**Aeronautical Eng:**

**Overview:**

[Aeronautical engineers](https://en.wikipedia.org/wiki/Aeronautics#:~:text=Aeronautical%20engineering%20covers%20the%20design,of%20passing%20through%20the%20air.) have a highly technical job of designing aircrafts, missiles, satellites, space crafts, jet planes etc. They have to consider the smallest precision degree, and this makes their work complex and challenging. After designing of the crafts, they are also in responsibility to ensure successful and unbiased testing of the design. Aerospace engineers are employed primarily in manufacturing, analysis and design, research and development, and the federal government. They work to improve the flight safety and experience while reducing the cost of flying, the use of fuel and address the challenges that arise. They also work with aircraft that operates in space such as robots and satellites.

**Roles & Responsibilities:**

* An aeronautical engineer has to ensure flight safety and standard norms .
* Assessing designing of the craft
* Undertaking research for the new developments
* Working on budget for the development
* Testing and evaluation of the craft once built
* Technical advice and support
* Working on data
* Writing manuals and documenting the whole process.

##### Education Path Summary:

* After 10th

Graduation is necessary

* After 12th

Graduation is necessary.Engineering in a relevant engineering discipline such as aerospace, electronics, mechanical, software and materials.

* After Graduation

Postgraduate study can be advantageous: graduates with postgraduate research qualifications may earn higher starting salaries.

**Competitive Exams :**

* For going in this field, you have to give[JEE(Main)](https://institute.careerguide.com/exams/jee-mains/) and [JEE (Advanced)](https://institute.careerguide.com/exams/jee-advanced/)
* Exam for getting admission in selected IIT’s offering course in aeronautical engineering.
* For getting admission in PEC University of Technology you have to give entrance exam conducted by[JAC](https://www.careerguide.com/wp-competitiveexam)(Joint admission committee)

**Salary Range:**

* Entry-Level

Rs 15,000-30,000

* Mid-Level

Rs. 50,000-Rs 75,000

* Senior-Level

Rs. 80,000- Rs 1,50,000

**Architecture eng and manager:**

##### Overview:

An [engineering manager](https://en.wikipedia.org/wiki/Engineering_management) directs, plans, and coordinates activities, as well as spends time supervising employees in architectural and engineering companies. They are responsible for developing the overall concepts of new products and/or solving problems that may prevent its completion. Engineering managers set schedules, create administrative procedures, and propose budgets for projects and program.

**Roles & Responsibilities:**

* Make detailed plans for the development of new products and designs
* Determine staff, training, and equipment needs
* Propose budgets for projects and programs
* Hire and supervise staff
* Lead research and development projects to produce new products, processes, or designs
* Check the technical accuracy of their staff’s work
* Ensure the soundness of methods their staff uses
* Coordinate work with other staff and managers

**Education Path Summary:**

* After 10th

• Clear 10+2 in Science degree

* After 12th

• Bachelor program in architecture Students are required to take admission in the bachelor programme after qualifying the NATA with an aggregate of 40 per cent score or equivalent. We have mentioned below the popular bachelor programmes in architecture. • B.Arch. (Bachelor of Architecture) • B.Plan. (Bachelor of Planning) • B.Tech. (Bachelor of Technology) Architecture Engineering • B.Tech. (Bachelor of Technology) Naval Architecture and Ocean Engineering

* After Graduation

• Post Bachelor program in architecture After completion of a bachelor’s degree in architecture or planning, the students can further continue their studies and opt for a Master’s in the related specialization. After completion of a master’s degree, they can start working in the industry at entry-level. After completion of a bachelor’s degree, the candidates can start working in the industry with an entry-level role. After gaining experience of a few years, they can further resume their studies and opt for a master’s degree in the related specialisation. We have mentioned below the popular master’s degrees for a career in architecture in India. • M.Arch. (Master of Architecture) • M.Plan. (Master of Planning) • M.Plan. (Master of Planning) Urban and Rural Planning • M.Tech. (Master of Technology) Architecture Engineering

**Competitive Exams with tentative dates:**

·     [Joint Entrance Examination (JEE mains)](https://institute.careerguide.com/exams/jee-mains/):

This exam is an national level exam to get admitted for the institutes of NIT's, IIIT's and all other colleges too.. as to get admitted for the Btech computer science engineering courses. This exam is widespread and each student must prepare hard from Class 11 with science course till their examinations.

·        [Joint Entrance Examination advanced (JEE advanced)](https://institute.careerguide.com/exams/jee-advanced/):

This exam is also conducted to get admission for Btech Computer  science courses but to join only for IIT’s. This exam can be attempted only if the candidate clears JEE mains exam.

·       [Gradual Aptitude Test in Engineering (GATE) Exam](https://institute.careerguide.com/exams/gate/):

The Graduate Aptitude Test in Engineering is an examination conducted in India that primarily tests the comprehensive understanding of various undergraduate subjects in engineering and science for admission into the Masters Program and Job in Public Sector Companies.

These are the 3 main exams and also other State level entrance exams are also conducted to secure admission for these architecture courses.

**App Developer:**

##### Overview:

A large number of consumer-based companies have now started targeting customers by launching mobile applications through which customer can directly download and install the application on their mobiles. The job requires the candidate to use programming languages and at times multiples languages and operating systems in order to develop a code that can fulfil the user requirements. The job involves the analysis of the whole process of application development, life cycle of the project, timeline suggestion, deciding what programming languages can provide the best optimised results, integration of different software modules.

**Roles & Responsibilities:**

* Meeting clients and discuss the requirement for their app
* Furnish a design plan
* Deciding the branding, colours, text and backgrounds
* Setting  pages, links, pictures, tabs, menus, widget and positioning buttons
* Testing and improving the app
* Developing UI mock-ups & prototypes illustrating the  interface
* Preparation & presentation rough drafts for internal team & key stakeholders.
* Identifying and troubleshooting the UX problems (e.g. responsiveness
* Conducting the layout arrangements according to the user feedback
* Creating, maintaining & implementing the developed code
* Designing the architecture of the application
* Coordinating with development team

**Education Path Summary:**

* After 10th

A candidate can take diploma courses in the field of software programming, however, at this stage, he/ she can work as a freelancer but not beyond this.

* After 12th

A candidate considering a career right after secondary education can opt for diploma courses.

* After Graduation

Master’s in a relevant field can help the candidate gain a quick growth and in-depth knowledge. Courses such as M.Tech., MS, MSc, MCA can be helpful

**Competitive Exams with tentative dates**

* [Joint Entrance Examination (JEE) Main](https://institute.careerguide.com/exams/jee-mains/)
* [JEE Advanced](https://institute.careerguide.com/exams/jee-advanced/)
* [BITSAT](https://institute.careerguide.com/exams/bitsat/)
* [VIT University Engineering Entrance Exam (VITEEE)](https://institute.careerguide.com/exams/viteee/)
* [Indraprastha University Common Entrance Test (IPU CET)](https://institute.careerguide.com/exams/ipu-cet/)
* [Manipal entrance exam(MET)](https://institute.careerguide.com/exams/met/)
* [Aligarh Muslim University Engineering Entrance Exam (AMUEEE)](https://institute.careerguide.com/exams/amueee/)

**AI Engineer:**

##### Overview:

**The ever-developing field of technology is full of exciting and innovative career opportunities. Artificial intelligence (AI) engineering is a fast-growing industry that can provide you with new challenges and endless opportunities for professional development.**

**What is an AI engineer?**

[Artificial intelligence](https://en.wikipedia.org/wiki/Artificial_intelligence) engineers are responsible for developing, programming and training the complex networks of algorithms that make up AI so that they can function like a human brain. This role requires combined expertise in software development, programming, data science and data engineering. Though this career is related to data engineering, AI engineers are rarely required to write the code that develops scalable data sharing. Instead, artificial intelligence developers locate and pull data from a variety of sources, create, develop and test machine learning models and then utilize application program interface (API) calls or embedded code to build and implement AI applications.

**Roles & Responsibilities:**

Responsibilities include:

* Convert the machine learning models into application program interfaces (APIs) so that other applications can use it
* Build AI models from scratch and help the different components of the organization (such as product managers and stakeholders) understand what results they gain from the model
* Build data ingestion and data transformation infrastructure
* Automate infrastructure that the data science team uses
* Perform statistical analysis and tune the results so that the organization can make better-informed decisions
* Set up and manage AI development and product infrastructure
* Be a good team player, as coordinating with others is a must

**Education Path Summary:**

* After 10th

The candidate must be passed its 10th with 50% min in its cumulative score.

* After 12th

Students who wish to enroll in the BTech Computer Science program must meet the following minimum eligibility requirements:

**Education Path Summary:**

* After 10th

The candidate must be passed its 10th with 50% min in its cumulative score.

* After 12th

Students who wish to enroll in the BTech Computer Science program must meet the following minimum eligibility requirements:

**Automotive Eng:**

**Overview:**

**Working as an automotive engineer, you’ll design new products and in some cases modify those currently in use. You'll also identify and solve engineering problems. You'll need to have a combination of engineering and commercial skills to be able to deliver projects within budget. Once you've built up experience, you’ll likely specialize in a particular area, for example, structural design, exhaust systems, or engines.**

Typically, you’ll focus on one of three main areas:

* design
* production
* research and development.
* **What is automotive engineering?**

[Automotive engineering](https://en.wikipedia.org/wiki/Automotive_engineering) is a branch of vehicle engineering that focuses on the application, design, and manufacturing of various types of automobiles. This field of engineering involves the direct application of mathematics in the design and production of vehicles. Engineering disciplines that may be practiced in this field include safety engineering, vehicle electronics, quality management, and fuel economy and emissions. Automotive engineering may also be referred to as "automobile engineering".

* **What do automotive engineers do?**

Automotive engineers, also referred to as "automobile engineers", work with other engineers to enhance the technical performance, aesthetics, and software of vehicles. Common responsibilities of an automotive engineer include designing and testing various components of vehicles, including fuel technologies and safety systems. They may also come up with and design new vehicle models or vehicle systems using engineer design software such as Think Design Engineering.

**Roles & Responsibilities:**

Your tasks will depend on your specialist area of work, you’ll likely need to:

* use computer-aided design (CAD) packages to develop ideas and produce designs
* decide on the most appropriate materials for component production
* solve engineering problems using mechanical, electrical, hydraulic, thermodynamic pneumatic principles
* build prototypes of components and test their performance, weaknesses, and safety
* take into consideration changing customer needs and government emissions regulations when developing new designs and manufacturing procedures
* prepare material, cost, and timing estimates, reports and design specifications
* supervise and inspect the installation and adjustment of mechanical systems in industrial plants
* investigate mechanical failures or unexpected maintenance problems
* liaise with suppliers and handle supply chain management issues
* manage projects, including budgets, production schedules, resources, staff, and supervise quality control
* inspect attest-drive vehicles and check for faults.

##### Competitive Exams with tentative dates:

Admission to B.Tech in Engineering is mainly conducted through engineering entrance exams hosted by the universities or national level entrance exams levels as[JEE](https://institute.careerguide.com/exams/jee-mains/) or AIEEE. Some colleges also give the option of direct admission through selection in their merit list about the about by the candidate in the Board Exams. Students have to attend the counseling procedure through counseling shall be allotted colleges post-qualifying the entrance exam. Some of the popular entrance exams have been mentioned below.

BACK END DEV:

##### Overview:

[Back-end developers](https://en.wikipedia.org/wiki/Back_end) create, code, and improve the server, server-side applications, and databases that, when combined with front-end codes, help create a functional, seamless experience for the end-user. They study industry trends, create or improve back-end processes and codes, and work with others to design a better program.

**Roles & Responsibilities:**

* Actively participate in the overall application lifecycle.
* Focus on coding and debugging.
* Collaborate with front-end developers.
* Define and communicate technical and design requirements.
* Build a high-quality reusable code that can be used in the future.
* Create sustainable and functional web applications with clean codes.
* Learn about new technologies and stay up to date with current best practices.
* Conduct UI tests and optimize performance.
* Train, help, and support other team members.

**Education Path Summary:**

* After 12th

Complete an undergraduate degree · Diagnostics engineer positions typically require candidates to have at least a bachelor's degree in a B.Tech/B.E. in Computer Science or IT. · If you want to specialize in a particular engineering sector, you can pursue an engineering degree in Computer Science or you can pursue in BCA. The coursework in these programs provides you with the skills and knowledge needed to excel as a back end developer.

* After Graduation

Consider a master's degree · While not always required, a master's degree may help advance your career and boost your skill and salary.

##### Competitive Exams with tentative dates:

·      [BITSAT](https://institute.careerguide.com/exams/bitsat/).

·     [NATA.](https://institute.careerguide.com/exams/nata/)

·      [JEE Main](https://institute.careerguide.com/exams/jee-mains/).

·    [JEE Advanced.](https://institute.careerguide.com/exams/jee-advanced/)

·      [SRMJEEE](https://institute.careerguide.com/exams/srmjeee/).

**CHEMICAL ENG:**

##### Overview:

If you are interested in the manufacturing of chemicals and its applications, then this is a career for you.

A Chemical Engineer is a professional who works in the field of [chemical engineering](https://en.wikipedia.org/wiki/Chemical_engineering). They are scientists who specialize in the design and manufacture of chemicals, however, they do not work with a single class of chemical but rather with all types of chemicals. They are also skilled in the study of chemical processes and must understand the principles of chemistry, thermodynamics and fluid dynamics to be able to design chemical equipment and processes.

Chemical engineers are in high demand these days because of the shortage of skilled workers in chemical plants, refineries and petroleum industries.

**Roles & Responsibilities:**

**Roles**

* Analytical chemist
* Manufacturing engineer
* Environmental engineer
* Production manager
* Lecturer

**Responsibilities**

* Chemical engineers are responsible for planning, designing, implementing and operating manufacturing plants for the production of chemicals, gases and other related products.
* They use a variety of equipment, including analytical and lab instruments, pilot plant equipment and large-scale industrial equipment.
* Their work is to make new chemicals, improve existing ones and develop new processes.
* They also help in converting raw materials into products like plastics, synthetic fibers, and medicines.

**Education Path Summary:**

* After 12th

After 12th class Bachelors ● B. Tech Chemical Engineering ● B. Sc. Chemistry Postgraduation ● M. Tech Chemical Engineering ● M. Sc. Chemistry Doctoral studies

##### Competitive Exams with tentative dates:

●      [JEE exams](https://en.wikipedia.org/wiki/Chemical_engineering)

●      [GATE](https://institute.careerguide.com/exams/gate/)

●       State level engineering exams

**CIVIL ENG:**

##### Overview:

[Civil engineers](https://en.wikipedia.org/wiki/Civil_engineer) work towards creating and improving the infrastructure in which we live. They plan the construction sites, develop them into building structures that can be used for different purposes. They supervise the construction, material being used, designing of the structure, engineering behind the structure and safety measures taken during the construction as well as that has to be followed for years. They support work on road building, railways, airports, Civil engineers create, improve and protect the environment in which we live. They plan, design and oversee construction and maintenance of building structures and infrastructure, such as roads, railways, airports, bridges, harbours, dams, irrigation projects, power plants, and water, sewerage systems, tall building etc.

There are two types of civil engineers- consulting and contracting.

**Roles & Responsibilities:**

* A civil engineer has to ensure structure safety and standard norms .
* Assessing designing of the development model
* Undertaking research for the new developments
* Working on budget for the development
* Testing and evaluation of the construction siteregularly
* Technical advice and support
* Working on data

**Education Path Summary:**

* After 10th

A student cannot work as an engineer after 10th, but through diploma course, they can work as an apprentice in the field.

* After 12th

A student cannot work as an engineer after 12th, but through diploma course, they can work as an apprentice in the field

* After Graduation

graduates with postgraduate research qualifications may earn higher starting salaries.

**Salary Range:**

* Entry-Level

Rs 25,000-35,000

* Mid-Level

Rs. 40,000-Rs 60,000

* Senior-Level

Rs. 65,000- Rs 1,50,000

**Competitive Exams with tentative dates:**

* [GATE (M.Tech/ PSUs)](https://institute.careerguide.com/exams/gate/)
* [UPSC](https://institute.careerguide.com/exams/upsc-cms/)
* State Government exam PSC
* PWD Exam
* Housing Board
* PHED
* [JEE (For bachelors’)](https://institute.careerguide.com/exams/jee-mains/)