NATIONAL SKILLS QUALIFICATION

LEVEL 3

TITLE:
(MOBILE APPLICATION DEVELOPMENT)

YEAR: 2024

NATIONAL SKILLS QUALIFICATION
LEVEL 3 - MOBILE APPLICATION DEVELOPMENT

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is aimed at developing competence in mobile applications development across different platforms. The focus is on generic mobile programming language training, communication skills, personal development and workplace experience.

QUALIFICATION OBJECTIVES

The objective of this Level aims to provide the learner with the following competencies:

1. Understand and apply safe working practices in their work environment
2. Identify safety signs and symbols and how to use them correctly.
3. Understand the benefits of effective communication in a working environment.
4. Identify, read and follow documented instructions.
5. Understand the concepts behind software and its development life cycle.
6. Understand Mobile Application concepts.
7. Identify various mobile development platforms.
8. Setup mobile projects on IDE.
9. Add layouts and layout elements using GUI.
10. Preview App on emulator and physical device.
11. Diagnose app performance issues.

Mandatory Units

S/No /Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
1	ICT/MOB/001/L3	Occupational Health and Safety	2	20	Level 3
2	ICT/MOB/002/L3	Communication and Interpersonal Skills	2	20	Level 3
3	ICT/MOB/003/L3	Teamwork	2	20	Level 3
4	ICT/MOB/004/L3	Fundamentals of Mobile Application Development	4	40	Level 3
5	ICT/MOB/005/L3	Working with Mobile App Development Platforms	4	40	Level 3
6	ICT/MOB/006/L3	Working With Programming Language	4	40	Level 3
TOTAL			**18**	**180**	

National Skill Qualification

LEVEL 3 - MOBILE APPLICATION DEVELOPMENT

Unit 1: OCCUPATIONAL HEALTH AND SAFETY

Unit Reference Number: ICT/MOB/001/L3

Level: 3

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: This unit specifies the competencies required to demonstrate understanding of safe work practices.
Unit Objectives

At the end of this unit, the learner should be able to:

1. Understand about workplace safety.
2. The correct use of signs and symbols.
3. identifying and reducing risks of hazards in the work environment.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)

2. Question and Answer (QA)

3. Witness Testimony (WT)

4. Assignment (ASS), etc.

UNIT 01: OCCUPATIONAL HEALTH AND SAFETY

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Understand Safe working Practices and Instructions	1.1	Explain safe work practice and instructions.									
	1.2	Identify safety signs and symbols.									
	1.3	Use signs and symbols correctly.									
	1.4	Carry out safe work practices and instructions.									
	1.5	Comply to accordance with health and safety best practices.									
LO 2: Demonstrate Understanding of Safety Hazards and risks	2.1	Identify work environment hazards.									
	2.2	List various ways to avoid common workplace hazards									
	2.3	State methods to reduce the risk of work hazards.									
LO 3: Possess the ability to take appropriate actions during accident/injuries	3.1	Identify basic first aid equipment.									
	3.2	identify the benefits of first aid equipment									
	3.3	State how to maintain hygienic, safe and secure workplace.									
	3.4	State the uses of safety equipment in a mobile application work environment.									
LO 4: Demonstrate safe work habit and clean work environment	4.1	Use safe access and exit routes in the work environment.									
	4.2	Have knowledge of safe work habit and clean work environment.									
	4.3	Dispose all wastes appropriately to designated waste facilities									

UNIT 2: COMMUNICATION AND INTERPERSONAL SKILLS

Unit Reference Number: ICT/MOB/002/L3

Level: 3

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: This unit aims to provide the competencies required to demonstrate good communication and interpersonal skills.

Unit Objectives:
This unit aims to train learners the ability to read and understand documented instructions and the ability to know how to communicate respectfully when in a bad mood or under pressure.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO).
2. Question and Answer (QA).
3. Professional Discussion (PD).
4. Reflective Journal (RJ).

UNIT 02: COMMUNICATION AND INTERPERSONAL SKILL

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Demonstrate knowledge of the importance of good communication	1.1	State reasons why good communication is important.								
	1.2	List ways to communicate effectively.								
	1.3	Exhibit patience and a mild demeanour while communicating with colleagues, managers and clients.								
	1.4	Speak in a professional manner.								
	1.5	Use respectful body language even when in a bad mood or while under pressure.								
LO 2: Demonstrate ability to follow documented instructions	2.1	Read accurately follow steps in a mobile framework/plugin installation documentation.								
	2.2	Interpret and understand mobile app documentation.								
	2.3	While programming, find specific class definitions and method descriptions in documentations.								
LO 3: Demonstrate ability to create documented instructions	3.1	Determine what is needed in a documented instruction								
	3.2	Describe how the scope of the documented instruction is valid								
	3.3	Explain the importance of the documented instruction.								

NATIONAL SKILLS QUALIFICATION

LEVEL 3 Mobile Application Development

Unit 3: TEAMWORK

Unit Reference Number: ICT/MOB/003/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: Trainees will learn to work in agile development environments, collaborate with diverse roles such as designers, developers, testers, and product managers, and deliver high-quality applications.

Unit Objectives:

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)

2. Question and Answer (QA)

3. Witness Testimony (WT)

4. Assignment (ASS), etc.

UNIT 03: TEAMWORK

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. No.	Page	
LO 1: Know team roles and responsibilities	1.1	Identify key roles within a mobile app development team.								
		Explain functions of these roles collaborate to complete a project.								
	1.2	Define tasks assignment.								
	1.3	Know importance of cross-functional collaboration between development, design, and testing.								
	1.4	Define Agile Driven Methodologies.								
LO 2: Work collaboratively to contribute to mobile app development goals.	2.1	Explain sprint goals in an agile team.								
	2.2	Describe agile ceremonies such as stand-ups, sprint planning, and retrospectives, contributing to team discussions and decisions.								
	2.3	State tasks assignment on time while aligning personal goals with the team's development goals.								
LO 3: Communicate effectively with team members	3.1	Use communication tools (e.g., Slack, Microsoft Teams) to provide clear and timely updates on development progress, roadblocks, and changes.								
	3.2	Ensure that code changes, pull requests, and project documentation are properly communicated through tools like GitHub, JIRA, or Confluence to maintain team transparency.								
	3.3	Effectively communicate app development progress or technical details to non-technical stakeholders, such as product owners or clients.								
	3.4	Foster a collaborative and inclusive app development environment.								
	3.5	Lead and support teams through app development challenges								
	3.6	Adapt to evolving team structures and project requirements.								
LO 4: Evaluate and enhance team performance in app development projects.	4.1	Participate actively in sprint retrospectives								
	4.2	Review code or project deliverables collaboratively.								
	4.3	Use metrics such as sprint velocity, defect rates, or app performance metrics to evaluate the team's overall success in achieving project								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.				
		goals.										
	4.4	Use version control systems like **Git** to collaborate on code with other developers.										
	4.5	Describe project management platforms like **JIRA**, **Trello**, or **Asana** to track tasks, manage workflows, and ensure everyone is aligned on sprint priorities.										
	4.6	Leverage cloud platforms such as **Firebase**, **AWS**, or **Google Cloud** to collaboratively build, test, and deploy mobile apps.										

Unit 4: FUNDAMENTALS OF MOBILE APPLICATION DEVELOPMENT

Unit Reference Number: ICT/MOB/003/L3

Level: 3

Credit Value: 5

Guided Learning Hours: 50

Unit Purpose:

This unit specifies the competencies required to demonstrate understanding of the fundamentals of mobile applications development. It involves learning about the basics of operating systems, types and features of mobile operating systems.

<u>Prerequisite(s)</u>

Basic Computer Appreciation

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 04: FUNDAMENTALS OF MOBILE APPLICATION DEVELOPMENT

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type						Evidence Ref. Page No.					
LO 1: Understand Basic Software Concepts	1.1	Explain history of software application.												
	1.2	Describe the advantage of mobile application in today's world.												
	1.3	Explain operating System												
	1.4	Identify types of operating systems.												
	1.5	Differentiate between types of desktop operating systems.												
	1.6	Describe Software Development life cycle												
LO 2: Understand Basic Mobile Applications Concepts	2.1	Explain the history of mobile applications.												
	2.2	List types of mobile operating systems.												
	2.3	Differentiate between Native, Hybrid and Web mobile applications.												
LO 3: Understand Mobile Application Development Environment	1.1	Identify Key Components of Mobile Development Tools												
	1.2	Understand Platform-Specific Development Requirements												
	1.3	Describe the Constraints and Features of Mobile Platforms												

Unit 5: WORKING WITH MOBILE APP DEVELOPMENT PLATFORMS

Unit Reference Number: ICT/MOB/004/L3

Level: 3

Credit Value: 6

Guided Learning Hours: 60

Unit Purpose:

This unit aims to equip the learners with skills and knowledge of native and hybrid mobile application development platforms.

Unit Objectives:
At the end of this Unit, trainees should be able to:
1. Understand the various techniques and menus found on the use of integrated development environment (IDE)
2. Demonstrate the ability to start new projects.
3. Write simple mobile applications
4. Preview results on an emulator as well as on a physical device.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)

2. Question and Answer (QA)

3. Witness Testimony (WT)

4. Assignment (ASS), etc.

UNIT 5: Working with Mobile App Development Platforms

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Demonstrate ability to setup mobile applications development environment	1.1	Identify various programming languages used in mobile applications development.									
	1.2	State popular mobile applications development platforms.									
	1.3	Setup a native mobile development platform of choice.									
	1.4	List the steps involved in building an app for execution on an emulator.									
	1.5	List the steps involved in execution on a physical device.									
LO 2: Demonstrate understanding of programming language of choice.	2.1	Understand basic concepts of the language.									
	2.2	identify syntax peculiar to the programming language									
	2.3	Understand the static or dynamic technology involved with the chosen library									
	2.4	Understand the classes and method technicalities involved in the language of choice.									
LO 3: understand project setup, configuration and use of user interface elements.	3.1	Demonstrates the initialization of a new mobile app project on a chosen platform (e.g., Android Studio, Xcode, or Flutter).									
	3.2	Configures platform-specific settings such as app permissions, dependencies, build targets to meet project requirements.									
	3.3	Explains the directory structure and file organization within the mobile development platform.									
	3.4	Manages resources (e.g., images, styles,									

		strings) effectively using platform-specific resource management techniques.										15
	3.5	Utilizes platform-specific UI design tools (e.g., XML in Android, Storyboard in iOS, or Widget tree in Flutter) to create user-friendly layouts.										
	3.6	Add files and resources to the project										
	3.7	Add layouts, buttons, containers, and images into the project view files using IDE user interface design tools										

UNIT 6: WORKING WITH PROGRAMMING LANGUAGE

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1 Understand the Fundamentals of Programming Languages Used in Mobile Development	1.1	Explain the basics of programming languages.									
	1.2	Differentiate the core features of programming languages commonly used in mobile development, such as Java, Kotlin, Swift, and Dart.									
	1.3	Explain syntax, semantics and structure, data types, operators in selected language									
	1.4	Explains the OOP principles of encapsulation in the context of mobile development.									
LO 2: Write Basic Programs	2.1	Develops simple programs to perform tasks such as input/output operations to display "Hello World"									
	2.2	Demonstrates simple programs using arrays and lists.									
	2.3	Apply dictionaries to manage application data.									
LO 3 Implement Programming Constructs to Develop Mobile Application Features	3.1	Selects appropriate data structures for efficient handling of mobile app-specific scenarios, such as user data or settings.									
	3.2	Explains inheritance, and polymorphism in the context of mobile development.									
	3.3	Utilizes built-in libraries to implement features such as file handling.									
	3.4	Utilizes built-in libraries to implement									

		features such as networking										
	3.5	Utilizes built-in libraries to implement features such as database management.										

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