



Higher Certificate in Information Systems (Software Development)

SAQA ID 120688 NQF Level 5

🕒 Mode and duration

Contact

Full-Time (Campus)

- Minimum: 1 year
- Maximum: 3 years

Part-Time (Campus)

- Minimum: 2 years
- Maximum: 5 years

Part-Time (Online)

- Minimum: 2 years
- Maximum: 5 years

☰ Qualification description

Develop 21st century skills that go beyond the lecture hall. The Higher Certificate in Information Systems (Software Development) is a career-focused qualification that is intensive but also broad. It will develop your programming ability and mobile development skills so that you can work in a range of areas in the IT industry.

The Higher Certificate in Information Systems (Software Development) provides you with solid theoretical and intensive practical foundation programming and databases, where the emphasis is on application development. The core subject areas are one Database Language and two Programming Languages of your choice. 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 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, working in teams and communicating effectively.

📄 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)

✅ Entry requirements

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

📁 Possible career options

The career choices for you, as a Higher Certificate in Information Systems (Software Development) graduate, include junior positions in:

- Database Administration
- Mobile Application Development
- Programming

This qualification is offered at the following campuses:

- | | |
|----------------|----------------------|
| • Bedfordview | • Nelson Mandela Bay |
| • Bloemfontein | • Potchefstroom |
| • Claremont | • Pretoria |
| • Durban | • Tyger Valley |
| • East London | • Vanderbijlpark |
| • Mbombela | |



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Qualification structure

Year 1

- Computer Literacy (Microsoft)
- Database Design Concepts
- Linux Operating System
- Mathematical Problem Solving and Reasoning
- Personal Skills Development
- Program Design
- Software Engineering
- Electives - Choose 2 Group
 - Group 1
 - Advanced Java Programming
 - Basic Java Programming
 - Choose 1
 - Basic C# Programming
 - Basic PHP Programming
 - Group 2
 - Advanced C# Programming
 - Basic C# Programming
 - Choose 1
 - Basic Java Programming
 - Mobile Development
 - Basic PHP Programming



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Module Descriptors

Year 1

Advanced C# Programming

This module will cover advanced topics of C# programming, which includes Windows User Control, ASP.NET and .NET Distributed Computing.

Advanced Java Programming

Students will be introduced to two Java Enterprise Edition technologies, namely JavaServer pages and web services. Students will also learn how to create mobile applications for use on wireless devices, such as Android mobile devices. In the first part of the section, students will combine a wide variety of web-related technologies to develop dynamic web-based applications using Java Servlets, JavaBeans and JavaServer pages. Students will learn all the basic techniques and elements used in JSPs and will also learn how to write their own JSP custom tags, and how to retrieve records from databases and display them in JSPs.

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.

Basic PHP Programming

Students will be introduced to core PHP scripts and how to implement these. PHP is also an object-oriented language. Students will understand how object-oriented scripting functions as well as classes and methods fit into the PHP scripting language.

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.

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.

Mobile Development

The aim of this module is to prepare students for work in the field of mobile software development. This is done by introducing them to mobile development technologies and equipping them with the skills needed in the design and development of mobile applications using up-to-date software development tools and APIs.



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Module Descriptors

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 team work 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.