



Software Engineer

Course Information

Occupational Qualification: Software Engineer

Qualification Information

| Level | SAQA ID | Credits |
|--------------|---------------|------------|
| NQF 6 | 119458 | 240 |

Entry Requirements:

- NQF Level 4 Or
- Information Communication Technology related qualification Or
- At least three years' experience in Software Development

Occupational Purpose

A Software Developer (Software Engineer) researches, analyses and evaluates requirements for existing or new software applications and designs, develops, deploys, tests within scope of work(debugs) and maintains software applications.

Occupational Tasks:

- Design software to meet clients' needs, (NQF Level 6)
- Design and manipulate databases, (NQF Level 6)
- Develop software to add value to the organisation, (NQF Level 6)
- Test or debug source code to ensure client's needs are met, (NQF Level 5)

Assessments

- Formative assessment activities during the course of each module.
- Summative assessments at the end of each module
- An External Integrated Summative Assessment (EISA) at the end of the qualification.

NB: Access to the EISA is dependent on the successful of all qualification deliverables and formative and summative assessment at IQ.

Knowledge, Practical and Workplace Modules comprise the following competencies.

| Knowledge Experience Module | Level | Credits |
|--|-------|---------|
| Software Engineering | 6 | 20 |
| Programming | 6 | 20 |
| Database Design and Information Systems | 6 | 15 |
| Fundamentals of Project Management in Relation to Software Engineering | 5 | 5 |
| Digital and Business Mathematics | 5 | 15 |
| Practical Module | | |
| Document System Design | 6 | 25 |
| Design and Manipulate Databases | 5 | 5 |
| Programme and Deploy Applications | 6 | 25 |
| Test or Debug Source Code to Ensure Client's needs are met | 5 | 15 |

| Workplace Modules | Level | Credits |
|----------------------------------|--------------|----------------|
| Software Design | 6 | 30 |
| Database Design and Manipulation | 5 | 20 |
| Software Development | 6 | 30 |
| Software Testing | 5 | 15 |

Knowledge Module 01

| | | |
|-----------------------------------|---|-----|
| Systems analysis and design | 6 | 60% |
| Software and system testing | 6 | 15% |
| System deployment and integration | 6 | 15% |
| System management | 6 | 5% |

Knowledge Module 02

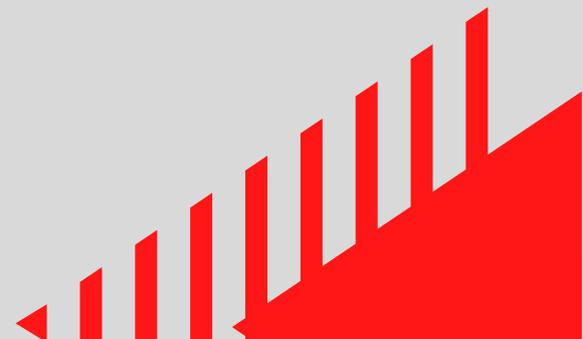
| | | |
|------------------------------|---|-----|
| Introduction to programming | 6 | 10% |
| Data structures & Algorithms | 6 | 50% |
| Logical flow | 6 | 30% |
| Error handling | 6 | 10% |

Knowledge Module 03

| | | |
|-------------------------------------|---|-----|
| Introduction to information systems | 6 | 20% |
| Components of an information system | 6 | 20% |
| Principles of Database design | 6 | 60% |

Knowledge Module 04

| | | |
|------------------------------------|---|-----|
| Fundamentals of projects | 6 | 40% |
| Fundamentals of Project management | 6 | 60% |



Knowledge Module 05

Knowledge Modules Breakdown

| | | |
|----------------------------------|---|-----|
| Basic Algebra | 5 | 20% |
| Analytical Geometry | 5 | 5% |
| Calculus | 5 | 20% |
| Exponents and Logarithms | 5 | 5% |
| Basic statistics and probability | 5 | 25% |
| Equations and graphs | 5 | 10% |
| Linear Programming | 5 | 10% |
| Inequalities | 5 | 5% |

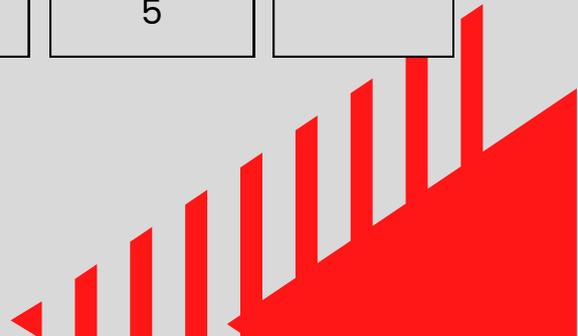
Practical Module 01

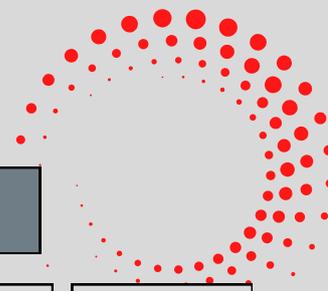
Practical Modules Breakdown

| | | |
|--|---|---------------|
| Define the problem | 6 | Credits 25 |
| Conduct research to determine requirements | 6 | |
| Design the solution | 6 | |

Practical Module 02

| | | |
|---------------------------------|---|--------------|
| Design a database | 5 | Credits 5 |
| Manipulate data in the database | 5 | |





Practical Module 03

Practical Modules Breakdown

| | | |
|--|---|---------------|
| Write code | 6 | Credits 25 |
| Debug source code | 6 | |
| Deploy applications to attain the desired systems' results | 6 | |

Practical Module 04

| | | |
|--|---|----|
| Perform functional and non-functional tests. | 5 | 15 |
|--|---|----|

Workplace Modules

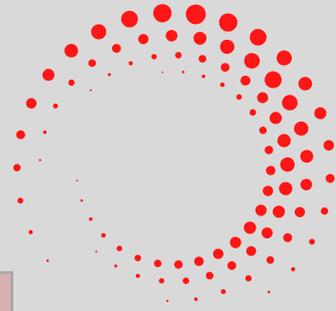
Workplace Modules Breakdown

| | | |
|--|---|----|
| Determine requirements for different software at least twice, within six to nine months | 6 | 30 |
| Participate as a team member in creating a software design at least twice, within six to nine months | 6 | |

Workplace Modules

| | | |
|---|---|----|
| Participate as a team member in designing various databases at least twice, within six to nine months | 5 | 20 |
| Participate as a team member in manipulating data in various databases at least twice, within six to nine months. | 5 | |





Workplace Modules

Write software code at least twice, within six to nine months

6

30

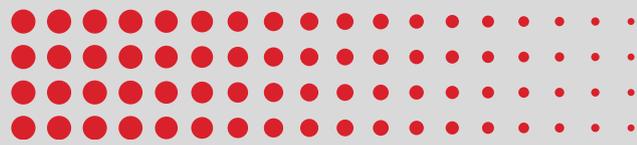
Workplace Modules

Execute functional and non-functional test at least twice, within six to nine months

5

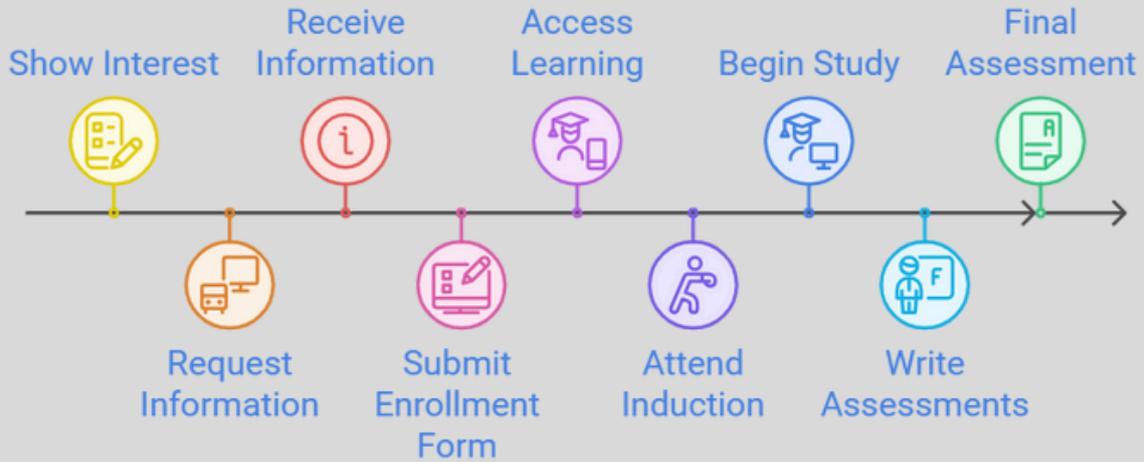
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Customer Journey

Enrollment and Completion Process for IQ Programmes



IQ Commitment

Our Commitment to Your Success: Responsibilities to Our Learners from Enrolment

- Seamless Onboarding & Personalised Support
- Flexible, Engaging Learning
- Continuous Communication & Unrivalled Support
- Tailored Learning Paths & Career Development
- Recognition of Prior Learning
- Innovative Assessments & Real-World Learning
- Lifelong Learning & Alumni Support

Why Choose Us?

We don't just offer an education; we provide a transformative, personalised journey from day one to graduation—and beyond. With our flexible learning options, dedicated support, and focus on real-world success, we're more than just a college—we're your partner in achieving your future dreams.

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