

PROGRAMME TITLE	NQF	SAQA ID	CREDITS
Occupational Certificate: Artificial Intelligence Software Developer	5	118792	209

DESCRIPTION

The purpose of the Occupational Certificate: Artificial Intelligence Software Developer is to prepare a learner to operate as an Artificial Intelligence Software Developer. Artificial Intelligence Software Developers build Artificial Intelligence (AI) functionality into software applications through integrating and implementing AI algorithms and logic into the deliverables of an Information Technology (IT) project. Developers teach the machine to solve problems the way a human would through the use of programming. They create, test and deploy code. These developers also assist in converting machine learning Application Programming Interface (APIs) so that other applications can use them.

CAREER FIELDS

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

- Artificial Intelligence Software Developer
- Software Developer
- Machine learning engineer
- Robotics engineer
- Computer vision engineer

PROGRAMME OUTLINE

Knowledge Modules

- 251201-002-00-KM-01 Overview of Artificial Intelligence, Level 4, 2 Credits.
- 251201-002-00-KM-02 Introduction to Mathematics and Statistics, Level 4, 10 Credits.
- 251201-002-00-KM-03 Analytical Thinking and Problem Solving, Level 4, 3 Credits.
- 251201-002-00-KM-04 Data, Databases and Data Visualisation, Level 4, 8 Credits.
- 251201-002-00-KM-05 Computing Theory, Level 4, 8 Credits.
- 251201-002-00-KM-06 Introduction to Artificial Intelligence, Machine Learning, Deep Learning, Level 4, 5 Credits.
- 251201-002-00-KM-10 Introduction to Governance, Legislation and Ethics, Level 4, 1 Credit.
- 251201-002-00-KM-11 Fundamentals of Design Thinking and Innovation, Level 4, 1 Credit.
- 251201-002-00-KM-12 4IR and Future Skills, Level 4, 4 Credits.
- 251201-002-00-KM-07 Artificial Intelligence, Level 5, 12 Credits.
- 251201-002-00-KM-08 Machine Learning, Level 5, 16 Credits.
- 251201-002-00-KM-09 Deep Learning, Level 5, 16 Credits.

Total number of credits for Knowledge Modules: 86

Practical Modules

- 251201-002-00-PM-01 Mathematics and Statistics for Programming, Level 4, 8 Credits.
- 251201-002-00-PM-02 Problem Definition, Analytical Thinking and Decision-Making, Level 4, 2 Credits.
- 251201-002-00-PM-03 Access, Analyse and Visualise Structured Data Using Spreadsheets, Level 4, 4 Credits.
- 251201-002-00-PM-04 Use SQL to Communicate with a Database, Level 5, 4 Credits.
- 251201-002-00-PM-05 Build a simple AI solution using Python, Level 5, 8 Credits.
- 251201-002-00-PM-06 Use Python Data Scraping to Populate Database Table in SQL, Level 5, 4 Credits.
- 251201-002-00-PM-07 Use Machine Learning to Build an AI solution in Python, Level 5, 6 Credits.
- 251201-002-00-PM-08 Use Deep Learning to Build an AI Neural Network Architecture in Python, Level 5, 10 Credits.
- 251201-002-00-PM-09 Use Deep Learning to Build an AI Neural Network Architecture in TensorFlow, Level 5, 10 Credits.
- 251201-002-00-PM-10 Function Ethically and Effectively as a Member of a Multidisciplinary Team, Level 4, 3 Credits.
- 251201-002-00-PM-11 Participate in a Design Thinking for Innovation Workshop, Level 4, 4 Credits.

Total number of credits for Practical Skill Modules: 63

Work Experience Modules

- 251201-002-00-WM-01 AI Solution Design Interpretation and Development, Level 5, 20 Credits.
- 251201-002-00-WM-02 AI Solution Performance Testing, Level 5, 20 Credits.
- 251201-002-00-WM-03 AI Solution Deployment, Modification and Improvement, Level 5, 20 Credits. Total number of credits for Work Experience Modules: 60

TYPE OF PROGRAMME

The programme duration is 2 years on a full-time basis. Tuition is face to face and is scheduled per campus. Programmes are offered during the week on a full-time and part-time basis. Part-time tuition is scheduled as per the stipulated planner.



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ADMISSION REQUIREMENTS

The minimum entry requirement for this qualification is:

- NQF Level 4 qualification.

LEARNER MATERIAL

Prescribed textbook lists will be provided by the academic department at your campus. Students will receive electronic versions of the study guides for this programme.

PRICING

Enquire at the Berea College of Technology campus for a current programme pricelist.

ADDITIONAL COSTS

Students must make provision for additional items such as textbooks, stationery, supplementary examinations, research costs and printing of study guides etc.

EXAMINATION AUTHORITY

In terms of the Skills Development Act, 1998 (Act 97 of 1998), the QCTO accredits assessment centres to conduct the External Integrated Summative Assessment (EISA) (link to EISA information brochure PDF) for specified occupational qualifications, part-qualifications or trades recorded on the National Learners' Records Database (NLRD) but without an associated occupational qualification.

Integrated Assessment

Integrated Formative Assessment: The skills development provider will use the curriculum to guide them on the stipulated internal assessment criteria and weighting. They will also apply the scope of practical skills and applied knowledge as stipulated by the internal assessment criteria. This formative assessment together with work experience leads to entrance in the integrated external summative assessment.

Integrated Summative Assessment: An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality Partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the exit level outcomes and associated assessment criteria. The assessment will be conducted through written assessment and the evaluation of practical tasks at decentralised approved assessment sites by a panel of assessors evaluated by assessor(s) registered with the AQP within a period of 1 day.

EISA is a single, national assessment which leads to competent learners being awarded Occupational Certificates. It is an integral and critical component of QCTO's quality assurance system, as it ensures that the assessment of occupational qualifications, part-qualifications and trades is standardised, consistent and credible. Qualifying for External Assessment: To qualify for an external assessment, learners must provide proof of completion of all required knowledge and practical modules by means of statements of results and a record of completed work experience.

CERTIFICATION

On successful completion of the programme, the student will receive a statement of result from Berea College of Technology and upon meeting the EISA requirements, receive an Occupational Certificate: Artificial Intelligence Software Developer from the QCTO.

ARTICULATION

This qualification provides opportunities for horizontal and vertical articulation options.

Horizontal Articulation:

- Occupational Certificate: Computer Technician; NQF Level 5.

Vertical Articulation:

- Diploma in Information Technology; NQF Level 6.

FURTHER STUDIES

Please enquire at the nearest Berea College of Technology campus for the prospectus containing post-certificate studies. Admission to further your studies at a different institution remains the prerogative of each institution and its academic council.



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DISCLAIMER

The information contained in this fact sheet is accurate at the time of printing. However, factors beyond Berea College of Technology control (such as environmental, regulatory or technical changes) may cause the contents of this fact sheet or of the programme to change. In the event of any such change, Berea College of Technology will formally notify current learners. All possible measures will be taken to minimise inconvenience to learners.

Name of Learner: I....., hereby acknowledge that I understand the information stated in this document and fully comprehend the specifics explained above pertaining to this qualification.

Signature of Learner:

Name of Legal Guardian:
(if applicable)

Signature:

Name of Sales Consultant:

Signature:

Name of Head of Department:

Signature:

Date:

* Please note the original signed copy should be kept on the learner record file.

