

SOFTWARE DEVELOPER OCCUPATIONAL CERTIFICATE: Occupational Certificate: Software Developer

| DURATION | LEVEL | TECHNOLOGY | DELIVERY METHOD | TRAINING CREDITS |
|------------------------|-------|------------|-----------------|------------------|
| 2200 Notional Hours | NQF 5 | QCTO | ILT | N/A |

INTRODUCTION

A significant body of global research indicates a substantial increase in the demand for skilled software developers. For instance, the US Bureau of Labor Statistics (BLS) forecasts a 22% rise in demand for software developers by 2029, contrasting sharply with the average annual growth rate of 4% for all professions. In South Africa, the 2020 list of high-demand occupations published by the Department of Higher Education and Training in 2021 highlights the critical need for software developers, as identified by various Sector Education and Training Authorities (SETAs) and the industry at large. This anticipated job expansion bodes well for aspiring software developers, who can look forward to a secure, diverse, and lucrative career. By addressing this swiftly growing skills gap, the supply of software developers will contribute positively to economic development.

AUDIENCE PROFILE

Typical learners include school leavers, graduates from TVET colleges and those currently in employment without formal recognition of competencies or who want to make a career change.

PREREQUISITES

Previous Technical NQF 4 courses

MODULES

Module 1:
251201-005-00-KM-01
Computers and
Computing Systems
Level 4
12 Credits

Module 2:
251201-005-00-KM-02
Desktop and
Professional Software to
Communicate and
Visualise Information
Level 4
8Credits

Module 3:
251201-005-00-KM-03
Automated Web
Scraping as a Data
Source
Level 5
8 Credits.

Module 4:
251201-005-00-KM-04
Logical Thinking and
Basic Calculations

Level4
2 Credits

Module 5:
251201-005-00-KM-05
Computing Theory
Level 4
2 Credits.

Module 6:
251201-005-00-KM-06
Software Development
with HTML5, Opensource
Frameworks and
Libraries
Level 5
16 Credits.

Module 7:
251201-005-00-KM-07
UML as Standard
Modelling Language for
Software and Systems
Development
Level 5
4 Credits.

Module 8:
251201-005-00-KM-08
Obtaining, Querying,

Manipulating and
Presenting Data with and
without MVC
Level 5
6 Credits.

Module 9:
251201-005-00-KM-09
Software Development
Life Cycle, Programming
Languages, Algorithms
and Security
Level 5
3 Credits.

Module 10:
251201-005-00-KM-10
Introduction to
Governance, Legislation
and Ethics
Level 4
2 Credits.

Module 11:
251201-005-00-KM-11,
4IR and Future Skills
Level 4
2 Credits

Module 12:
251201-005-00-KM-12 Design Thinking Principles for Innovation
Level 4
1 Credit.

Practical Modules

Module 1:
251201-005-00-PM-01
Use Software to
Communicate and
Visualise Information
Level 4
3 Credits.

Module 2:
251201-005-00-PM-02
Use and Manage
Spreadsheets and
Workbooks
Level 4
3 Credits.

Module 3:
251201-005-00-PM-03
Use Desktop
Applications to Analyse,
Visualise and Report on
Data
Level 5
3 Credits.

Module 4:
251201-005-00-PM-04
Use a Visual Analytics
Platform and
Visualisation Tools to
Analyse, Visualise and
report on Data,
Level 5
3 Credits.

Module 5:
251201-005-00-PM-05
Query and Massage
Data

Level 5
3 Credits.

Module 6:
251201-005-00-PM-06
Apply Logical Thinking
and Maths
Level 4
3 Credits.

Module 7:
251201-005-00-PM-07
Apply Code to use a
Software Toolkit/Platform
in the Field of Study or
Employment
Level 5
3 Credits.

Module 8:
251201-005-00-PM-08,
Develop Software using
HTML5, Opensource
Frameworks and
Libraries
Level 5
16 Credits.

Module 9:
251201-005-00-PM-09
Design and Build Web
Applications, Desktop
Graphical User Interfaces
or Mobile Apps
Level 5
8 Credits.

Module 10:
251201-005-00-PM-10
Use a Cloud Automation
Platform to Create
Solutions
Level 4
8 Credits.

Module 11:
251201-005-00-PM-11
Develop Software using
Python
Level 5
12 Credits.

Module 12:
251201-005-00-PM-12
Apply the Development
Cycle when Developing
Software
Level 5
16 Credits.

Module 13:
251201-005-00-PM-13
Participate in a Design
Thinking for Innovation
Workshop
Level 4
4 Credits.

Module 14:
251201-005-00-PM-14
Function Ethically and
Effectively in a Team
Level 4
4 Credits.

COURSE OUTCOMES

Outcome 1:
Interrogate the specification and problem and interpret it into code and articulate in writing. Build a logical flow using industry standard frameworks and methodologies to propose possible solutions to business challenges to meet both functional and technical requirements.

Outcome 2:
Programme effectively using a suitable programming language to develop new solutions and update existing solutions.

Outcome 3:
Test and maintain software and recommend improvements to ensure strong functionality and optimisation to meet both functional and technical requirements.

Outcome 4:
Function effectively, efficiently, and ethically in the workplace to achieve company and team goals and targets.

Work Experience Modules

Module 1:

251201-005-00-WE-01
Technical Requirement
Analysis and Refinement
Level 5
15 Credits.

MODULE 2:

251201-005-00-WE-02
Modelling Processes
Level 5
15 Credits.

Module 3:

251201-005-00-WE-03
Programming for

Software Solution
Development
Level 5
25 Credits.

Module:4

251201-005-00-WE-04
Capstone project
Level 5
10 Credits.