



## 2015 FACT SHEET FIELD OF STUDY: COMPUTER PROGRAMMING FACULTY OF INFORMATION TECHNOLOGY

PROGRAMME TITLE	SAQA ID	NQF	CREDITS
NATIONAL CERTIFICATE: INFORMATION TECHNOLOGY: SYSTEMS DEVELOPMENT (Computer Programming Specialist)	48872	LEVEL 5	131

### DESCRIPTION

The National Certificate: Information Technology: Systems Development is designed to provide learners with an undergraduate entry into the field of Information Communication and Computer Sciences, specialising in the Systems Development area. Learners will have a solid understanding of computer industry concepts and the ability to work in areas of Systems Development with intermediate technical complexity. Learners will learn how to create software solutions using popular software development tools, technologies, platforms, internet architectures and databases.

### CAREER FIELDS

With this qualification, learners could pursue a career as a:

- *System Developer/Internet and Web Designer*
- *Computer Programmer*
- *Database Administrator*
- *Software Project Manager*

### PROGRAMME OUTLINE

#### PC Technologies (A+ PREPARATION)

##### A) DATABASE DESIGN & IMPLEMENTATION

- The database environment
- Fundamentals of data modelling
- Relational model
- Normalisation of database tables
- Advanced data modelling
- Setting up and using relational databases
- Maintaining and querying databases
- SQL language
- Practical work using Microsoft Access
- Creating a user interface for a database
- Programme control structures (decision and repetition)
- Arrays
- Menus

##### B) INTRODUCTION TO VISUAL BASIC .NET PROGRAMMING

- The design, implementation and testing of Visual Basic.NET programmes
- Variables, constants, calculations
- Visual Basic.NET controls (e.g. text boxes, buttons, list boxes, radio buttons)
- Event handlers and methods
- Object-oriented programming concepts
- Procedures and functions
- File manipulations
- Simple databases

##### C) C# PROGRAMMING

- Control constructs
- Functions
- Properties
- Lists
- Dynamic memory allocation
- Inheritance
- Interfaces
- Polymorphism
- Object-oriented programming

##### D) INTERNET AND WEB DESIGN

- The Internet and HTML
- CSS, JavaScript, Graphics and Web Design

##### E) INTRODUCTION TO JAVA PROGRAMMING

- Structured programming in Java:
- Basic input and output
- Control structures
- Arrays and strings
- Object oriented programming:
- Methods, classes and objects
- Overloading
- Inheritance and Polymorphism
- Applications in Java:
- Stand-alone applications (programmes)
- Applets for the Internet
- Graphical User Interfaces

