian Institute of Technology Roorkee	Roorkee	Uttarakhand	76.29	6	6	6
Indian Institute of Technology Guwahati	Guwahati	Assam	74.9	7	7	7
Indian Institute of Technology Hyderabad	Hyderabad	Telangana	66.44	8	8	9
National Institute of Technology Tiruchirappalli	Tiruchirappalli	Tamil Nadu	64.1	9	10	11
Indian Institute of Technology Indore	Indore	Madhya Pradesh	62.88	10	13	14
Indian Institute of Technology (BHU) Varanasi	Varanasi	Uttar Pradesh	62.54	11	-	-
Indian Institute of Technology (Indian School of Mines)	Dhanbad	Jharkhand	62.06	12	-	-
National Institute of Technology Karnataka	Surathkal	Karnataka	61.3	13	21	-
Anna University	Chennai	Tamil Nadu	59.89	14	9	8
Vellore Institute of Technology	Vellore	Tamil Nadu	59.32	15	18	16
National Institute of Technology Rourkela	Rourkela	Odisha	59.29	16	16	15