

ELECTRICAL & COMPUTER ENGINEERING

1. What is electrical and computer engineering (ECE)?

Electrical Engineering (EE) and Computer Engineering (CEG) are among the most exciting and challenging areas of engineering, and are the key disciplines driving a highly technological society. They lead in creating new ideas and innovations, and designing and developing new products such as smart phones, tablets, biomedical equipment and others.

The Department currently offers two full-time undergraduate degree programmes, *Bachelor of Engineering in Electrical Engineering* and *Bachelor of Engineering in Computer Engineering*, as well as graduate programmes leading to the Master of Science in Electrical Engineering (coursework-based), Master of Engineering (research-based) and Doctor of Philosophy. The Computer Engineering programme is jointly offered with the Department of Computer Science at the School of Computing.

2. What are the specialisations in the ECE Department?

Specialisations in EE include Microelectronics Technology & Devices; Integrated Circuits & Embedded Systems; Power & Energy Systems; Control, Intelligent Systems & Robotics; Signal Processing & New Media; Communications & Networks; and Microwave & Radio Frequency systems. CEG specialisations include Communications & Networks; Control & Energy Management; Embedded Systems; and Multimedia Processing.

3. What special programmes are available for an EE or CEG student?

There are 2 special programmes hosted by the Faculty of Engineering. They are the Design Centric Programme (DCP) and the Global Engineering Programme (GEP). EE and CEG students are eligible to enroll in both these programmes. The DCP offers design focused opportunities within the EE and CEG programmes. For example, a DCP student may choose to “specialise” in building satellites or airborne radar systems within the Aerospace Systems Initiative under the

DCP. On completion, a student will have acquired strong design skills in building complex engineering systems in general, and satellites or radar systems in particular.

The GEP is an accelerated 3-year programme with good global exposure. Students spend at least one semester overseas and are expected to pursue an overseas postgraduate degree in the 4th year.

4. How do I enroll in the Design Centric Programme (DCP)?

All students are invited to apply to the DCP during the first semester of study. Admission is based on academic results as well as demonstrated passion.

5. How do I enroll in the Global Engineering Programme (GEP)?

GEP students are generally admitted at matriculation, i.e. students apply during the NUS admissions exercise. Admission is based on interviews and A-level results. A student who did not matriculate as a GEP student may also join the programme at the end of the first semester. Students who have done well in the NUS examinations at the end of semester 1 will also be invited to apply to the GEP. Admission is again based on interviews and academic results.

6. What are the job prospects of an EE or CEG graduate?

An EE or CEG student is trained for a wide range of careers. Graduates can look forward to bright, diverse and challenging careers in research, design and development, manufacturing, marketing, management, consulting, and software / IT development. A number of enterprising graduates have also become entrepreneurs, setting up new businesses that find innovative ways of applying electrical and computer engineering technologies. Sectors that employ EE and CEG graduates include telecommunications, IT, utilities, armed forces, transportation, educational institutions, electronics, manufacturing, R&D facilities and finance. In short, the training provided by the ECE curriculum is very versatile.

7. What are the special features of studying ECE in NUS?

NUS offer a very flexible curriculum allowing students to customise it to fit their interests. It also allows student to leverage on the fact that NUS is a comprehensive university. The curriculum

provides a well-rounded thinking graduate, steeped in fundamentals and able to interpret knowledge from diverse disciplines. Students also benefit from the varied opportunities provided by our diverse programmes. For example, a number of special programmes have been created to allow students to explore engineering solutions in the real world. Students work in various communities to develop ideas for their engineering project modules. Students are encouraged and motivated to think critically when they engage with these communities. Projects which they embark on eventually have real relevance to the customers in such communities.

In terms of hands-on abilities, we provide ample opportunities for students to practise engineering skills. Students take several design project modules throughout their degree programme, in addition to lab experiments that are incorporated in many other modules. There is also a project module on product design and technology assessment where students go through the process of product conceptualisation to commercialisation. Special programmes such as the Aerospace Systems Initiative (within the DCP) aim to develop strong design skills in complex engineering systems such as a nano-satellite.

8. How can I get more information on the Electrical & Computer Engineering Programme?

For more information, please visit our department website at <http://www.ece.nus.edu.sg>