

Aims and Rationale of the Programme

This programme is intended to develop a detailed knowledge of computer and communications engineering concepts. Students gain a comprehensive knowledge of ICT tools and techniques. The practical focus of this programme allows graduates to enter the workplace with a highly marketable range of knowledge, skills and experience. Students are given the opportunity to explore the complexities and vulnerabilities of modern information systems.

Students are also exposed to a whole range of tools, languages, methodologies and architectures. It is, however, not sufficient to know how to use the different applications, students also need to develop the ability to plan, manage and deliver projects successfully.

The content of this programme of study has ensured that all these fundamental sets of knowledge and skills are fully integrated. Additionally, there are core courses in management and professional practice.

Year One

- Introduction to Computer Networking
- Programming Technologies
- Computer and Communications Engineering Applications
- Learning and Communications
- Systems Analysis and Visualisation

Year Two

- Multimedia Applications Development
- Systems Development
- Systems Programming Technologies
- Software Engineering and Project Management
- Database Applications

Final Year

- Individual Project
- Management and Communications
- Advanced Database Systems and Applications
- Developments in Information Age Engineering
- Option

Entry Requirements

High School Certificate (Grade 15/20) or equivalent

A minimum of TOEFL score of 213 (computer based test), IELTS 6.0, or a recognized equivalent (for example, successful completion of a programme of studies at HE of FE taught in English).

Attendance

3 years Full-time time (Part-time option available).

Assessment

Exams, assignments and project work.

Careers

On completion of the programme the successful graduate will enjoy a wide variety of job opportunities within small and medium enterprises, working with the World Wide Web, local area networks and e-commerce, database programmer and consultant, multimedia consultant, research analyst.

BSc (Hons) in Information & Communication Technologies

Core Course Descriptions

Year 1

Introduction to Computer Networking

The course provides a broad-based introduction to the operation and configuration of network components in order that the student may then go on to take more advanced courses if he/ she chooses.

Programming Technologies

The course will develop students' understanding of a modern programming language and focus on object-oriented design and programming. All computing students should have a clear understanding of a modern programming paradigm.

Computer & Communications Engineering Principles

This course builds up a relationship between computer hardware, software and inters system communication including circuit creation, system testing, hardware and software architecture, network topography and configuration, and wired / wireless communication.

Systems Analysis & Visualisation

This course sets the scene for students in the analysis design and visualisation of systems. Starting with the nature of technological process development and following up with systems approaches, students will review problems and challenges in systems terms and evaluate the characteristics of systems.

Learning & Communication Skills

This course is designed to provide students with the tools to allow them to approach self-reliance, autonomy, in learning early in their time at University. It also provides them with the capability to learn techniques as they identify the requirement for knowledge that will enable them to be successful life long learners in a fast moving technology field.

Year 2

Multimedia Applications Development

This course introduces students to the design, production, and management of stand-alone and Web-based multimedia applications. The course will also provide an introduction to the world of 3D graphics, paying particular attention to pre-production techniques and character animation.

Database Applications

Database administration has become a key function for many organisations. This course aims to provide an insight into database analysis and design techniques and provide an introduction to the Database Management System (DBMS) environment.

Option Modules

In addition to the core modules, students are required to take one option module each year, related to Computer and Communications Engineering. Option modules include Design and Simulation of Communication Networks and Information and Network Security Engineering.

Systems Development

The aims of this course are to enable students to come to grips with the real-life problems in the development of medium and large integrated systems and familiarise them with relevant advanced software development techniques. The course is enriched with the use of examples of real-world situations in a variety of industrial situations.

Software Engineering & Project Management

The course aims to link the theory and practice of other taught elements of the programme into extended practice. It builds on skills such as software engineering methodologies for infrastructure development and management of the design and development process for software products including team working in IT.

Systems Programming Technologies

All computing professionals need knowledge of the principal concepts of operating systems. The associated issues of applications reliability and information security are also paramount to IT professionals. This course aims to develop knowledge in these areas.

Year 3

Advanced Database Systems & Applications

Building on the foundations of Database Systems or Database Applications this course will survey distributed and object oriented database management systems data warehousing and data mining.

Developments in Information Age Engineering

This course is designed to reflect critically on the technological evolution as regards emerging computing technologies, standards and systems. The course will provide a 'Blue Sky' thinking towards the end of the students time in their programme.

Management & Communications

The course is designed to meet the needs of engineers for management skills and has the aim of ensuring that students can quickly evaluate the systems and strategy to evolve appropriate actions. Students will gain key analysis and synthesis tools around finance strategic objectivity business imperatives and Human resources issues.

Project

Engineering students must be given the opportunity to exercise their engineering abilities to the full and demonstrate that they are ready to become practising professional engineers. This double unit enables them to do that.