

WHY Electronics and Communication Engineering (ECE)?

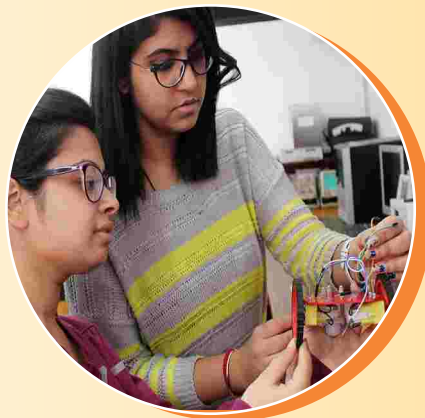
The new industrial era has completely diversified the field of engineering, particularly making some branches very lucrative. The scope for an Electronics and Communication engineer is increasing day by day. Most of the things around you are becoming smarter and that is brought about by hardware capable of sharing data and information about it.

In the earlier times, the automotive industry was predominantly run by the mechanical engineering students. But with the advent of electric or hybrid cars, there has been a drastic shift towards electronics. Instrument cluster, OBDII, Semi-autonomous cars, GPS systems, driverless cars and many more advancements in the field are bringing in more and more demand for EC engineers.

In fact, according to a collective survey by ASSOCHAM and NEC Corp, the electronics market of India is predicted to reach \$400 billion by the end of year 2020 at a 41% compound annual growth rate (CAGR). The investments in electronic manufacturing which was earlier a mere INR 11,000 crores in June 2014, has increased at an exponential rate to INR 1,53,000 crores now and expected to reach to INR 4,00,000 crores by the year end. Mobile manufacturing in India increased to Rs 54,000 crore in 2015-2016 and is likely to exceed Rs 90,000 crore by the end of this year, according to official data.

Since no field of engineering works in isolation, hardware, firmware and software are becoming more and more integrated and interdependent with one another. Hence students opting for Electronics and Communication Engineering (ECE) branch can also dive into specialization options in cutting edge technologies like Internet of Things (IoT) or Embedded systems and VLSI design.

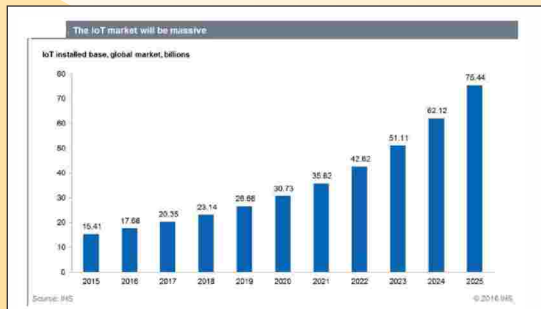
India is a growing market in IoT sector which is leading to the requirement of skilled IoT professionals. In the last three years the demand for IoT talent has accelerated by 300%. This is why IoT is seen as the next big thing in technology. Similarly, VLSI design field will be very exciting in coming future, as all semiconductor firms are working diligently to make Artificial Intelligence (AI) and Machine learning (ML) chips, to speed up the computing. ML chips are huge and IoT chips are miniature, thus, there is a whole spectrum of work, from big chips to small chips to everything in between.



Market Trends

INTERNET OF THINGS (IOT)

- IHS forecasts that the IoT market will grow from an installed base of 15.4 billion devices in 2015 to 30.7 billion devices in 2020 and 75.4 billion in 2025. [Source: IoT platforms: enabling the Internet of Things, March 2016](#)



- McKinsey estimates the total IoT market size in 2015 was up to \$900M, growing to \$3.7B in 2020 attaining a 32.6% CAGR. The Internet of Things (IoT) has a potential economic impact of \$2.7 to \$6.2T until 2025. [Source: Internet of Things The IoT opportunity Are you ready to capture a once-in-a-lifetime value pool? Chris Ip \(叶远扬\) Hong Kong IoT Conference 21 June 2016](#)

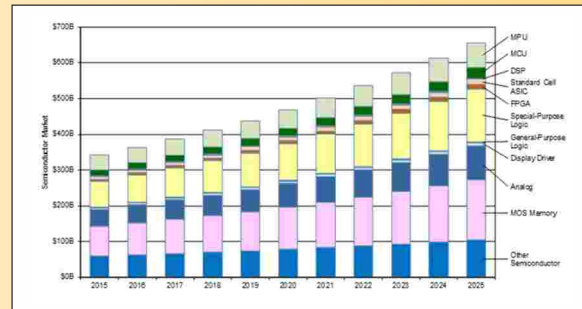
- As per Ericsson Mobility Report 2019, there will be growth at 25% compound annual growth rate (CAGR) for cellular IoT connections till 2025. [Source: Ericsson Mobility Report; November 2019](#)

- General Electric predicts investment in the Industrial Internet of Things (IIoT) is expected to top \$60 trillion during the next 15 years. [Source:forbes.com](#)

- Connected vehicles and road infrastructure are part of a broader IoT ecosystem that is continuously evolving. The automotive industry is expected to be among the top four industries in terms of the 5G-enabled opportunity for service providers in 2030. [Source: Ericsson Mobility Report; November 2019](#)

EMBEDDED SYSTEMS AND VLSI DESIGN

- The global semiconductor market will be \$655.6B in 2025 compared to \$342.7B in 2015 with CAGR of 6.7%. [Source: White paper: Semiconductor Industry from 2015 to 2025 by Dr. Handel Jones, International Business Strategies \(IBS\)](#)



- As per 6W research, India semiconductor industry is one of the fastest growing semiconductor industries in the global market, wherein, VLSI Design service market is now becoming a key contributor. Design centers can be classified as captives and non-captives design centers. Non-Captives design centers accounts for more than 30% of the total market revenues in this industry. [Source: 6W Research](#)

- The semiconductor and sensor markets for IoT are projected to be \$114.2B in 2025 compared to \$27.6B in 2015, with a CAGR of 15.3%. The key semiconductors in IoT applications include controllers, wireless connectivity, and embedded non-volatile memory. The strong growth of semiconductors in IoT devices is driven by the need for more data, but it is important that the generated data provides value to users.

- India is now home of almost all semiconductor giants. At present, there are more than 170 semiconductor companies in India which are working in the areas of embedded software development, board designing and the chip designing. Embedded software is the major revenue generating segment that has accounted for 75% plus of market revenues.

- VLSI industry is getting ready for next big revolutions such as machine learning, automation and IoT. VLSI industry growth in India is considered even more promising for the following reasons

- ❖ Government of India's new electronic policy giving boost to VLSI industry by way of Electronic Development Fund [EDF] to steer startups in the industry and MSIPS to incentivize electronic industries to set up in India.
- ❖ Make in India campaign to promote domestic manufacturing, on the way to setup two fabrication facilities in Gujarat and Uttar Pradesh, that gives great thrust to VLSI industry.
- ❖ Skill India campaign actively promoting skill development in VLSI domain.