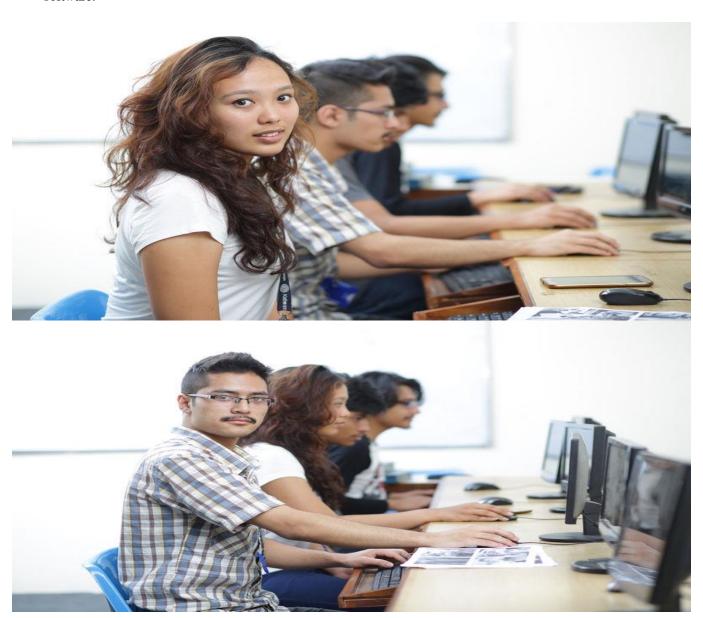# Computer Engineering

The Department Computer Engineering at KEC has been offering four-year Bachelor's Degree Programs in Computer Engineering since 1999. We aim to bring out competent and qualified computer engineers to meet national aspirations and goals.

What is Computer Engineering?

Computer engineering is the process of analyzing and designing all hardware, software, and operating systems for a computer system. Computer engineering is a combination of two fields: computer science and electrical engineering. Computer science and computer engineering are often confused as being the same, but these two fields differ greatly. While the responsibilities of computer scientists consist more of electrical and software engineering, computer engineers are also trained in software design and the integration of hardware and software.

Case Western Reserve was the first university to offer a computer engineering program in 1971. However, there are now over 100 accredited computer universities worldwide.

Career Prospects

Computer engineers continually push the capability of computers and their applicability in all industries as well as all facets of modern life. Computer engineers also focus on computer networking. They must always utilize their knowledge and understanding of the design of logic and microprocessor systems, as well as computer architecture and computer interfacing. In the course of their work, computer engineers may find themselves with answers to major computer dilemmas, creating the next big technological solution. Computer engineers apply the theories and principles of computer science and mathematical analysis to create, test, and evaluate software applications and systems that make computers work.

Is Computer Engineering for You?

Students who wish to pursue a career in this field must have a strong background and understanding of mathematics and science. If a student excels in these subjects, computer engineering will most likely be a comfortable fit for them. Computer engineers must also possess strong detail orientation, teamwork, and analytical skills. Good communication skills are also needed, because computer engineers often need to go outside the lab to deal with customers, and other professionals.

Working Environment

This field is constantly growing and changing due to the rapid pace of technological advancements. It is important, therefore, that professionals are continuously improving and learning new things to stay on top of all new developments. Computer engineers are often required to attend training seminars created by vendors, hardware and software manufacturers, colleges and universities, or other private institutions.

Why Choose Computer Engineering at KEC?

In the past ten years the internet and Information Technology have revolutionized all aspects of our lives, from the way we communicate to the way we do business. Wireless communication, online commerce, medicine, and multimedia are examples of new applications that have transformed our world. Computer engineers developed the fundamental technologies that made the web possible, including high performance microprocessors, gigabit networks and object-oriented computer languages.

As a computer engineering student at Kathmandu Engineering College you will study computer architecture, software engineering, Object oriented analysis & design, microprocessor-based design, embedded systems and applied algorithms. In addition to a broad background in mathematics, physics, and chemistry, this curriculum gives you solid foundation in both hardware and software design. Microprocessors, object-oriented programming and Artificial Intelligence are some of the technologies you will encounter in the program.

Demand for computer engineers has increased dramatically in recent years. Students with a strong background in computer engineering are aggressively recruited

Course and Work

A Bachelor's degree is commonly required for engineering jobs, although a master's degree is preferred for some positions. Employers favor applicants who already have relevant skills and experience. Workers who keep upto- date with the latest technology usually have good opportunities for advancement.

The Bachelors Degree Program at KEC involves 55 courses including subjects like Programming, System Analysis & Design, compiler design, computer architecture, project works and field visits, among others.

The major sectors where a Computer Engineer works include:
- Hardware
- Software
- Web, Internet and Data Security
- Education

The job of a Computer Engineer can basically be listed as below: Computer engineers analyze, design, and evaluate computer systems, both hardware and software. They might work on systems such as a flexible manufacturing system or a "smart" device or instrument. Computer engineers often find themselves focusing on problems or challenges which result in new "state of the art" products, which integrate computer capabilities. They work on the design, planning, development, testing, and even the supervision of manufacturing of computer hardware—including everything from chips to device controllers.

The major work sector for a computer engineer may be one of the following:
- Computer Design/Chip Design/Networking/Technician
- Programmer/System Analyst/Application Programmer/ Electronic Data Processing Manager/Enterprise Resource Planning
- Database, Webmaster, Web Designer, E-Commerce, M-Commerce
- R&D, Production, Servicing, Sales & Marketing,

Major organizations which recruit computer engineers include:
Eriskh health, Javra Software, Worldlink Technologies, Mercantile Communications, Nepal Telecom, NCell and government services along with s/w development companies established by our graduates. Final Year Project, Computer Engineering Final year students get involved in a 'project work' in their chosen field of interest. These projects are carried out under the supervision and guidance of professors and experts in the relative fields.

The following are the major projects done by our students.
- KEC Nix: An Educational Purpose Operating System
- RFID Based Inventory Management System
- Electronic Money
- Cheque Verification System
- Smartcard based College Management System
- Optical Character Recognition System
- National ID (NID) System
- Way in the Dark
- 3D Face Recognition System
- E-Tax
- Online Shopping Chart
- E – Auction
- Web – Based Adaptive Test System
- Online Shopping

- Tour Nepal
- Online Ticket Reservation
- Parking Lot Management System
- Human Resource Management
- E-Voting
- Data Analysis using Optical Mark recognition
- Read it to me
- Bus Scheduler Guru Chela
- Employee Performance Evaluation and Appraisal System, among others.

List of Electives

- Advance Database
- Advance Computer Architecture
- Automatic Control System
- Biomedical Instrumentation
- Geographical Information System
- Data Warehousing and Data Mining
- Multimedia
- Switching in Telecommunication
- Image Processing & pattern Recognition
- Wireless Communication
- Embedded System
- Java Programming
- Big Data Technology
- Agile software Development
- Networking with IPv6
- XML
- Enterprise Application Development

Resources

We make sure that by the end of the educational journey our graduates will have gained knowledge and skill nurtured with high moral and professional ethics. These goals and objectives are supplemented by following resources and facts:

- 14 Fulltime Faculties; 20 Part-time Faculties
- 7 Support Staff
- 2 High Performance Computer Labs
- 4 General Purpose Computer Labs
- CISCO and Internet Lab
- Hundreds of Hardware and Software Projects
- Microsoft Students Partnership Program/IT Club/ Electronics Club

Participations and Extra-Curricular Activities Computer Engineering jobs are found in manufacturing industries; professional, scientific, technical and services industries--primarily in architectural, engineering and related services. All these jobs require high levels of expertise. So we at the Department of Computer and Electronics Engineering not only focus on what is included in the course and curriculum, but also in extracurricular activities that enable the growth of expertise and efficiency. These activities include, but are not limited to:

- Hardware and Software Projects
- Microsoft Students Partnership Program

- IT Club
- Participation in National/ International Hardware/ Software Competitions such as Dristi and LOCUS Participation in National/ International Hardware/ Software Competitions
- Faculty Members available after college hours for consultation
- Internet Access
- Text books for whole semester/ Notes and Handouts
- Yoga and Meditation
- Field Visits and Educational Tours

HOD NOTE

The Department of Computer Engineering has been committed to provide the most pragmatic & highest quality education to fulfill the demand of engineering education to the nation & the world from its date of establishment.

We have a strong conviction that the pragmatism should be the basic philosophy behind the modern teaching & learning processes. Our department is always committed to provide high quality education with highly qualified, well-experienced, adequately trained & updated enough to adopt an innovation & latest technology faculty members to guide & motivate the students to make their future bright.

Our department is committed to facilitating excellent research programs that veer on the cutting edge. We focus our resources onto selected research areas to ensure an output of world-class research. We are fortunate to have many talented faculties and staff members who are extremely dedicated to their work in terms of both teaching & research.

Since the beginning, our Department has been adopting latest teaching methodology, which follows interactive lectures, student presentations, case studies, power point presentation on individual & group projects, seminars, participatory group discussions & practicum's. Our department also encourages the students to participate in many events to expose their talents & innovation to the public & concern authorities. The students of our department are very versatile and dynamic. They have active participation in numerous extracurricular activities like software / hardware competitions, paper presentations, talk programs etc organized by various colleges and universities nationwide. Our students also are actively involved in various clubs like: Robotics Club, Electronics Project Club, IT Club etc. Our students are also affiliated with the Microsoft through Microsoft Students Partner (MSP) Program.

It would not had been possible to reach this position today without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the functioning of our department. On behalf of the Department of Computer Engineering, we would like to expresses sincere thanks to all the experienced faculty members, college management, dedicated staffs & support and the research team for providing their effort to achieve the department's goals& objectives.

Er. Sudeep Shakya
HOD
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Right after giving IOE entrance exam, I was in total dilemma as I had no idea about choosing the right institution for my further studies. I feel blessed that I enrolled in KEC which provided excellent panels of teachers, friendly behavior and overall sound educational environment that helped me to do my best. I am very grateful to my faculty, HOD and all the associated members that inspired me to cross the hurdles and fulfill my dream of being a good engineer.

Prashan Bajracharya
BCT
071/06

Believe in yourself and all that you are know that there is something inside you greater than any obstacle. or difficult roads often lead to beautiful choices don't quit. or work as hard as you can and be happy in the knowledge you couldn't have done any more.

Sanil Manandhar
BCT
073/69