



Republic of Rwanda  
Ministry of Education



**RTB** | RWANDA  
TVET BOARD

## Quality Assurance

**GENQA501**

### Apply Quality Assurance

### Competence

**RQF Level:** 5

**Learning Hours**



**Credits:** 3

**Sector:** ICT and Multimedia

**Trade:** Computer System and Architecture

**Module Type:** General

**Curriculum:** ICTCSA5001-TVET Certificate V Computer System and Architecture

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Purpose statement	This general module aims to equip learners with knowledge and skills necessary for applying Quality Assurance. This module is intended to prepare Leaners pursuing TVET Level 5 in computer system and architecture. At the end of this module the Leaners will be able to perform requirements Analysis, test the system and generate test documentation.					
Learning assumed to be in place	N/A					
Delivery modality	Training delivery		100%	Assessment		Total 100%
	Theoretical content		30%	Formative assessment	30%	50%
	Practical work:		70%		70%	
	Group project and presentation	20%				
	Individual project /Work	50%				
			Summative Assessment		50%	

Elements of Competence and Performance Criteria	
Elements of competence	Performance criteria
<b>1. Perform Requirements Analysis</b>	1.1 Terms of reference are properly analysed according to industry quality assurance standard.
	1.2 Requirement specification is effectively examined based on industry standards, project objectives, and stakeholder needs.
	1.3 Inception report is properly analysed based on established criteria and project requirements.
<b>2. Test the system</b>	2.1 Test plan is properly prepared based on specified criteria and industry best practices.
	2.2 Testing environment is properly prepared based on specified criteria and industry best practices.
	2.3 Tests are effectively performed according to the specified parameters and guidelines.
<b>3. Generate Test Documentation</b>	3.1 Test results are properly consolidated based on test findings.
	3.2 Final User Acceptance Testing Report (UAT) is clearly provided based on acceptance criteria.
	3.3 Recommendation Report is properly generated based on comprehensive test cases.

Knowledge	Skills	Attitude
<ul style="list-style-type: none"> <li>Distinguish Quality Assurance Vs Quality Control</li> <li>Identification tools and techniques</li> <li>Identification key components of a Testing Environment</li> <li>Description of Terms of Reference</li> <li>Description of test plan</li> </ul>	<ul style="list-style-type: none"> <li>Examining requirement specification</li> <li>Analysing inception report</li> <li>Performing Testing</li> <li>Selection of test techniques</li> <li>Setting up and configuration of testing environment</li> <li>Analysing and evaluation of test results</li> <li>Assessing Acceptance Criteria</li> </ul>	<ul style="list-style-type: none"> <li>Continuous Improvement and Learning</li> <li>Self-learner</li> <li>Team work</li> <li>Patience</li> <li>Persistence</li> <li>Quick learner</li> <li>Hard worker</li> <li>Self-learner</li> <li>Self-motivated</li> <li>Time management</li> <li>Decision making</li> <li>Reasoning</li> <li>Accountability</li> <li>Decision making</li> </ul>

	<ul style="list-style-type: none"> <li>Summarizing the key UAT activities conducted</li> </ul>	
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## Course content

<b>Learning outcomes</b>	<b>At the end of the module the learner will be able to:</b> <ol style="list-style-type: none"> <li>1. Perform Requirements Analysis</li> <li>2. Test the system</li> <li>3. Generate Test Documentation</li> </ol>
<b>Learning outcome 1: Perform Requirements Analysis</b>	<b>Learning hours: 8</b>
<b>Indicative content</b>	
<ul style="list-style-type: none"> <li>• <b>Introduction to Quality Assurance</b> <ul style="list-style-type: none"> <li>✓ Describing Quality Assurance (QA) <ul style="list-style-type: none"> <li>Definition</li> <li>Stages/Processes</li> <li>Main Types</li> <li>Standards</li> <li>Methods</li> <li>Benefits</li> </ul> </li> <li>✓ Quality Assurance Vs Quality Control</li> <li>✓ Identify tools and techniques</li> </ul> </li> <li>• <b>Analysing Terms of Reference (TOR)</b> <ul style="list-style-type: none"> <li>✓ Describing Terms of Reference <ul style="list-style-type: none"> <li>Definition</li> <li>Purpose</li> <li>Elements of TOR</li> <li>Importance</li> </ul> </li> </ul> </li> </ul>	

✚ Test cases

- ✓ Document a TOR analysis report

- **Examining requirement specification**

- ✓ Review the entire document
- ✓ Understand stakeholder requirements
  - ✚ Functional
  - ✚ Non-Functional
- ✓ Verify consistency and completeness
- ✓ Identify dependencies and interactions
- ✓ PERM (program electronic review management) gap analysis
- ✓ Generate findings document

- **Analysing inception report**

- ✓ Perform document review
- ✓ Understand stakeholder expectations
- ✓ Assess clarity and completeness
- ✓ Evaluate feasibility and risks
- ✓ Document assumptions and constraints
- ✓ Document analysis findings

#### Resources required for the learning outcome

<b>Equipment</b>	<ul style="list-style-type: none"><li>• Computer</li><li>• Projector</li><li>• Printer</li></ul>
<b>Materials</b>	<ul style="list-style-type: none"><li>• Electricity</li><li>• Papers</li><li>• Pen</li><li>• Project plan</li></ul>
<b>Tools</b>	<ul style="list-style-type: none"><li>• Check list</li></ul>
<b>Facilitation techniques</b>	<ul style="list-style-type: none"><li>• Brainstorming</li><li>• Group discussion</li><li>• Interview by conducting one by one or Group</li></ul>
<b>Formative assessment methods /(CAT)</b>	<ul style="list-style-type: none"><li>• Oral assessment</li><li>• Written assessment</li><li>• Practical assessment</li><li>• Formative assessment</li></ul>

## Indicative content

- **Preparation of Test Plan**

- ✓ Description of test plan
  - ✚ Definition
  - ✚ Types
  - ✚ Components
- ✓ Identify test tools
- ✓ Identify test techniques
- ✓ Identify test cases
- ✓ Identify test criteria
- ✓ Prioritise test cases
- ✓ Allocate resources
- ✓ Prepare Test Data
- ✓ Prepare Test Execution Scripts
- ✓ Schedule test delivery plan

- **Preparation of Testing Environment**

- ✓ Identifying key components of a Testing Environment
  - ✚ Hardware Infrastructure
  - ✚ Software Infrastructure
  - ✚ Dependencies needed for testing
- ✓ Selecting test techniques
  - ✚ Manual testing
  - ✚ Automated Testing
  - ✚ Exploratory Testing
  - ✚ Parallel Testing
  - ✚ Matching Test Techniques with system functionalities
- ✓ Select testing tools
  - ✚ Hardware
  - ✚ Software
- ✓ Set up and configure testing environment

- **Perform Testing**

- ✓ Review test plan
  - ✓ Select test cases
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<ul style="list-style-type: none"> <li>✓ Execute test</li> <li>✓ Record defects</li> <li>✓ Monitor test progress</li> <li>✓ Document test results</li> </ul>	
<b>Equipment</b>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Smartphone</li> <li>• Tablet</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Pen</li> <li>• Notebook</li> </ul>
<b>Tools</b>	<ul style="list-style-type: none"> <li>• Microsoft Visio,</li> <li>• Lucid Chart, Draw IO</li> </ul>
<b>Facilitation techniques</b>	<ul style="list-style-type: none"> <li>• Brainstorming</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Practical exercise</li> </ul>
<b>Formative assessment methods /(CAT)</b>	<ul style="list-style-type: none"> <li>• Oral assessment</li> <li>• Written assessment</li> <li>• Practical assessment</li> </ul>

<b>Learning outcome 3: Generate Test Documentation</b>	<b>Learning hours: 5</b>
<b>Indicative content</b>	
<ul style="list-style-type: none"> <li>• <b>Consolidation of test results</b> <ul style="list-style-type: none"> <li>✓ Collecting test data <ul style="list-style-type: none"> <li>✚ Collecting test artifacts</li> <li>✚ Compiling test execution data</li> </ul> </li> <li>✓ Analysing and evaluating test results <ul style="list-style-type: none"> <li>✚ Reviewing Test Logs and Reports</li> <li>✚ Summarizing Test Findings</li> <li>✚ Prioritizing Defects</li> <li>✚ Generating Test Metrics</li> </ul> </li> <li>✓ Create test summary report</li> </ul> </li> <li>• <b>Prepare User Acceptance Testing Report</b> <ul style="list-style-type: none"> <li>✓ Assess Acceptance Criteria</li> <li>✓ Summarizing the key UAT activities conducted <ul style="list-style-type: none"> <li>✚ Executing test case and results(passed/failed/blocked)</li> </ul> </li> </ul> </li> </ul>	

<ul style="list-style-type: none"> <li>✚ Identifying usability testing outcomes (user feedback, pain points)</li> <li>✚ Measuring performance testing (speed, stability)</li> <li>✚ Security vulnerability findings</li> <li>✓ Analysing overall test results</li> <li>✓ Generate UAT report</li> <li>• <b>Generating recommendation Report</b> <ul style="list-style-type: none"> <li>✓ Provide Recommendations <ul style="list-style-type: none"> <li>✚ Proposing changes.</li> <li>✚ Present supporting evidence</li> <li>✚ Outline action steps</li> </ul> </li> <li>✓ Include Benefits and Impact</li> <li>✓ Document and archiving test artifacts</li> </ul> </li> </ul>	
Resources required for the learning outcome	
Equipment	<ul style="list-style-type: none"> <li>• Computer</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Pens</li> <li>• Notebook</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• Version control systems: Git, Subversion</li> <li>• Screenshot/recording tools: Snagit, Screencast</li> </ul>
Facilitation techniques	<ul style="list-style-type: none"> <li>• Brainstorming</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Practical exercise</li> </ul>
Formative assessment methods /(CAT)	<ul style="list-style-type: none"> <li>• Oral assessment</li> <li>• Written assessment</li> <li>• Practical assessment</li> <li>• Formative assessment</li> </ul>



## References:

1. Reached, C., Papavasiliou, S., & Anglian, F. (2022). Module 8. Quality assurance.
  2. Solutions, Hermon quality. (2022). Modules for total quality management.
  3. Mano, M. M. (2007). Computer System Architecture | Third Edition. New York: Pearson.
  4. Elahi, A. (2006). Computer Systems. rondon: springer.
  5. Sandler, (2006). Laptops For Dummies Quick Reference. John Wiley; Sons
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