

# Graduation Day Speech, GEC Idukki

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## Preamble

Congratulations on successfully completing your BTech at GEC, Idukki, a remarkable achievement. After 4 years of learning engineering fundamentals, skills and advanced knowledge, after making new friends, you are a full-fledged engineer ready to set out on your career of 30-40 years.

## The World of your Future

What do the next 30-40 years hold in store? We see that change is everywhere, and technology is part of most change. Consider the evolution of information technology:

- The printing press was invented in Germany about 900 years ago. It took about 300 years for printing to spread globally.
- The telephone was invented in US+Canada about 150 years ago. It spread worldwide in about 100 years.
- The Internet started in the US about 50 years ago, and spread globally in about 30 years.
- Whatsapp was launched in the US about 14 years ago and within 5 years it was global.
- ChatGPT appeared 6 months ago and is already global.

Early disruptive changes took 100s of years to spread, a time  $> 30\text{-}40$  year career. So, what an engineer learnt in college served for his/her lifetime. Now, change takes place every few years or even few months. Many disruptive changes will occur in your career, what you learnt in college will not serve your whole career.

Each disruptive change makes jobs disappear. E.g.

- The advent of the PC eliminated most typist jobs. However, new jobs appeared, e.g. call centre agents.
- Number of bank accounts in India has increased 100x in the past 2 decades, but number of bank tellers has decreased. However, we now need many ATM operators and mechanics.

## Coping with Change

The job that you join when you leave college may disappear in a few years! You will have to adapt to rapid change. Two ways of managing change:

1. Lifelong learning: While doing your current job, prepare yourself for your next job. This will likely require new skills and knowledge. Fortunately, these are readily available from many sources. What a successful engineer of the future needs are:
  - Strong fundamentals: technical knowledge, and work ethics
  - Know where and how to quickly acquire information and skills

- Be able to critically evaluate many sources on the Web to select the very few that are reliable
2. Agent of change: Most change in the future will depend on technology. As an expert in technology, you are well placed to be the person who drives change, who builds the future of Indian society. India has many problems that need affordable solutions. E.g. affordable healthcare in villages and towns, safe and efficient transport, clean energy, etc.

## Safe and Efficient Transport

India has a network of roads and railways that gets you almost anywhere. However, Indian roads are very unsafe. Every day about 500 people are killed on our roads. Sadly, India is the world leader with 1.7 lakh traffic deaths per year. Can you work to reduce our traffic deaths to 5/day, i.e. 1% of the current rate? This will be a great service to Indians.

How to go about this? Some ideas:

- Safer driving and enforcement of rules. Accidents often happen because drivers are tired, distracted or speeding. Can we have devices to keep the drivers alert, to stop the vehicle if the driver is distracted or speeding? Can we have inexpensive cameras that detect speeding vehicles, and automatically issue challans?
- Many victims are pedestrians and bicycle/2-wheeler riders. Can we design roads to accommodate the needs of pedestrians and separate pedestrians from vehicles? In the West many cities and towns have built vehicle-free centres of living areas where people on bicycles and pedestrians can roam freely and can fulfill most of their daily needs. Would some model like this work in India? Indian villages and towns used to be like this.
- Rail transport is much more efficient and safe than road transport. We need many more trains.
- The lack of last-mile transport between home and office and the station, and adequate parking at the station is the reason many people do not use trains. Can we solve the last mile problem? Eg. using free shared electric taxis for passengers and drones for goods?

These are just a few thoughts on how to make travel in India safe, reliable and efficient. I'm sure many of you can come up with better ideas, and can implement them. I would like to mention that some of your juniors in GEC has already designed and built traffic safety devices in the LEAP LP201 programme: a bike accident detector, and an automatic headlight dimmer.

## Parting Words

Congratulations to you on your graduation today, thanks to your teachers and your parents who helped and guided you. You are going out into a world of change, a world of uncertainty. As professional engineers, the challenge for you is to solve pressing problems of India to ensure a better life for all Indians. I wish you a long a fulfilling career ahead!