



# Electronics & Communication in 2021

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# What is the future scope in Electronics & Communication Engineering ECE?

With the rapid [advancements in technologies](#), most industries have started inventing robotics, automation technologies, intelligent energy systems, the Internet of Things (IoT) & a lot more.

Most of these gigantic industries have been operating in

Gulf countries, Germany, China, Canada, etc. So students pursuing electronics & communication engineering have ample job opportunities available. It is mainly because of the establishment of various ECE firms outside India.

Electronics Engineers specializing in Control & Power Systems can get premium job opportunities in Japan, Germany, the US & Korea. There are also spectrums of job roles available in multi-disciplinary streams which an electronics engineer can take up.

## Glancing Future Prospects of ECE

This question usually comes into the minds of many students that why to choose [Electronics and Communication Engineering](#) courses and what makes it different from other options. Well, to answer this, it will be essential to have attention to the data given by the Bureau of Labour of Statistics (BLS). It is expected that the job market for engineers will grow by 7% from 2016 to 2026. Moreover, it has also been predicted that employment in the ECE sector has developed significantly in recent years.

The reason behind this drastic change in the wind is the growing connection between the electronics industry and digital technology. ECE application in satellite and mobile communication, digital & automotive telecommunication, power electronics, etc., has generated great career options.

Besides this, manufacturing companies, Multinational Corporations (MNCs), research-based or industrial corporations, government authorities, aerospace manufacturing companies, consumer electronics manufacturing, healthcare tools manufacturing, Armed forces (Army/ Air Force/Navy), many others look for candidates with ECE background.

ECE engineers expertise in managing extensive research, objectifying, crafting, developing, and testing the electronic equipment used in the latest communication devices and other convenient technological equipment, such as laptops, smartphones, tablets, processors, intelligent wristwatches. There are many more examples of the application of ECE, such as bright LED TVs, etc.

In a nutshell, we can say that the skills of ECE engineers in planning, executing the testing process, formulating the system layouts, and successfully delivering the end product enhanced their market value. This means that an aspiring student of ECE candidates needs to ensure that they select the right course in Electronics & Communication Engineering. They have an interest and offer [better career & job opportunities](#) in the coming years.

# Best College for Engineering in Electronics and Communication in Bhopal 2021

In this modern era, electronics are a blessing in disguise for everyone, making our daily life very easy & intelligent. From laptops to smartphones & home appliances, electronics play a vital role in our day-to-day lives. Engineering in [Electronics and Communication](#) (ECE) has a great [scope by 2025](#).

There is no doubt that electronics have become very magnificent nowadays, helping people be smart & digital. It is constantly bridging up Communication gaps through voice/video calls which can afford by everyone.

It is a fascinating, exciting as well as encouraging field to study & work on. Electronics & Communication Engineering is one of the most desired fields of study institutes/university-specific entrance examinations to get themselves enrolled in the study program of ECE, for Postgraduate students candidates must require a qualification in B.Tech degree in the same specialization with a passing percentage in aggregate of the subjects studied at the degree level.

## Mandatory Skill-set required for Electronics & Communication Engineering

To pursue Electronics & Communication Engineering, the candidate must have required the following [set of skills](#):

Teamwork	A methodical mind
Attention to detail	Aptitude for Mathematics
Innovation	Time management
Communication	Project management
Strong IT skills	Interpersonal skills

## Types of Electronics & Communication Engineering (ECE)

ECE has a variety of specializations under it which is mentioned below:

- Signal Processing
- Telecommunication Engineering
- Instrumentation Engineering
- Computer Engineering
- VLSI design Engineering
- Analog Electronics
- Consumer Electronics
- Robotics
- Internet of Things, etc.

## The career perception for ECE students

ECE students can evolve an exciting & exciting career growth in industries like Consumer electronics manufacturing organization, Telecommunication & IT industries, Health care equipment manufacturing, Mobile communication (2G, 3G, 4G), Internet technologies, Power Electronics, and other sectors like steel, petroleum, and chemical industry, etc.

[Undergraduates in Electronics Engineering](#) also have enormous options & opportunities in Government sectors and private companies in the sphere of design, manufacture, installation, operation, and maintenance of electronics equipment and systems.

With the evolution of the latest & sophisticated technological innovations, new opportunities came into existence for Electronics & Communication Engineers. The brand-new technologies include self-driving cars, drone logistics, robotics, automation in industries, intelligent energy systems, etc.

But getting familiarized with these gigantic industries will not be a cakewalk at all. These big industries demand those engineers who are more advanced with sophisticated technologies.

# Best Courses for Electronics and Communication Engineering Students

There are various types of [courses](#) available, so you can go with the system after completing your engineering in Electronics and communication. It should rely on your interest and desire during your degree and which work profile you want for yourself.

- **Embedded Systems Design:**

An Embedded system is an accumulation of hardware and software. You can go with an embedded system course if you are in embedded programming and thinking of starting a career in this field. Selecting an embedded system course is an excellent career choice as it provides ample fruitful job opportunities in several areas, amalgamates electrical engineering and computer science.

This course has an excellent outlook in the present scenario as the embedded industry, especially raspberry pi, is developing fast. You will get the list of good institutes for this course. You must have good logical skills, and you must have good knowledge. This is among the top trending courses because Embedded System Design has a good [scope of opportunities](#) in IoT, Raspberry Pi.

- **CCNA/CCNP:**

It is one of those best courses which the students most often choose. It is a Cisco-certified networking administrator course that adds value. The next level of up-gradation is CCNP. The cost of this course is relevantly lower than other courses, but the certification is compulsory for some big companies.

- **Embedded Linux:**

Embedded Linux is the prime course to do, like most web servers & servers that provide services, run Linux. When you complete the Linux course, you will figure out how many of the servers you communicate with users. When you are trained at Professional Training Institute, you will have a greater chance of finding a job. Many companies hire people with knowledge about Linux to control their servers. Most of the web servers run Linux. When you learn how to use Linux, you will have a fair chance of becoming a web admin.

Those who have started working under Linux are getting a good and attractive salary package. Now a day, Embedded Systems are becoming more and more persistent, touching virtually all the aspects of our daily life. So, if you are pretty excited to grow your career on an embedded system, then Embedded Systems training will be the perfect choice for you.

- **Embedded Hardware:**

Most people know that the Embedded System is a mixture of hardware and software; it combines both hardware and software. So if you want to take baby steps in the hardware part, you should go for an embedded hardware course. The hardware part generally includes the designing of PCB, circuit design, and hardware testing and troubleshooting. In the Embedded hardware domain, a large number of job opportunities are available.

- **Embedded Testing:**

Embedded testing accumulates both hardware testing and software testing, testing the embedded units like functional testing, PCB testing, generating the test cases, and checking each test case.

- **C Programming:**

C programming is a higher programming language established by Dennis Ritchie in the early 70s. The C language is mainly used programming language; if you are marvelous at C programming, you can quickly adopt any other language. It is fundamental to all programming languages.

So pursuing the C programming course is worth it. The C programming language includes a data structure, array, and pointers. Learning C programming helps you in the embedded system field, software development side. An Embedded Systems expert will have to work on a modern processor, network, and sensor architecture. Their main work focuses on observing and optimizing different embedded hardware designs and architectural software programmers in an embedded system environment.

- **PLC and SCADA:**

The specific goal of this course is to focus on the field of automation engineering. You can start working in this field for development/maintenance or in industries. This field never holds you to the electronics field only. In automation, you can also have a good chance of working in mechanical sectors too.

### 8. VLSI:

VLSI constitutes a sophisticated technology that adds to the data, which involves the in-depth understanding & good progress of integrated circuits, and it loads the data. This course is listed among the least joined the practice. This is the most expensive among the core ECE courses, but the future of VLSI is perfect & not a dead-end profile to have right now, i.e., investing that much money is worth it if you want to work in it this line. The courses mentioned above are the ideal options for you if you're going to work on this platform. So as an electrical engineer with your area of interest, you can pursue any of the courses mentioned above, whichever you prefer.

## Best Electronics & Communication Engineering UG Courses in India

The following courses are the best Electronics & Communication Engineering UG Courses. You can observe the top Colleges offering these UG Courses by clicking the links below.

- BE/B.Tech
- UG Diploma
- BCA
- BSC

## Detailed Course Curriculum for Electronics & Communication Engineering

ECE is a four-year-long course program distributed over eight semesters. The semester-wise detailed [course curriculum](#) for ECE is given below in a tabular form. However, the syllabus/course curriculum for ECE may alter from college to college.

Semester -I	Semester-II
Engineering Mathematics – I	Elements of Mechanical Engineering
Engineering Mathematics – II	Basic Electronics & Communication Engineering
Engineering Physics	Basic Electronics
Engineering Chemistry	Constitution of India and Professional Ethics
Programming in C and Data structures	Environmental Studies
Computer Programming Laboratory	Engineering Physics Lab
Elements of Civil Engineering & Engineering Mechanics	Engineering Chemistry Lab
Computer-Aided Engineering Drawing	Workshop Practice

Semester-III	Semester-IV
Engg. Mathematics – III	Engg. Mathematics – IV
Analog Electronic Cats	Microcontrollers
Logic Design	Control Systems
Network Analysis	Signals & Systems

Electronic Instrumentation	Fundamentals of HDL
Field Theory	Linear ICs & Applications
Analog Electronics Lab	Microcontrollers Lab
Logic Design Lab	HDL Lab

Semester-V	Semester-VI
Management and Entrepreneurship	Digital Communication
Digital Signal Processing	Microprocessors
Analog Communication	Microelectronics Circuits
Information Theory & Coding	Antennas and Propagation
Fundamentals of CMOS	Operating Systems
VLSI	Advanced Communication Lab
DSP Lab EC	Microprocessor Lab
Analog Communication	–
Lab + LIC Lab	–

Semester-VII	Semester-VIII
Computer Communication Networks	Wireless Communication
Optical Fiber Communication	Digital Switching Systems
Power Electronics	Project Work EC
Embedded System Design	Seminar EC
VLSI Lab	–
Power Electronics Lab	–

#### Job Descriptions & popular career options in ECE:

According to the in-depth [job descriptions](#), a Bachelor of Electronics and Communication Engineering generally holds the following designations –

**Telecommunication Engineer:** A Telecommunication Engineer is assigned to design, test, install and maintain telecommunication systems. This job includes various steps like circuit design, testing, production, judicious large-scale developments, and maintenance of various telecommunication equipment.

**Instrumentation & Control Engineer:** Their responsibility in shaping and testing complicated electronics systems. This field of work is crucial because of the most energy-saving electrical systems. It is used in our day-to-day life & is associated with it.

**Desktop Support Engineer:** Mostly every significant IT, as well as, Non-IT organizations require these technocrats. These engineers generally support clients with hardware and software solutions.

**Network Engineer:** Network Engineers are held responsible for creating and encouraging the routine operation of computer networks that the organizations highly depend on.

**Service Engineer:** Usually, Service Engineers are assigned to provide support, maintenance, and repair sold products. They give off-site remedial and protective maintenance services along with after-sales technical support solutions.

**RF & BTS Engineer:** The Radiofrequency (RF) Engineers are involved in designing new wireless networks, their components, and plans to ensure regulatory standards. The RF & BTS Engineers are also needed to evaluate devices, alliance data by using digital software, testing, implementing & managing wireless communication, and identifying the scope of improvements.

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## Opportunities of Electronics and Communication Engineering in the upcoming years:

In the last couple of years, it has been confirmed that the massive recruitment of professionals who are studying Electronics and Communication Engineering as a career. This is expected to stimulate a tie-up between electronics technology and digital technology. According to the United States Bureau of Labour of Statistics, employability in the domain of electronics and electrical engineering is expected to increase by 7% from 2016 to 2026. The report from Frost and Sullivan predicted that the count of connected cars with embedded telematics is most probably to hike from 23 million in 2018 to 65 million in 2025.

Also, as reported by the NASSCOM Engineering R&D, the Engineering R&D outsourcing market is anticipated to thrive at a Compound Annual Growth Rate (CAGR) of 10% to reach USD160 billion by 2025. India's Engineering Research & Development (ER&D) revenue is anticipated to grow at a Compound Annual Growth Rate of 12% to reach ~USD 60 billion by 2025. The global Automotive Battery market size was valued at USD 48.71 billion in 2016 and is all set to grow with a CAGR of 8.5% by 2023.

The analysis from Aspiring Minds estimated the workability for positions such as Mechanical engineer and Civil engineer stood at a scant 5.55% and 6.48%, respectively. Flexibility in the subject-especial places was the topmost for electronics engineers at 7.07%. Also, a recent ground-breaking report by ASSOCHAM and NEC Corp predicts that India's electronics market is presumed to reach \$400 billion by the year 2020 at a 41% CAGR rate.

With the fastest growth of offbeat & innovative technologies like 5G, IoT, Robotics, and artificial intelligence, organizations to a significant expansion will believe in the eminent possibilities of Electronics and Communication engineering. The Technological industry, the Manufacturing sector, Multinational Corporations, Research-based companies, the Armed forces, & many other estates are firmly looking for efficient, skilled, and experienced ECE Engineers. Thereby it is leading to a surge in demand for professionals. Accelerating applications of ECE in sophisticated industries are probably able to organize some of the most in-demand career opportunities in the next decade.

## Job Opportunities of Electronics and Communication Engineering by 2025

If we imagine a life deprived of handy electronic gadgets, it is quite possible in today's world. There is no platform left across the globe where one cannot find Electronics and Communication Engineering usage. Perhaps that is why electronics have become the backbone of digital technology.

Although, as a student who is planning to enter into Electronics & Communication Engineering (ECE) courses in India, one needs to walk around and see things from all frames. Undoubtedly, selecting a branch of engineering from infinite options is like searching a needle from a needle stick. It is astonishing & that is why most of the students wind up making a wrong choice.

## Recent Trends of Electronics & Communication Engineers

Electronics and Communication Engineering, also known as ECE, is one of the required engineering fields accountable for developing electronic devices like Television, Computers, Smartphones, I-pad, home appliances, and lots of other functional electronic gadgets. From entertainment to urgent needs, [ECE engineers](#) have successfully designed some cutting-edge technology. Also, they have made some fabulous electronic gadgets for the simplification and accomplishment of human efforts. At present, these engineers think that much work remains to be done in this branch of engineering.

The ECE engineers work to communicate information across various channels such as coax cable or optical fiber. These engineers also craft appliances such as routers, fiber optics, and electronics switching systems for the communication channels.

At present, an Electronics and Communication engineer works to invent and craft different electronic components and gadgets for sectors like hospitals, computers, electronic data processing systems for communication, defense, etc. These engineers also work with optical fibers, microprocessors & microcontrollers, solid-state devices, antennas, signals, etc.

Electronics and Communication engineering is the fastest-growing branch where highly skilled professionals get the best job offers. ECE branch also has computer programming in its syllabus; the ECE engineers have a fair chance of actively working as programmers or software developers in the software company.

The crisscrossing of Electronics and Communication and other engineering branches in satellite communication, mobile communication, power electronics,



and digital telecommunication has created a larger pool of job opportunities for ECE engineers. Their working required high-level energy in the manufacturing firms, MNCs, Research Industry, Government Offices, Army, Air Force, Navy, and Consumer Electronics Manufacturing Industry.

Today, the research industry mainly demands the services of ECE engineers for efficiently handling large-scale research, designing, conceptualizing, developing, and testing the latest electronics and communication devices. They are needed most in the research and development (R&D) departments for smartphones, intelligent wrist-watches, tablets, processors, smart LED televisions.

Overall, the services of ECE engineers fall under make planning and strategizing for development and manufacture, flawlessly executing testing processes, supporting the research activities with the relevant framework of understanding, and finally launching the brilliant product.

Some of the top-notch public and private firms have already predicted that there is a possibility of 7 percent growth in engineering jobs percent by 2026. If you want to flourish your career to pursue Electronics and Communication Engineering after completing 10+2, then you have made the right decision regarding the future.

## What is the mandatory skill set that an ECE student should brush up on to enhance job prospects?

If you are an ECE student, here are some of the [skillset and areas](#) that you need to focus on to improve your job prospects,

1. Computer knowledge is must-have proficiency these days; try to get work with some of the industrial-grade software.
2. Improve your communication and interpersonal skills.
3. Enhance practical skills and get hands-on experience on theoretical concepts.
4. Get hands-on with current industrial methodologies as much as possible.
5. Stay updated with the latest technologies by developing projects on them.
6. Pursue additional certified training programs to improve your profile.
7. Accept additional responsibilities with confidence in your college to showcase your managerial skills.
8. Enhance your leadership qualities & team working abilities.

## How should you prepare yourself for these excellent opportunities in ECE?

The [scope for electronics engineers](#) in the next decade will not come down, but the most challenging criterion is the skill level of the engineers that the industries expect. With the rapid increase in technological advancements, enterprises nowadays are demanding skilled engineers who are more experienced and can assist immediately in their systematic work without needing to spend time & resources on training.

To develop enough job prospects, you need to gather more practical skills besides your course curriculum. Many colleges have already started this course with world-class infrastructure.

The best way to develop your skills is to do learning by working on various projects. When you learn and do projects, you will learn the technical concepts, get hands-on with the technology, and develop an in-depth understanding. You can also attend any hands-on workshops or do some project-based courses to kick-start your learning of advanced technologies.

## The salary expectation of Electronics & Communication Engineering (ECE)

The job market for Electronics and Communication Engineering is on-demand & faster-growing industries are looking for highly skilled, qualified engineers who can help them with the newest technologies. With the recent growth in technological advancements, the [scope for electronics engineers](#) is at its peak.

However, according to [payscale.com](#), the average annual salary of these professionals includes. ₹ 312,408 per year. However, it may vary from 4 to 5 lakhs according to the skillsets. Electronics students with an adequate skill set in robotics, automation technologies, renewable energies, Internet of Things (IoT), mechatronics engineering concepts can get high salary packages.

The main focus of the students pursuing electronics engineering is to get a good, high-paying – job. Therefore polishing the skill sets will surely put a good impression on their [pay scale](#).

# Frequently Asked Questions (FAQ)

1. What is the future scope of doing Electronics & Communication Engineering in India?

Ans. There are innumerable job opportunities in organizations out there in India for ECE graduates. Many top-notch companies are hiring ECE graduates to assist them in the latest technology. The demand for Electronics & Communication Engineers is surging day by day.

1. What is the scope of the ECE branch?

Ans. ECE students can flourish in several industries like the manufacturing sector, consumer electronics, automotive telecommunication, IT industries, the health care sector, internet technologies, etc.

1. Which field is ideal for ECE students?

Ans. The ideal fields for specialization in ECE are listed below:

- Signal Processing
- Telecommunication Engineering
- Instrumentation Engineering
- Computer Engineering
- VLSI design Engineering
- Analog Electronics
- Consumer Electronics
- Robotics
- Internet of Things
- Wireless networks/Automotive Telecommunications

1. Is ECE a good career option by 2025?

Ans. ECE is undoubtedly a beneficial career option by 2025 as big companies like Accenture, Wipro Lightning Corporate, Siemens, Havells India Limited, Tata Teleservices, Vodafone, Samsung, Cisco Networking, LG Electronics, Intel, Philips, Bajaj Electronics, 3M India, Bosch in India, Surya Roshni Ltd, IBM, Capgemini, etc.

1. What are the best government jobs for ECE students?

Ans. Following are the best government jobs for ECE students-

- ISRO.
- DRDO.
- BEL.
- Bank Probationary Officer.
- Indian engineering services.

1. What are the subjects in ECE?

Ans. The curriculum of B.Tech in ECE (Electronics & Communication Engineering) includes Microprocessor, Electronics & Communication, Analog Transmission, Digital Communication, Analog Communication, Satellite Communication, Microwave Engineering, etc.

1. Is Electronics & Communication Engineering in demand in the coming years?

Ans. It is expected that the job market for engineers will grow by 7% from 2016 to 2026. Moreover, it has also been witnessed that employment in the ECE sector has developed significantly in recent years.

8. Do students of ECE have an excellent job scope in Google?

Ans. If an ECE graduate is optimistic, high-skilled, well experienced, hands-on with the latest technologies, programming skills, they have a good scope to do the job at Google.

9. Does ECE have coding?

Ans. ECE students must have adequate knowledge of coding. The course is very similar to CSE as it has DBMS, C, and JAVA.

10. Is ECE full of maths?

Ans. The answer is simply no. Maths is not the main subject in ECE, but it plays a vital role in better understanding the rest of ECE issues.

## Best College for Engineering in Electronics and Communication in Bhopal 2021: Conclusion

This article throws light on the scope of Electronics & Communication Engineering by 2025. Electronics & Communication Engineering (ECE) is the best career option by 2025. It is an optimistic, analytics as well as technical field to study & work. With the increasing advancements in technologies, most industries have started to invent robotics, automation technologies, intelligent energy systems, the Internet of Things (IoT) & a lot more.

Electronics and Communication Engineering (ECE) mainly requires creative young minds as well as capable problem-solving skills. It is an ideal course for individuals who think logically and have a great interest in physics and mathematics. The young minds are predicted to have attachment towards the electronics & communication and need enthusiasm in themselves.

Also, as reported by the NASSCOM Engineering R&D, the Engineering R&D outsourcing market is anticipated to thrive at a Compound Annual Growth Rate (CAGR) of 10% to reach USD160 billion by 2025. India's Engineering Research & Development (ER&D) revenue is anticipated to grow at a Compound Annual Growth Rate of 12% to reach ~USD 60 billion by 2025.

The global Automotive Battery market size was valued at USD 48.71 billion in 2016 and is all set to grow with a CAGR of 8.5% by 2023. The salary prospects in ECE are around 3 to 5 lakhs for undergraduates.

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