Faculty of
Information Technology

Eduvos
Your Education. Your Future

Higher Certificate in Information Systems (Engineering)

SAQA ID 120688 NQF Level 5

Qualification duration

Contact
Full-Time (Campus)
- Minimum: 1 year
- Maximum: 3 years

Full-Time (Online)
- Minimum: 1 year
- Maximum: 3 years

Part-Time (Online)
- Minimum: 2 years
- Maximum: 4 years

Qualification description

Open the door to your future world of work. The Higher Certificate in Information Systems (Engineering) is a career-focused qualification that is intensive but also broad. It will develop your programming ability and hardware skills so that you can work in a range of areas in the IT industry.

The Higher Certificate in Information Systems (Engineering) provides you with solid theoretical and intensive practical foundation of one programming language and one database language, where the emphasis is on application. You will develop a balance of software and hardware knowledge as well as extensive technical experience. The core subject areas are Databases, a Programming Language of your choice, Network+ and Cloud Foundations. Other topics covered include Computer Literacy, Program Design, Mathematical Problem Solving and Reasoning. Throughout the qualification you will complete technical projects so that you are able to troubleshoot hardware problems.

Over and above this, you will develop essential skills for the world of work, especially for the IT industry, such as analysing and solving real problems, logical thinking, being innovative and adaptable and communicating effectively.

This qualification is offered at the following campuses:

- Bedfordview
- Bloemfontein
- Cape Town: Mowbray
- Cape Town: Tyger Valley
- Durban
- East London
- Mbombela
- Midrand
- Nelson Mandela Bay
- Potchefstroom
- Pretoria
- Vanderbijlpark

Entry requirements

- South African National Senior Certificate (NSC) with Bachelor's degree, Diploma or Higher Certificate pass.
- Or a National Certificate (Vocational) Level 4 issued by the Council of General and Further Education and Training with a Bachelor's degree, Diploma or Higher Certificate pass.
- Or a Certificate of evaluation on a minimum NQF level 4 for foreign qualification issued by SAQA.
- Or a letter or certificate confirming an exemption from Universities South Africa (USAf) for any other school-leaving results.
- Or completion of a Bachelor's degree, Diploma, Higher Certificate or equivalent.

Qualification accreditation

- Accredited by the Higher Education Quality Committee (HEQC) of the Council on Higher Education (CHE).
- Registered with the South African Qualifications Authority (SAQA).

Possible career options

Are you enthusiastic about technology in the twenty-first century?

The potential career paths available to individuals who have obtained a Bachelor of Science degree in Computer Science are diverse and encompass a wide range of options:

- Software Developer/Engineer, Software Quality Assurance (QA) Engineer
- Systems Analyst, Database Administrator
- Technical Support Specialist, Cloud Computing Specialist
- Network Administrator/Engineer, Cybersecurity Analyst/Engineer
- Web Developer, Mobile App Developer, Machine Learning Engineer
- IT Project Manager, IT Consultant, Researcher/Academic
- Embedded Systems Engineer, Microcontroller Programmer
- Entrepreneur/Startup Founder

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Qualification structure

Year 1

- Cloud Foundations (AWS)
- Computer Literacy (Microsoft)
- Database Design Concepts
- Linux Operating System
- Mathematical Problem Solving and Reasoning
- Network+ *
- Personal Skills Development
- Program Design
- Software Engineering
- Elective - Choose 1
  - Database Management (MySQL)
  - Database Management (SQL Server)
- Elective - Choose 1
  - Basic C# Programming
  - Basic Java Programming

* Network+ (CompTIA Certification Voucher)

Partnerships and Memberhips

Eduvos is proud to announce the following memberships and/or partnerships with the following:

- Computing Technology Information Association (CompTIA) *
- Amazon Web Services (AWS) Academy **
- • The Institute of IT Professionals South Africa (IITPSA)
- Institute of Chartered IT Professionals (ICITP) South Africa
- South African Artificial Intelligence Association (SAAIA)
- Integrated Electronics Corporation (Intel)

* Eduvos is a proud CompTIA partner. Through this partnership, students who opt for streams incorporating CompTIA modules, will qualify to attempt certification exams at partner pricing. Some streams include mandatory vouchers, while others offer them as optional. You may also inquire about additional CompTIA certifications that are available at our institution. All vouchers are applicable only for the first sitting and the certification exam fees are added to the course fee.

** Eduvos is an AWS Academy member institute and is authorised to teach AWS Academy course

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Module descriptors

Year 1

Basic C# Programming
This module will cover the basics of C#, which includes Procedural Programming with C#, Object-Oriented Programming with C# and Graphical User Interfaces design. The knowledge that students will gain will help them master, at an intermediate level, computer program development using C#.

Basic Java Programming
This module is aimed at teaching students the fundamentals of Java and its object-oriented features. Students will also learn to create robust console and GUI applications and store and retrieve data from relational databases.

Cloud Foundations (AWS)
This module will provide students with a detailed overview of cloud concepts, AWS core services; and the pricing, security including the controls in the AWS environment and some of the products and features available with AWS to meet security objectives, architectural best practices for designing and operating reliable, secure, efficient and cost-effective systems in the cloud, and support for these core services.

Computer Literacy (Microsoft)
The module teaches students how to use Microsoft Office applications such as Word, Excel, PowerPoint, Access and Outlook. This is intended to strengthen students' computer application skills as students will use Microsoft Office and fundamental computer operations for documentation and data management throughout the qualification. These skills also assist students in the preparation of design documents, presentations, budgeting spreadsheets, and other administrative tasks.

Database Design Concepts
This module focuses on systems analysis, entity relationship diagrams, data normalisation and mapping a database's design to tables.

Database Management (MySQL)
Students will be introduced to core MySQL scripts used for creating a database and how to implement these. Students will use MySQL scripts to add tables to the database. These tables are created with certain constraints such as primary keys, foreign keys, etc.

Database Management (SQL Server)
The module starts with the fundamentals of database design concepts. These consist of creating a database, altering a database and creating tables, which have certain constraints, such as primary keys and foreign keys. The module then looks at how to practically populate and implement the functions

Linux Operating System
In this module students will examine the origins of the Linux operating system. They will look at the procedures necessary to install and configure Linux onto a computer, as well as logging in and out of Linux. In addition, students will be introduced to and become familiar with the GNOME desktop environment. They will develop skills and knowledge to enable them to use the powerful command line interface and explore files and directories. This module also deals with the role and function of the text editor, as well as working with directories and files using the Linux operating system terminal and commands. The final section of the module looks at developing skills to redirect input and output as well as controlling Linux operating system processes.

Mathematical Problem Solving and Reasoning
The aim of this module is to provide students with a strong foundation in essential mathematical concepts, techniques, and their applications, enabling them to effectively solve computational problems and enhance their problem-solving skills in computer science and related fields.

Network+
This module explores the diverse subject of networking, looking at types of networks, the structure of networks, how models explain how data travels over networks, the different media used to carry data, the different devices used to move data, the underlying principles of protocols, addressing schemes, services and standards, and the tools and techniques used to manage, monitor, troubleshoot and secure networking systems.

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Module descriptors

Year 1

Personal Skills Development
Personal Skills Development implies professional and personal growth in knowledge and skills. Personal Skills Development embraces a range of practical and transferable skills that can be applied within higher education and in the workplace. By conducting case studies, role play and real-life activities, the student should be able to improve their own learning, be involved in teamwork and be more capable of solving problems. The rationale behind this module is to expose the student to softer skills that are critical in the workplace and in higher education. This module attempts to encapsulate a range of key and common skills and deliver this information in a dynamic learning environment.

Program Design
This module will introduce basic concepts of programming logic using control structures. More advanced topics, such as arrays, file handling and functions are covered later in the course. The knowledge that students will gain will initiate the students to master, at a basic level, the process to develop computer program algorithms using Python.

Software Engineering
Students are then given a practical introduction to UML for use as a tool in the system development process. More specifically, students will familiarise themselves with use cases and scenarios, identify different actors that play a role in a system, and learn to draw using case diagrams. The unit also explores the use of state, sequence, collaboration, activity and deployment diagrams.