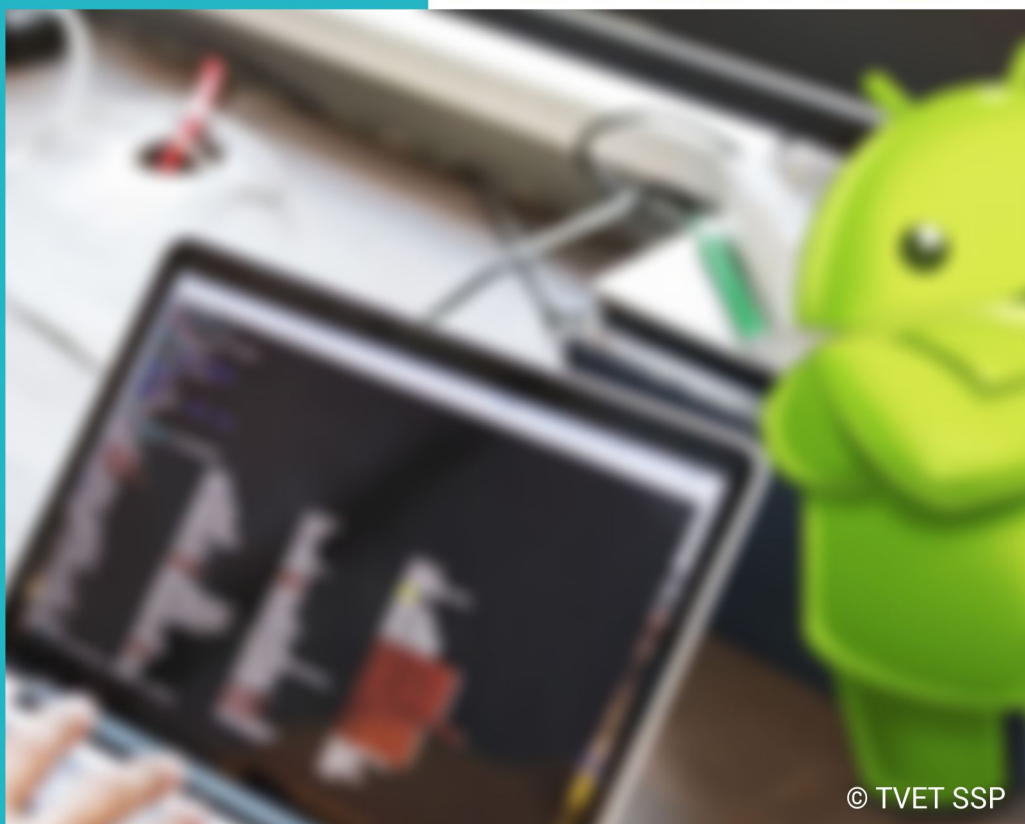


ANDROID APPLICATION DEVELOPER



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Competency Standards
National Vocational Certificate Level 2-4

Version 1 - June, 2019

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Introduction

This course is designed for students who are new to programming, and have a passion to learn how to develop Android apps. The learners will acquire knowledge to create an Android project with Android Studio.

This course will provide the overview and advanced training for Android app development. Android app development is the process by which new smartphone applications are created for devices running the Android operating system. Android apps can be developed using Android Studio (Java / Kotlin) . Each competency standard contains one or more skill-set with hands-on development exercises. Learners taking the course assimilate most of the Android programming concepts and build a variety of apps.

The course will provide learners with an understanding of key points in the Android app development from the initial process to the end product .It is specifically designed to teach the critical skills needed to be successful in this specific field and thoroughly understand the app life cycle and its main components, setting up and understanding of Android Development Environment., identify different techniques to plan, design and prototype of mobile apps before writing any code, Create a graphical user interface (GUI), Designing and building a functional Android application, Debugging Android applications using different tools and plugins, register and publishing on Play Store.

Purpose of the qualification

The competency based NVQ has been developed to train the unskilled men and women of Pakistan on the technical and entrepreneurial skills to be employed / self-employed and inevitably set sustainable impact on their lives by increase in their livelihood income generation.

The purpose of these qualifications is to set professional standards for Android Application Developer experts, who will serve as key elements enhancing quality of Pakistan's Software Developing Industry. The specific objectives of developing these qualifications are as under:

- Develop knowledge, skills and understanding through the making of Android Application that leads to and demonstrates conceptual and technical accomplishment;
- Provide you with an introduction to Computer IT Skills & Mobile App Developer.
- Support you to acquire specialist knowledge and practical experience of developing Android Application.
- Encourage you to test and explore different software for Knowledge, understanding and implementation.
- Enable you to develop an individually negotiated practice informed by a relevant theoretical and contextual framework.
- Produce informed independent and technically sound developers who can adapt their knowledge, understanding and skills for a variety of professional Applications.

Date of Validation

Date of validation by the industry	These national qualifications have been validated by the Qualifications Validation Committee (QVC) on 26.07.2019 in Park Lane Hotel Lahore and will remain currency until 26.07 2021.
Date of review	26.07.2019
Code of qualification	

Members of the Qualification Development Committee

Serial Number	Name	Organization
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2	Rashid Saleem	Freelancer, Fiver
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8	M. Umar Sarwar	Mobile App Developer, Aquile Tech
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10	M. Sajeel	Mobile App Developer, UET Lahore
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20	Saad Saeed	PC- Punjab, GFA
21	Aftab Hussain	Freelancer Consultant
22	Muhammad Ali Butt	Instructor CIT, GTTI Mughalpura, PTEVTA

Entry Requirements

National Vocational Certificate Level-2 Android Application Developer Junior Assistant	Middle with computer skills
National Vocational Certificate Level3 Android Application Developer Assistant	Middle with Hands on Experience or Level 2 in Android Application Developer
National Vocational Certificate Level4 Android Application Developer	Middle with one year of work experience or Level 3 in Android Application Developer

Regulations for the qualification and schedule of units

Not Applicable.

Categorization and Levelling of the Competency Standards

Code	Name of Duty or (Module)	Level	Credit	Category
102200844	Comply Personal Health and Safety Guidelines	2	3	Generic
041700839	Communicate the Workplace Policy and Procedure	2	2	Generic
001100851	Perform Basic Communication (Specific)	2	3	Generic
061100856	Perform Basic Computer Application (Specific)	2	4	Generic
0613001016	Use Information Technology Skills capable of android development	2	11	Functional
0613001017	Use Basics of Programming	2	19	Technical
0613001018	Interpret technical requirements for apps development	2	10	Technical
0613001019	Use Data Bases for apps development Management	2	14	Technical
0613001020	Design User Interface for Mobile Apps	2	12	Technical
102200846	Apply Work Health and Safety Practices (WHS)	3	3	Generic
041700840	Identify and Implement Workplace Policy and Procedures	3	3	Generic
001100852	Communicate at Workplace	3	3	Generic
061100858	Perform Computer Application Skills	3	3	Generic
041300867	Manage Personal Finances	3	3	Generic
0613001021	Develop Android Apps	3	25	Technical
0613001022	Test & Integrate Mobile App Components	3	17	Technical
0613001023	Deploy Mobile Apps	3	7	Technical
0613001024	Use Social Media For Marketing	3	9	Functional
0613001025	Integrate new Features for Android Apps	3	13	Technical
102200848	Contribute to Work Related Health and Safety (WHS) Initiatives	4	3	Generic
041700841	Analysis Workplace Policy and Procedures	4	3	Generic
001100853	Perform Advanced Communication	4	3	Generic
061100858	Develop Advance Computer Application Skills	4	4	Generic
041300869	Manage Human Resource Services	4	2	Generic
041300860	Develop Entrepreneurial Skills	4	3	Generic
0613001026	Undertake research and planning for Apps Development	4	4	Functional
0613001027	Develop and Analyze Algorithm for Coding	4	7	Technical

0613001028	Develop SDLC for Apps development	4	21	Technical Technical
0613001029	Apply Design Patterns for Mobile App	4	12	Technical
0613001030	Develop Professional Android App	4	8	Technical
0613001031	Assure the Quality of Mobile App	4	9	Functional
0613001032	Develop Professionalism capable of Android App Development	4	10	Functional

PACKAGING OF QUALIFICATIONS

The national vocational qualifications are packaged as per following:

0613 ICT 06

National Vocational Certificate
Level-2
Android Application Developer
Junior Assistant

Comply Personal Health and Safety Guidelines

Communicate the Workplace Policy and
Procedure

Perform Basic Communication (Specific)

Perform Basic Computer Application (Specific)

Use Information Technology Skills Capable of
Android Development

Use Basics of Programming

Interpret Technical Requirements for Apps
Development

Use Data bases for apps development
management

Design User Interface for Mobile Apps

Apply Work Health and Safety Practices (WHS)

Identify and Implement Workplace Policy and
Procedures

Communicate at Workplace

Perform Computer Application Skills

Manage Personal Finances

Develop Android Apps

Test & Integrate Mobile App Components

Deploy Mobile Apps

0613 ICT 07

National Vocational Certificate
Level3
Android Application
Developer
Assistant

0613 ICT 08
National Vocational Certificate
Level4
Android Application Developer

Use Social Media for Marketing

Integrate new Features for Android Apps

Contribute to work related Health and Safety (WHS) Initiatives

Analysis Workplace Policy and Procedures

Perform Advanced Communication

Develop Advanced Computer Application Skills

Manage Human Resource Services

Develop Entrepreneurial Skills

Undertake research and planning for Apps development

Develop and Analyze Alogrithm for Coding

Develop SDLC for Apps development

Apply Design Patterns for Mobile App

Develop Professional Android App

Assure the Quality of Mobile App

Develop Professionalism capable of Android App Development

Detail of Competency Standards

102200844 Comply with Perform Personal Health and Safety Guidelines

Overview: This Competency Standard identifies the competencies required to protect/apply occupational Safety, health and Environment at workplace according to the industry's approved guidelines, procedures and interpret environmental rules/regulations. Trainee will be expected to identify and use Personal Protective Equipment (PPE) according to the work place requirements. The underpinning knowledge regarding Observe Occupational Safety and Health (OSH) will be sufficient to provide the basis for the job at workplace.

Competency Units	Performance Criteria
CU1. Identify Personal Hazards at Workplace	P1: Identify risk to personal health P2: Identify hygiene and safety at work place P3: Identify processes P4: Identify tools, equipment and consumable materials that have the potential to cause harm P5: Report, identified risk to Health, hygiene and safety to concerned
CU2. Apply Personal Protective and Safety Equipment (PPE)	P1: List the Personal Protective equipment P2: Select personal protective equipment in terms of type and quantity according to work orders. P3: Wear personal protective equipment according to job requirements. P4: Clean personal protective equipment P5: Stored Personal Protective equipments in proper place after use.
CU3. Comply Occupational Safety and Health (OSH)	P1: Maintain cleanliness and hygiene as per organizational policy P2: Comply with Health, hygiene and safety precautions before starting work P3: Comply organizational Health, hygiene and safety guidelines during work P4: Deal with resolvable problems according to prescribed procedures P5: Report un resolvable problems to concerned

	P6: Place the tools equipment etc at their prescribed place after completion of work
CU4. Dispose of hazardous Waste/materials from the designated area.	<p>P1: Identify hazardous waste materials which needs to be disposed off</p> <p>P2: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure</p> <p>P3: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure</p> <p>P4: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain safety rules and regulations of organization
- K2:** List Personal protection and safety Equipment
- K3:** Describe meaning of Safety signs and symbols
- K4:** Demonstrate understanding of safety related Standard Operating Procedure/guidelines
- K5:** Describe waste disposal SOPs
- K6:** Explain best practices relating to clean and safe work environment

Critical Evidence(s) Required

The candidate needs to produce following critical evidence (s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of maintaining personal health and hygiene practices. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

041700839 Communicate the Workplace Policy and Procedure

Overview: This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.

Competency Units	Performance Criteria
CU1. Identify workplace communication procedures	<p>P1. Identify organizational communication requirements and workplace procedures with assistance from relevant authority</p> <p>P2. Identify appropriate lines of communication with supervisors and colleagues.</p> <p>P3. Seek advice on the communication method/equipment most appropriate for the task</p>
CU2. Communicate at workplace	<p>P1. Use effective questioning, and active listening and speaking skills to gather and convey information</p> <p>P2. Use appropriate non-verbal behavior at all times</p> <p>P3. Encourage, acknowledge and act upon constructive feedback</p>
CU3. Draft Written Information	<p>P1. Identify and comply with required range of written materials in accordance with organizational policy and procedures</p> <p>P2. Draft and present assigned written information for approval, ensuring it is written clearly, concisely and within designated timeframes.</p> <p>P3. Ensure written information meets required standards of style, format and detail.</p> <p>P4. Seek assistance and/or feedback to aid communication skills development</p>
CU4. Review Documents	<p>P1. Check draft for suitability of tone for audience, purpose, format and communication style</p> <p>P2. Check draft for readability, grammar, spelling, sentence and paragraph construction and correct any inaccuracies or gaps in content.</p> <p>P3. Check draft for sequencing and structure</p> <p>P4. Check draft to ensure it meets organizational requirements</p> <p>P5. Ensure draft is proofread, where appropriate, by supervisor or colleague</p>

Knowledge and Understanding

- K1:** Key provisions of relevant regulations that may affect aspects of business operations, such as privacy laws
- K2:** Organizational policies, plans and procedures.
- K3:** Barriers to communication
- K4:** Communication model
- K5:** Verbal and written communication techniques

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

001100851 Perform Basic Communication (Specific)

Overview: This unit describes the skills and knowledge required to assist in the development of communication competence by providing information regarding different forms of communication and their appropriate use.

By the end of this program, learners will be able, to communicate more effectively and efficiently by: working in a team, follow supervisor's instructions and develop generic communication work skills at workplace

Competency Units	Performance Criteria
CU1. Communicate in a team to achieve intended outcomes	P1. Treat team members with respect P2. Maintain positive relationships to achieve common organizational goals P3. Get work related information from team P4. Identify interrelated work activities to avoid confusion P5. Adopt communication skills, which are designed in a team. P6. Identify problems in communication with a team P7. Resolve Communication barrier through discussion and mutual agreement
CU2. Follow Supervisor's instructions as per organizational SOPs	P1. Receive the instructions from Supervisor P2. Carry out the instructions of the supervisor P3. Report to the supervisor as per organizational SOPs
CU3. Develop Generic communication skills at workplace	P1. Develop basic reading skills P2. Develop Basic writing Skills P3. Develop basic listening skills

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** Basic Learn and understand Types of communication
- K2:** Basic Reading Skills
- K3:** Basic Writing skills

- K4:** Basic Verbal communication skills
- K5:** Basic Problem solving skills
- K6:** Basic Self-Management Skills
- K7:** Basic Technology Skills
- K8:** Basic Interview Skills
- K9:** Basic Workplace dress code
- K10:** Basic The role of team members and functionality of the teams

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Make a list of appropriate communication skills with colleagues and supervisors

061100856 Perform Basic Computer Application (Specific)

Overview: This unit describes the skills and knowledge required to use spreadsheet to prepare a page of document, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.

It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility.

Competency Units	Performance Criteria
CU1. Create Word Documents	P1. Open word processing application P2. Create a word document P3. Customize page layout with relevant name setting P4. Set up page in a word document P5. Edit word document as required P6. Use simple formatting tools when creating the document P7. Save word document to directory P8. Insert table in a word document P9. Insert appropriate images into document as necessary P10. Insert header/footer in a word document P11. Insert section break in a word document P12. Set style in word document P13. Select basic Print settings P14. Print the document
CU2. Use internet for Browsing	P1. Use search engines to open website P2. Search data on different topics P3. Refine search to increase relevance of information or content P4. Navigate a website to access the information or content required

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard.

This includes the knowledge of:

- K1:** Describing formatting styles and their effect on formatting, readability and appearance of documents
- K2:** Outline purpose, use and function of word-processing software.
- K3:** Editing in MS Word
- K4:** Formatting in MS word
- K5:** Use of different search engines
- K6:** Use of different web pages

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify the components of computer
- Follow organizational ergonomic work health and safety (WHS) requirements and practices
- Create, open and retrieve documents using customized basic settings
- Format documents by creating tables and adding text, objects and images
- Save and prints documents.

Download

0613001016 Use information technology skills capable of Android Development
--

Overview: This competency standard will enable learners to develop knowledge about basic Fundamentals of IT required to operate system, networking, browsing internet, MS Office, E-Marketing and cyber Laws. After completion of this competency standard Learner will be able to perform networking and internet browsing, use MS Office for various documentation and perform e-marketing at digital platforms according to cyber laws.

Competency Unit	Performance Criteria
CU1. Use IT Fundamentals to operate the computer	<p>P1. Identify the components of computer</p> <ul style="list-style-type: none"> • CPU • Input & Output Devices • Memory & Storage Device <p>P2. Use Operating System</p> <p>P3. Install Basic Computer Software as per requirement</p>
CU2. Perform Networking in regard to Data Communication	<p>P1. Perform connectivity of computers for data sharing</p> <p>P2. Apply Internet Protocol (IP) Address for connectivity</p> <p>P3. Perform basic Troubleshooting commands for networking</p>
CU3. Use internet for Browsing	<p>P1. Perform web surfing to find relevant information</p> <p>P2. Browse information on specific topic (Videos, Images, articles etc)</p> <p>P3. Use digital platforms for communication</p> <ul style="list-style-type: none"> • Gmail • Skype, etc.
CU4. Use MS Office for documentation	<p>P1. Prepare Word document as per required format</p> <p>P2. Prepare Excel Sheet as per given required format</p> <p>P3. Prepare presentation in PowerPoint as per given guidelines</p>
CU5. Follow E-Marketing using digital platforms	<p>P1. Perform E-Marketing using emails.</p> <p>P2. Perform E-Marketing using social media</p>

CU6. Follow Cyber Laws as per relevant industry requirement	P1. Use Internet according to Cyber Laws P2. Use permissible assets according to Cyber Laws
--	--

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand the basics of computer
- K2:** Understand the software
 - System software
 - Application software
- K3:** Understand the basics of networking
- K4:** Understand the types of networking
- K5:** Understand Transmission Control Protocol / Internet Protocol (TCP / IP)
- K6:** Understand HTTP (Hyper Text Transfer Protocol)
- K7:** Understand Internet www (World Wide Web).
- K8:** Understand Website & Blogs.
- K9:** Understand Search Engine
- K10:** Understand MS Office (Word, Excel, Power Point).
- K11:** Understand MS Word writing standards.
- K12:** Understand E-Marketing.
- K13:** Understand Social Marketing strategies.
- K14:** Understand Cyber laws for internet usage
- K15:** Understand importance of Cyber laws

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- (Gather Information on Pakistan Cricket Team)
 - Prepare MS Word document using gathered information.
 - Evaluate Performance of players and prepare Excel Sheet.

- Prepare Presentation on Players Performance.
- Use E-Marketing Platform
 - Search for email marketing platforms
 - Select one from searched platforms
 - Create account on selected platform
 - Send Sample campaign to particular 3 to 4 persons.

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1	Computer	25
2	Internet Connection	In all Computers
3	Software: <ul style="list-style-type: none"> • Web Browser • MS Office 	In all Computers

0613001017 Use Basics of Programming

Overview: This competency standard will enable learners to understand the basics of programming languages, various types of programming applications and languages for mobile app development and basic structure of a program. After completing this competency standard learner will be able to use basic language and object oriented programming for Mobile App..

Competency Unit	Performance Criteria
CU1. Use basic Language for Mobile App	P1. Prepare basic pseudo code as per given algorithm P2. Prepare basic algorithm as per given task P3. Draw flowchart as per given algorithm P4. Introduction of basic programming P5. Write basic program as per given task
CU2. Use Object Oriented Programming	P1. Prepare a class for an object using inheritance as per given requirements. P2. Prepare a basic program by using polymorphism techniques as per given requirements P3. Prepare a basic application as per given requirements.
CU3. Identify Data Structure	P1. Prepare a program to swap data as per given requirements P2. Prepare a program to show contact list by using hash-map techniques as per given requirements

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand basic programming concepts
- K2:** Identify elements of flowcharts
- K3:** Understand advantages of algorithm
- K4:** Understand conditional statements
- K5:** Understand Loops concept for repetition
- K6:** Understand Arrays for data storage
- K7:** Understand Functions for code reusability
- K8:** Understand class, object and instance
- K9:** Understand OOPs (Object Oriented Programming) concepts

- Polymorphism
- Inheritance
- Encapsulation
- Abstraction.

K10: Understand List concepts

K11: Understand Stack

K12: Understand queue

K13: Understand hash-map

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Prepare algorithm as per program requirement
- Develop an application by using OOPS concepts
- Manipulate Data by using structure programming.

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Notepad++	Per each computer
2.	Net Beans	Per each computer
3.	Computer system	25
4.	Multimedia Projector	01
5.	Printer	01
6.	Paper	As required
7.	USB	01
8.	Internet	As per required

0613001018 Interpret Technical Requirements for Apps Development

Overview: This competency standard will help learner to interpret technical texts required for Android App, Identify programming challenges and components for Apps Development. After completion of this competency standard learner will be equipped technical knowledge required for development of Android App.

Competency Unit	Performance Criteria
CU1. Interpret technical texts for required Android App	P1. Create a block diagram for interpreted technical statement P2. Build a report listing functional and non-functional needs of system to be developed.
CU2. Identify Programming challenges for software design	P1. Identify the activities, services, broadcasts, app/ additional resources, app permissions of system P2. Identify any potential challenges and solutions
CU3. Identify Components for Apps Development	P1. Create a Proposal Document based on App requirements specifications.

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand the concept of block diagrams
- K2:** Understand functional and non-functional requirements
- K3:** Understand the key components of Software Requirement Specification Document
- K4:** Understand Android App Fundamental Components
- K5:** Understand the Android Studio Components
- K6:** Understand the Software/Hardware Limitation of Android
- K7:** Understand Mobile Phone Applications Components
- K8:** Understand types of Android Apps
- K9:** Understand the Concepts of Packages and Plugins

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)

- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Make an assignment of types of Android App and their key functionalities
- Create an App Requirement Report document based on problem statement
- Present a Proposal Document among peers and get feedback from them

Tools and Equipment required

The tools and equipment required for this competency standard are given below:

- Android Studio
- Android SDK (Software Development Kit)
- MS Office

0613001019 Use Data Bases for Apps Development

Overview: This competency standard will enable learners to Develop knowledge about managing databases for various types of operations, develop data base for App Development and draw entity relationship diagrams (ERD). After completing this competency learner will be able to draw diagrams, perform operations and develop data base for Apps Development.

Competency Unit	Performance Criteria
CU1. Identify the basics of Data base for Apps Development	P1. Create data tables. P2. Create relationship between tables.
CU2. Draw Entity Relationship Diagrams for Apps Development	P1. Identify system entities and relationships for database as per requirements P2. Create ERD (Entity Relationship Diagram) using software (Microsoft Visio etc.)
CU3. Perform Operations for Database Development	P1. Apply CRUD (Create, Read, Update & Delete) P2. Apply joins P3. Apply aggregate functions P4. Create Stored procedures and views
CU4. Develop Database for Apps development	P1. Apply DDL (Data Definition Language) P2. Develop basic Database Project P3. Configure Database with Applications P4. Apply normalization on database

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand the types of database
- K2:** Understand the basis of relational database
- K3:** Understand Entities
- K4:** Understand relationship between entities
- K5:** Understand ERD development tools
- K6:** Understand basic database operations
- K7:** Introduce joins
- K8:** Understand aggregate functions
- K9:** Understand stored procedures and views

K10: Understand DDL (Data Definitions Language)

K11: Understand database normalization techniques

Critical Evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

The trainee needs to produce following critical evidences in order to be competent in this competency standard:

- Develop relational database for a newly established IT Organization Using SQL Lite.
- The tables must be fully normalized.
- All CRUD operations must be performed on the tables.
- Number of entities must be at least three.

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Android Studio	As per requirement
2.	Android SDK (Software Development Kit)	As per requirement
3.	MS Access, SQLite Browser	As per requirement

0613001020 Design User Interface for Mobile Apps

Overview: This competency standard will help learners to understand basics of wireframes, graphic user interface, user case and elements of interface. After completion of this competency standard, The learner will have hands on experience to make wireframes and graphic user interface.

Competency Unit	Performance Criteria
CU1. Make Wireframes	P1. Make sketch as per requirement P2. Make wireframe as per provided sketch
CU2. Make Graphic User Interface	P1. Make prototype using up-to-date design software P2. Make final design using up-to-date design software P3. Apply transition using up-to-date design software
CU3. Prepare Use Case	P1. Prepare Use Case Diagram using relevant software as per given requirement P2. Create paths and user scenario as per provided document P3. Make relationship and system boundaries as per given requirement
CU4. Identify the Elements of the Interface	P1. Perform content prioritization as per design requirement P2. Apply space distribution as per design requirement P3. Apply intendant action as per design requirement P4. Perform input controls

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand Fundamental of wireframe
- K2:** Understand user requirements
- K3:** Understand all the basic user interface components that are common in all mobile platforms.
- K4:** Understand Transition
- K5:** Understand Use Case diagram
- K6:** Understand the difference between Functional and Non-Functional Requirement

Critical evidence(s)

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Design basic user interface as per given requirement.
- Make Use Case diagram as per given requirement

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1	Adobe XD	1
2	Visio	1
3	Computer	25
4	Memory Stick	01
5	Printer	01
6	Scanner	01
7	Internet	For Each Pc
8	Paper	A4 Rim (As per requirement)
9	Pencils	25
10	Sharpener	25
11	Eraser	25
12	Chart	As per requirement
13	Color Pencils	25 sets
14	Software DVD's	25

102200846 Apply Work Health and Safety Practices (WHS)

Overview: This unit describes the skills to work with safety and participate in hazard assessment activities, follow emergency procedures and participate OHS practices in process.

Competency Units	Performance Criteria
CU1. Implement safe work practices at work place	<p>P1. Implement relevant rules and procedures of WHS at work place.</p> <p>P2. Comply with duty of care requirements</p> <p>P3. Use personal protective equipment according to safe work practices</p> <p>P4. Contribute to WHS consultative activities</p> <p>P5. Raise WHS issues with relevant personnel</p>
CU2. Participate in hazard assessment activities a work place	<p>P1. Identify hazards or WHS issues in the workplace to relevant personnel</p> <p>P2. Assess and control risks according to own level of responsibility, in line with workplace procedures</p> <p>P3. Report hazards or WHS issues in the workplace to relevant personnel</p> <p>P4. Document risk control actions as required</p>
CU3. Follow emergency procedures at workplace	<p>P1. Report emergencies or incidents promptly to relevant personnel</p> <p>P2. Deal with emergencies in line with own level of responsibility</p> <p>P3. Implement evacuation procedures as required</p>
CU4. Participate in OHS consultative processes	<p>P1. Contribute to workplace meetings, inspections or other consultative activities</p> <p>P2. Raise OHS (Occupational Health and Safety) issues with designated persons in accordance with organizational procedures</p> <p>P3. Take actions to eliminate workplace hazards or to reduce risks</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Outline the WHS rights and responsibilities that apply to own role
- K2:** Explain the term duty of care
- K3:** Describe typical health and safety roles in the workplace
- K4:** List and describe common safety signs and symbols
- K5:** Explain procedures for reporting hazards, risks, incidents and accidents
- K6:** Identify and describe common hazards and major causes of accidents relevant to the workplace
- K7:** Explain what the term risk control means
- K8:** List and describe potential emergency situations and how to respond to them

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

Demonstrate evidences of the Health and safety Processes to avoid any incident.

041700840 Identify and Implement Workplace Policy and Procedures

Overview: This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

Competency Units	Performance Criteria
CU1. Identify workplace policy & procedures	<p>P1. Identify the workplace policy & procedures</p> <p>P2. Apply appropriate strategies that can be used to measure whether your workplace health and safety obligations are being met.</p> <p>P3. Assure the policies are realistic, resources and personnel to implement</p> <p>P4. Implement the policy & procedures that reflects the organizations commitments</p> <p>P5. Ensure the appropriate methods of implementation, outcomes and performance indicators</p>
CU2. Implement workplace policy & procedures	<p>P1. Apply and assign responsibility for recording systems to track continuous improvements in policy & procedures</p> <p>P2. Implement strategies for continuous improvement in effective and efficient information</p>
CU3. Communicate workplace policy & procedures	<p>P1. Communicate procedures to help implement workplace policy</p> <p>P2. Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities</p>
CU4. Review the implementation of workplace policy & procedures	<p>P1. Identify the trends that may require remedial actions</p> <p>P2. Record the trends that may require remedial actions.</p> <p>P3. Ensure policy and procedures as required are made for continuous improvement of performance</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Legislation, regulations and codes of practice applicable to the organization
- K2:** internal and external sources of information and organizational policy & procedures
- K3:** Typical barriers to implementing policies and procedures in an organization.

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

Identify evidences of the ability to implement work place policy and procedures.
briefly identify work place procedures to avoid incident.

Overview: This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.

Competency Units	Performance Criteria
CU1. Communicate within the organization	P1. Communicate within a department P2. Communicate with other departments. P3. Use various media to communicate effectively P4. Communicate orally and written
CU2. Communicate outside the organization	P1. Deal with vendors P2. Deal with clients/customers P3. Interact with other organisations P4. Use various media to communicate effectively P5. Work with people of different cultures / backgrounds
CU3. Communicate effectively in workgroup	P1. Assess the issues to provide relevant suggestion to group members P2. Resolve the issues/ problems /conflicts within the group P3. Arrange group working sessions to increase the level of participation in the group processes P4. Communicate messages to group members clearly to ensure interpretation is valid P5. Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices P6. Act upon constructive feedback
CU4. Communicate in writing	P1. Identify relevant procedures for written information P2. Use strategies to ensure correct communication in writing .i.e. <ul style="list-style-type: none"> • correct composition • clarity • comprehensiveness • accuracy • appropriateness P3. Draft assigned written information for approval, ensuring

	<p>it is written within designated timeframes</p> <p>P4. Ensure written information meets required standards of style, format and detail</p> <p>P5. Seek assistance / feedback to aid communication skills development</p>
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Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** Importance of intra and inter organizational communication
- K2:** Basics of business communication
- K3:** Defining Modes of communication
- K4:** Effective communication in workgroup
- K5:** Communicating through writing
- K6:** The importance of teamwork

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

In your current position, what types of written communication do you use most often? (List them all).

061100858 Perform Computer Application Skills

Overview: This unit describes the skills and knowledge required to use spreadsheet applications, prepare in page documents, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.

It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility.

Competency Units	Performance Criteria
CU1. Prepare In-page documents as per required information	P1. Set keyboard preferences according to information requirements P2. Layout Page according to information requirements P3. Toggle between Languages P4. Identify the usage of tool bar P5. Insert Columns as per requirement P6. Print the document
CU2. Prepare Spreadsheets as per required information	P1. Create workbook according to information requirements P2. Insert sheet according to information requirements P3. Enter basic formulae / functions using cell referencing when required P4. Correct formulas when error messages occur P5. Use a range of common tools during spreadsheet development P6. Edit columns and rows within the spreadsheet Filter data P7. Save the spreadsheet to a folder on a storage device P8. Format spreadsheet using formatting features as required P9. Incorporate object and chart in spreadsheet P10. Print spreadsheet
CU3. Use MS Office as per required information	P1. Use Microsoft Word for documentation P2. Use Microsoft Excel for documentation P3. Use Microsoft PowerPoint for presentation P4. Perform OneNote P5. Perform Outlook for emails P6. Perform Publisher applications

CU4. Perform computer graphics in basic applications	P1. Perform graphic fundamentals in basic applications P2. Draw Points and lines to make images P3. Draw Dots in space to make images P4. Draw lightening blot Shapes to make images P5. Enlarge circles and rectangles to block in forms
CU5. Create Email account for communications	P1. Make email account for communications P2. . Compose text of an email message according to organizational guidelines as required P3. Create an automatic signature for the user P4. Attach files to email message where required P5. Send email message P6. Reply to / forward a received message using available features P7. Save an attachment to the relevant folder P8. Save email message using available settings P9. Adjust email accounts to restrict and quarantine possible email security problems <ul style="list-style-type: none"> • Print email message as per requirements

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** List basic technical terminology related to reading help files and prompts
- K2:** Explain the effect of formatting and appearance on the readability and usability of spreadsheets
- K3:** Outline log-in procedures relating to accessing a personal computer (PC)
- K4:** Describe the purpose, use and function of spreadsheet applications.
- K5:** Understand **MS Word** to create documents, flyers, publications
- K6:** Understand **MS PowerPoint** to create presentations
- K7:** Understand **MS Excel** to store, organize, and manipulate data
- K8:** Understand **OneNote** to organize data you collect including handwritten notes, drawings, screen captures, audio clips, and more
- K9:** Understand of **Publisher** to create extensive publications, posters, flyers, menus
- K10:** Understand **Outlook** to manage email and calendars, to do lists, and contacts

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Create spreadsheets
- Customize basic settings
- Format spreadsheets
- Apply basic formulas
- Insert objects and charts in spreadsheets
- Save and print spreadsheets.

041300867 Manage Personal Finances

Overview: This unit of competency describes the outcomes required to manage develop, implement and monitor a personal budget in order to plan regular savings and manage debt effectively.

Competency Units	Performance Criteria
CU1. Develop a personal budget	<p>P1. Calculate current living expenses using available information to prepare a personal budget.</p> <p>P2. Keep a record of all income and expenses for a short period of time to help estimate ongoing expenses.</p> <p>P3. Subtract total expenses from total income to determine a surplus or deficit budget for the specified period.</p> <p>P4. Find reasons for a deficit budget and ways to reduce expenditure identified.</p> <p>P5. Identify ways to increase income</p>
CU2. Develop long term personal budget	<p>P1. Analyze income and expenditure and set long term personal financial goals.</p> <p>P2. Develop a long-term budget based on the outcomes of short-term budgeting.</p> <p>P3. Identify obstacles that might affect the business</p> <p>P4. Formulate a regular savings plan based on budget</p>
CU3. Identify ways to maximize future finances	<p>P1. Determine sources to maximize personal income,</p> <p>P2. Get further education or training to maintain or improve future income.</p> <p>P3. Identify the need for debt to finance living and other expenses,</p> <p>P4. Determine the appropriate levels of debt and repayment.</p> <p>P5. Consolidate existing debt, where possible, to minimize interest costs and fees.</p> <p>P6. Seek professional money management services.</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain the abilities to plan and organize to keep records and monitor a personal budget
- K2:** Describe abilities to set and review goals
- K3:** Explain basic financial management and record keeping to enable development and management of a personal budget
- K4:** Describe benefits of financial goal setting and personal budgeting to enable effective management of personal finances
- K5:** Outline numeracy skills to compare income and expenditure

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

Demonstrates competency to provide evidence of the ability to manage personal finances. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

0613001021 Develop Android Apps

Overview: In this competency standard learners will be able to understand the basic knowledge required to install Android Studio, create user interface, apply user input, use multiple screens, connect apps with network and use data storage management. After Completing this competency standard learner will be able to install Android studio along with required software and applications.

Competency Unit	Performance Criteria
CU1. Install Android Studio capable of Android Development	P1. Install Java Development Kit (JDK) for Android Studio according to requirement P2. Install Android Studio for Development P3. Connect Physical Device for Testing P4. Create Emulator for Testing
CU2. Create User Interface	P1. Create a new Project using android studio P2. Create Activity and Fragments P3. Create Layout by using View Elements P4. Make Layout Responsive for Different Screens
CU3. Apply User Input	P1. Make App Interactive for Users P2. Process data from the prospective of generating results.
CU4. Use Multi Screens app	P1. Create Multi-Screen App using different Activities P2. Create Multi-View App using Fragments
CU5. Connect Apps with Network	P1. Use Java Script Object Notation (JSON) parsing for the creation of Plain Old Java Object (POJO) P2. Establish connection with source network for getting relevant data
CU6. Use Data Storage Management	P1. Use internal file storage for data management P2. Use external file storage for data management P3. Use shared-preferences for data management P4. Use databases for structures data management

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand Installation Requirements for Android Studio
- K2:** Understand Installation & Configuration of Android JDK & Android Studio
- K3:** Understand Physical & Virtual Device
- K4:** Understand Android Studio components
- K5:** Understand User Interface
- K6:** Understand basic view Elements like Text View, Edit Text, Button, Image View, etc.
- K7:** Understand View Groups like Linear Layout, Relative layout, Frame Layout, etc.
- K8:** Understand how to communicate with layout programmatically
- K9:** Understand Parent and Child Activities
- K10:** Understand Fragments
- K11:** Understand difference between Activity and Fragment
- K12:** Understand Java Script Object Notation JSON parsing
- K13:** Understand Http Request & response
- K14:** Identify source network
- K15:** Understand main and background threads
- K16:** Understand of internal and external file storage
- K17:** Understand shared-preferences & databases

Critical evidence(s) Required

The candidate needs to produce any or all the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Validate Android Development Environment after installation & configuration
- Assignment: Quiz App using SQLite

Tool(s) and Equipment(s) Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computer System (Ref: Minimum SSD 240, 8GB RAM)	As per software requirement
2.	Computer Software (JDK, Android Studio)	As per requirement
3.	Internet	1
4.	USB Device	2
5.	Network Printer	1
6.	Scanner	1

0613001022 Test & Integrate Mobile App Components

Overview: This competency standard will help equip learners with knowledge of performing various types of Testing. After completion of this competency standard learner will be able to perform testing of user interface, unit integration and compatibility.

Competency Unit	Performance Criteria
CU1. Perform User Interface Testing	P1. Verify the responsiveness of application P2. Verify the flow of application P3. Test the main design of app elements P4. Apply testing tools
CU2. Perform Unit Testing	P1. Apply testing techniques. <ul style="list-style-type: none">• Statement coverage• Branch coverage P2. Apply unit testing tools using JUnit P3. Identify test cases for unit testing
CU3. Perform Integration Testing	P1. Perform integration of different units/modules using Android Studio P2. Perform integration testing using Android Studio
CU4. Perform Compatibility Testing	P1. Perform testing under different environments <ul style="list-style-type: none">• Run the software in different android versions• Run on different machines• Run on different networks P2. Validate the system in different environment

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand the need for testing
- K2:** Understand user interface testing
- K3:** Understand mobile app test cases
- K4:** Understand Unit Testing techniques
- K5:** Understand Integration using Android Studio
- K6:** Understand need for compatibility testing

K7: Understand different testing environments

- Real environments
- Virtual environments

Critical evidence(s) required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Unit testing and integration testing using Android Studio
- Perform integration testing in virtual and real environments
- Perform Compatibility of app under different environments

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computers (as per software requirement)	25
2.	Android Studio	25

0613001023 Deploy Mobile Apps

Overview: This competency standard will enable learners to carry out in-depth market research for building marketing strategies, making plans, ensure security measures and deploy application. After completion of this competency unit learner will be able to deploy the application successfully.

Competency Unit	Performance Criteria
CU1. Carry out in depth Research Market	P1. Identify different available market places P2. Perform target market research P3. Perform target market analysis P4. Perform competitor market research P5. Perform competitor market Analysis
CU2. Build Marketing Strategy	P1. Plan a marketing strategy based on marketing analysis P2. Make presentable graphics of App P3. Make effective introductory story and preview video P4. Make executable strategy based on market research
CU3. Plan for Google Play Store Optimization	P1. Enlist app features P2. Find App Store keywords for optimization P3. Make optimization plan based on keywords and features
CU4. Ensure Security Measures	P1. Perform User Authentication Measures P2. Perform Data Protection Measures
CU5. Deploy an Application on App Store	P1. Create account on google play store P2. Upload Build File with proper details P3. Verify details before publishing the app

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand market place
- K2:** Understand target audience age, gender, location etc.
- K3:** Identify competitors
- K4:** Understand gathered market research
- K5:** Understand social marketing techniques
- K6:** Understand marketing strategy

- K7:** Understand basics of ASO (App Store Optimization)
- K8:** Understand mechanics of ASO
- K9:** Understand App authentication
- K10:** Understand intellectual property
- K11:** Understand cryptography
- K12:** Understand tokenization
- K13:** Understand optimization plan
- K14:** Understand Play Store policies

Critical evidence(s) Required

The candidate needs to produce any or all the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Deploy sample App on Play Store

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	MS Word	As per requirement
2.	Web Browser (chrome/Firefox etc.)	
3.	Computer.	25

0613001024 Use Social Media for Marketing

Overview: This competency standard will provide skills and knowledge for applying and performing optimization and analytics. After completion of this competency standard learner will be able to brand the app on social media successfully.

Competency Unit	Performance Criteria
CU1. Apply Play Store Optimization	P1. Optimize app store to improve the accessibility of a mobile app in the Google Play store as per given application P2. Use any ASO Tool to optimize app in google play store
CU2. Perform Play Store Analytics	P1. Analyze reports as per given app P2. Integrate google analytics with given app
CU3. Use Ad Network Integration	P1. Create AdMob account and register app P2. Include ads in your app as client requirement: <ul style="list-style-type: none">• banner ads• rewarded ads• Interstitial ads
CU4. Brand the App on Social Media	P1. Promote App with Social Media Influencers as per given instructions of Google Play Store P2. Offer free promotions in exchange for App downloads as per required task P3. Analyze Social Media Demographics on Channel (e.g. Facebook, YouTube, LinkedIn etc.) as per given instructions

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

K1: Explain App Store Optimization

K2: Describe various component of App store optimization

- App icon
- App title
- App description
- Screenshot

- Keywords
- App Localization
- Total number of downloads
- Rating and reviews

K3: Understand Google analytics

K4: Understand google analytic layouts

K5: Understand Ad Network Integration

K6: Understand the types of Ad format

K7: Understand the integration of ads with mobile app

K8: Understand social media marketing

K9: Understand special promotions for a specific brand

K10: Understand demographics for promotion

Critical evidence(s) required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Apply app store optimization
- Integrate Google analytics with given app
- Analyze Social Media Demographics on Channel (e.g. Facebook, youtube, linkedin etc.) As per given instructions

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computer system	25
2.	Multimedia Projector	01
3.	Printer	01
4.	Paper	As per requirement
5.	USB Device	01

6.	Emulator	For each PC
7.	Android Phone	As per requirement
8.	Android studio	For each PC
9.	Internet Facility	As per requirements

0613001025 Integrate New features for Android Apps

Overview: This competency standard will provide skills and knowledge about integrating new feature in Android App. Learner will be able to ensure simplicity in design, how to maintain ongoing evaluation and security matters. After completion of this competency standard learner will be able to integrate new features for android apps.

Competency Unit	Performance Criteria
CU1. Ensure Simplicity in Design	P1. Create simple design to fulfill the requirements P2. Implement backend functionality on design to make the design functional P3. Test design on different screens resolutions
CU2. Maintain Ongoing Evaluation	P1. Maintain application code as per new technology P2. Maintain application database size for better application performance P3. Maintain application storage capacity for better memory management
CU3. Measure the Security Matters	P1. Check leakage of web API's to ensure vulnerability P2. Enable the code for better security measures
CU4. Integrate with Bigger Eco-Systems	P1. Check third party API compatibility P2. Connect 3 rd party Application Programming Interface (API) using Android Studio
CU5. Follow Business Driven Solution	P1. Add New features in the App as per requirement P2. Finalize up gradation of App

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Understand new features in existing Android applications
- K2:** Understand requirement gathering
- K3:** Understand testing for information leakage
- K4:** Understand API functionality
- K5:** Understand JSON (Java Scripts Object Notation)
- K6:** Know REST (Representational State Transfer) API
- K7:** Understand how to add new feature in documentation

K8: Understand App Up gradation

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Create a screen design by using simplest layout approach responsive for all android screen resolutions
- Convert a piece of code from old technology to new technology
- Enable pro-guard feature for better security
- Integrate a payment method API in Android App
- Add new features in android app and upgrade version

Tools and Equipment required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Android Studio	25
2.	Computers	25
3.	Memory Sticks	01
4.	Printer	01
5.	Scanner	01
6.	Internet	As Per Each PC

102200848 Contribute to Work Related Health and Safety (WHS) Initiatives

Overview: This unit describes the skills and knowledge required to manage the identification, review, development, implementation and evaluation of effective participation and consultation processes as an integral part of managing work health and safety (WHS).

Competency Units	Performance Criteria
CU1. Contribute to initiate work-related health and safety measures	<p>P1. compile database on work-related health and safety</p> <p>P2. Identify measures that address legal obligations.</p> <p>P3. Consult with individuals/ parties to formulate measures and initiatives</p> <p>P4. Consult with individuals/parties to identify factors impacting on work-related health and safety</p> <p>P5. Participate in consultative meetings.</p>
CU2. Contribute to establish work-related health and safety measures	<p>P1. Assist in planning of work-related health and safety measures</p> <p>P2. Contribute to the development of work-related health and safety measures</p> <p>P3. Identify to implement work-related health and safety measures i.e.</p> <ul style="list-style-type: none"> • resourcing requirements, • timelines • responsibilities <p>P4. Assist to implement work-related health and safety measures and initiatives i.e.</p> <ul style="list-style-type: none"> • scheduling • liaison • administering resources • communication
CU3. Contribute to ensure legal requirements of WHS measures	<p>P1. Identify WHS legal requirements</p> <p>P2. Apply knowledge of all aspects of WHS measures to</p> <ul style="list-style-type: none"> • Consultation • workplace policies • participation processes <p>P3. Ensure, WHS measures are in accordance with legal requirements</p>

CU4. Contribute to review WHS measures	<p>P1. Develop effective practices to review work-related health and safety measures</p> <p>P2. Assist individuals and parties related to WHS measures in following activities</p> <ul style="list-style-type: none"> • preparing reports • communicating review • evaluating outcomes
CU5. Evaluate the organization's WHS system	<p>P1. Assess ongoing compliance with OHS (Occupational Health and safety)</p> <p>P2. Take feedback from concerned persons regarding WHS measures.</p> <p>P3. Assess the overall effectiveness of WHS management practices</p> <p>P4. Assist the development process of WHS measures in following ways</p> <ul style="list-style-type: none"> • Suggest amendments • Document amendments • Implement amendments <p>P5. Take feedback from concerned persons regarding WHS measures.</p> <p>P6. Communicate improvements in WHS Measures</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain the application of relevant mandatory health monitoring, including biological monitoring, to help secure work health and safety
- K2:** Explain the difference between work-related health and safety measures and initiatives designed to meet specific legislative requirements and obligations, and those designed to support non-statutory health promotion programs, and give examples of each
- K3:** List factors that impact on work-related health and safety and their potential effects
- K4:** Identify internal and external sources of WHS information and data, and how to access them

- K5:** Outline organizational WHS and other relevant policies, procedures, processes and systems, including human resources
- K6:** Summarize relevant WHS legislation, other legislation (such as privacy and workers compensation) and common law rights and duties specific to work-related health and safety measures and initiatives
- K7:** Describe work-related health and safety measures and initiatives that either address specific legislative requirements and obligations, or support non-statutory health prevention programs, including:
- The factors impacting on worker health and safety that they address
 - Effectiveness
 - Costs and benefits
 - Criteria for decisions regarding their implementation in a specific workplace
 - How they should be implemented.

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to contribute work-related health and safety measures and initiatives. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

041700841 Comply with Workplace Policy and Procedures

Overview: This unit describes the skills and knowledge required to implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

Competency Units	Performance Criteria
CU1. Manage work timeframes	<p>P1. Complete work tasks within deadlines in according to order of priority</p> <p>P2. Supervisors are informed of any delays in work times or projects</p>
CU2. Manage to convene meeting	<p>P1. Develop agenda in line with meeting purpose</p> <p>P2. Select participants and notify them accordingly</p> <p>P3. Carryout meeting arrangements according to the time</p> <p>P4. Record the minutes of the meeting</p>
CU3. Decision making at workplace	<p>P1. Identify the problem, challenge or opportunity</p> <p>P2. Generate an array of possible solutions or responses</p> <p>P3. Evaluate the costs and benefits associated with each option</p> <p>P4. Assess the impact of the decision and modify the course of action as needed</p>
CU4. Set and meet own work priorities at instant	<p>P1. Take initiative to prioritize and facilitate competing demands to achieve organizational goals and objectives</p> <p>P2. Use technology efficiently and effectively to manage work priorities and commitments</p> <p>P3. Maintain appropriate work-life balance</p>
CU5. Develop and maintain professional competence	<p>P1. Assess personal knowledge and skills against competency</p> <p>P2. Participate in networks to enhance personal knowledge, skills and work relationships</p> <p>P3. Seek feedback from employees, clients and colleagues to develop and improve competence</p>

CU6. Follow and implement work safety requirements	P1. Identify and report emergency incidents P2. Practice organizational policy and procedures for responding to emergency incidents P3. Identify and implement workplace procedures and work instructions for controlling risks
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Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Healthy work life balance
- K2:** Meeting terminologies, structures and arrangements
- K3:** Relevant organizational procedures and policies regarding meetings, chairing and minutes.
- K4:** Barriers to implement policies and procedures in an organization and possible strategies to address them.

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to understand workplace policy and procedures. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments

001100853 Perform Advanced Communication

Overview: This unit describes the performance outcomes, skills and knowledge required to develop communication skills used professionally. It covers plan and organise work and conduct trainings at workplace, along with demonstrating professional skills independently.

Competency Units	Performance Criteria
CU1. Demonstrate professional skills	<p>P1. Use different modes of communication to communicate</p> <ul style="list-style-type: none"> • Speaking • Reading • Writing • Listening • Presentation • visual representation etc <p>P2. Develop CV Skills according requirements</p> <p>P3. Upgrade professional skills by attending trainings, webinars, conferences etc.</p> <p>P4. Perform Continuous professional development as required at workplace</p> <p>P5. Develop interview skills</p>
CU2. Plan and Organize work	<p>P1. Identify task requirements.</p> <p>P2. Plan steps to complete tasks.</p> <p>P3. Review planning and organizing process.</p> <p>P4. Organize work.</p>
CU3. Provide trainings at workplace	<p>P1. Assess the need for training</p> <p>P2. Prepare trainees for the learning experience</p> <p>P3. Present training session</p> <p>P4. Support trainees in managing their own learning</p> <p>P5. Facilitate group learning</p> <p>P6. Provide opportunity for practice</p> <p>P7. Provide feedback on progress on trainees</p> <p>P8. Review delivery experience</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard.

This includes the knowledge of:

- K1:** Explaining the training skills
- K2:** Identification of the professional skills
- K3:** Describing the advanced language skills
- K4:** Understanding of the assessment and trainees feedback methods
- K5:** Direct and indirect communication methods
- K6:** Explaining the need of the training type at the work place

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Job sheet
- Office emails and coordination reports
- Feedback proforma

Overview: This unit provides an overview of Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards, i.e. Data Entry, Power Point Presentation and managing data base and graphics for Design

It applies to individuals employed in a range of work environments who need to be able to present a set range of data in a simple and direct forms

Competency Units	Performance Criteria
CU1. Manage Information System to complete a task	<p>P1. Perform Data Entry in MS office</p> <p>P2. Manage File/folder in MS office</p> <p>P3. Perform Scanning of document</p> <p>P4. Maintain Office Record in drives</p> <p>P5. Perform Printing of document</p> <p>P6. Search required Files/Folders</p> <p>P7. Convert Files in required format.</p> <p>P8. Manage sizes of Files/Folders</p> <ul style="list-style-type: none"> • Compress • Zip /unzip
CU2. Prepare Presentation using computers	<p>P1. Prepare presentation as per requirements, i.e.</p> <ul style="list-style-type: none"> • Open blank presentation and add text / graphics • Create a simple design for a presentation • Apply existing styles within a presentation • Use presentation template and slides to create a presentation • Use various tools to improve the look of the presentation • Save presentation to the appropriate storage device and folder with required name <p>P2. Customize basic settings to meet user requirements</p> <p>P3. Format presentation as require</p> <ul style="list-style-type: none"> • Develop organizational charts • Add objects and manipulate to meet presentation purposes • Modify slide layout, including text and colours, to meet

	<p>presentation requirements</p> <ul style="list-style-type: none"> • Save presentation in another format • Save to storage device and close presentation <p>P4. Add slide show effect into presentation as required to enhance the presentation</p> <ul style="list-style-type: none"> • Incorporate pre-set Animation • Apply Multimedia effects • Record Narration • Apply hyperlink • Apply video • Rehearse Timings • Test presentation for overall effect <p>P5. Print the presentation</p> <ul style="list-style-type: none"> • Select appropriate print format for presentation • Select preferred slide orientation • Add notes and slide numbers • Preview slides and run spell check before presentation • Print selected slides and submit presentation to appropriate person for feedback <p>P6. Practice verbal presentation</p> <p>P7. Practice presentation through AV Aids</p>
<p>CU3. Use Microsoft Access to manage database</p>	<p>P1. Collect the data using a standard data base package.</p> <p>P2. Start access to manage database .i.e.</p> <ul style="list-style-type: none"> • identify problem statement of Data • Develop a table with fields /attributes according to database usage/ user requirements • Create a primary key and establish an index for each table • Modify table layout and field attributes as required • Create a relationship between the two tables • Add data in a table according to information requirements • Add records as required • delete records as required • Save database to storage area • close down database to storage area • Apply criteria in the following Query

	<ul style="list-style-type: none"> • SQL view of Query • Wildcards of query • Query Criteria <p>P3. Customize basic settings:</p> <ul style="list-style-type: none"> • Adjust page layout to meet user requirements • Open and view different toolbars • Format font as appropriate for the purpose of the database entries • Create reports • Design reports to present data in a logical sequence • Modify reports to include or exclude additional requirements • Distribute reports to appropriate person in a suitable format <p>P4. Create forms</p> <ul style="list-style-type: none"> • Use a wizard to create a simple form • Open existing database and modify records through a simple form • Rearrange objects within the form to accommodate information requirements
CU4. Develop graphics for Design	<p>P1. Develop graphic design concepts based on a thorough understanding of the communication need</p> <p>P2. Use design techniques confidently to produce designs</p> <p>P3. Integrate design tools skillfully to produce designs</p> <p>P4. Evaluate the success of completed designs to meet objectives</p> <p>P5. evaluate feedback from client / peers</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1:** List basic technical terminology to read help files and prompts
- K2:** Outline the different types of formal and informal presentations
- K3:** Explain Power point presentation
- K4:** Segregation of Data
- K5:** Define the relation among data
- K6:** Define criteria in the query
- K7:** Creates and modify reports and forms.
- K8:** Outline basic database design principles
- K9:** Current graphic design software
- K10:** Discuss features of current and emerging technologies used in graphic design practice and the options they present for effective graphic design solution

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Design and develop a simple database using a standard database package
- Create, format and prepare presentations for distribution and display
- Customize basic settings
- Add slide show effects.
- Generate employment report from given data by using Microsoft Access.

Overview: This unit describes the skills and knowledge required to plan, manage and evaluate delivery of human resource services, integrating business ethics. It applies to individuals with responsibility for coordinating a range of human resource services across an organization. They may have staff reporting to them.

Competency Units	Performance Criteria
CU1. Determine strategies for delivery of human resource services	<p>P1. Analyze business strategy and operational plans to determine human resource requirements</p> <p>P2. Review external business environment that likely impact on organization's human resource requirements</p> <p>P3. Consult line and senior managers to identify human resource needs in their areas</p> <p>P4. Review organization's requirements for diversity in the workforce</p> <p>P5. Deliver human resource services that comply with business goals</p> <p>P6. Develop strategic action plan for delivery of human resource services</p> <p>P7. Develop roles and responsibilities of human resource team</p> <p>P8. Develop quality assurance policy</p>
CU2. Manage the delivery of human resource services	<p>P1. Communicate human resource strategies and services to internal and external stakeholders</p> <p>P2. Develop and negotiate service agreements between</p> <ul style="list-style-type: none"> • The human resource team, • Service providers • Client groups <p>P3. Document service specifications, performance standards and timeframes</p> <p>P4. Document /communicate service</p> <ul style="list-style-type: none"> • Specifications, • Performance standards • Timeframes <p>P5. Monitor Quality assurance processes</p> <p>P6. Ensure that services are delivered by appropriate providers, according to service agreements and operational plans</p>

	P7. Identify underperformance of human resource team or service providers
CU3. Evaluate human resource service delivery	P1. Establish Management information system for human resource services P2. Conduct survey to determine level of satisfaction P3. Analyze feedback of survey P4. Recommend changes to service delivery P5. Support agreed change processes across the organization
CU4. Manage integration of business ethics in human resource practices	P1. Ensure ethics in personal behavior P2. Ensure code of conduct is observed across the organization, P3. Observe confidentiality requirements in dealing with all human resource information P4. Deal promptly with unethical behavior P5. Ensure all persons responsible for human resource functions understand requirements regarding their ethical behavior

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Identify the key provisions of legal and compliance requirements that apply to managing human resources
- K2:** Summarize the organization's code of conduct
- K3:** Explain human resource strategies and planning processes and their relationship to business and operational plans
- K4:** Describe performance and contract management
- K5:** Explain how feedback is used to modify the delivery of human resources.

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to manage human resource services. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Plan and manage human resource delivery within legislative, organizational and business ethics frameworks
- Communicate effectively with a range of senior personnel
- Identify and arrange training support where appropriate
- Calculate human resource return on investment within the organization.

Overview: This Competency Standard identifies the competencies required to develop entrepreneurial skills, in accordance with the organization's approved guidelines and procedures. You will be expected to develop a business plan, collect information regarding funding sources, develop a marketing plan and develop basic business communication skills. Your underpinning knowledge regarding entrepreneurial skills will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Develop a business plan	<p>P1. Conduct a market survey to collect following information</p> <ul style="list-style-type: none"> • Customer /demand • Tools, equipment, machinery and furniture with rates • Raw material • Supplier • Credit / funding sources • Marketing strategy • Market trends • Overall expenses • Profit margin <p>P2. Select the best option in terms of cost, service, quality, sales, profit margin, overall expenses</p> <p>P3. Compile the information collected through the market survey, in the business plan format</p>
CU2. Collect information regarding funding sources	<p>P1. Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate</p> <p>P2. Choose the best available option according to investment requirement</p> <p>P3. Prepare documents according to the loan agreement requirement</p> <p>P4. Include the information of funding sources in the business plan</p>
CU3. Develop a marketing plan	<p>P1. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning</p> <p>P2. Include the information of marketing plan in the business</p>

	plan
CU4. Develop basic business communication skills	<p>P1. Communicate with internal customers e.g.: labor, partners and external customers e.g.: suppliers, customers etc., using effective communication skills</p> <p>P2. Use different modes of communication to communicate internally and externally e.g.: presentation, speaking, writing, listening, visual representation, reading etc.</p> <p>P3. Use specific business terms used in the market</p>

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K1:** Explain the 7ps of marketing including product, price, placement, promotion, people, packaging and positioning
- K2:** Describe 7Cs of business communication
- K3:** Define different modes of communication and their application in the industry
- K4:** Enlist specific business terms used in the industry
- K5:** Enlist the available funding sources
- K6:** Explain how to get loan to start a new business
- K7:** Explain market survey and its tools e.g: questionnaire, interview, observation etc
- K8:** Describe the market trends for specific product offering
- K9:** State the main elements of business plan
- K10:** Explain how to fill the business plan format

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

A person who demonstrates competency in this unit must be able to provide evidence of the ability to develop Entrepreneurial Skills.

Performance requirements

- Conduct market survey and formulate business plans in terms of feasibility, investment potential, risk, and completeness.
- Demonstrate the use of both verbal and non-verbal business communication.
- Effectively present business ideas and profile

0613001026 Undertake Research & Planning for Apps Development

Overview: In this competency standard, the learner will be able to identify market trends using different sources and tools (App Annie) and establish required skill set. After completion of this competency standard learner will be able to construct work flow plan for developing Apps.

Competency Unit	Performance Criteria
CU1. Identify Market Trends Using Apps	P1. Use Apps to identify market trends P2. Explore market trends using social media P3. Browse blogs to find market trends P4. Design survey form to get market trends P5. Identify target audience
CU2. Identify Required Skill set to Develop App	P1. Identify suitable programming language P2. Identify suitable tools to develop app P3. Identify the hardware requirements for developing app
CU3. Plan to Develop Apps (Work Flow)	P1. Develop timeline for app development. P2. Develop app work flow based on gathered information. P3. Develop a project proposal

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Identify market trends
- K2:** Understand tools to identify market trends
- K3:** Describe survey form for market trends
- K4:** Explain the required skills set for developing app
- K5:** Enlist suitable tools for app development
- K6:** Describe the existing hardware requirements
- K7:** Explain the vision and scope of the app
- K8:** Differentiate between functional and nonfunctional specifications.
- K9:** List significant features of Apps to be developed.

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Develop a project proposal of App to be developed
- Identify market trends for the project using relevant apps, social media, blogs and survey forms.
- Identify target audience for the given project.
- Identify tools and skills set to develop app.
- Develop timeline and flowchart for the given project.

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computers as per software requirement	25
2.	Internet	25
3.	Microsoft Office	25

Overview: In this competency standard, the learner will be capable of identifying and presenting suitable solution of a specific problem, developing an associated work flow chart and implementation of an algorithm (Pseudo Code).

Competency Unit	Performance Criteria
Analyze Problem Statement for Possible Solutions	<p>P1. Gather information of issues for problem statement as per functional and non-functional requirements</p> <ul style="list-style-type: none">• Make a list of issues• Analyze the issues for problem statement• Review of problem statement constraints <p>P2. Identify different possible solutions for problem</p>
Perform best Solutions	<p>P1. Make graphical representation of selected solution.</p> <p>P2. Select best solution for problem as per given instruction</p> <p>P3. Arrange the sequence of tasks</p> <p>P4. Identify the statement of a pseudo code which establishes the main goal</p> <p>P5. Write the pseudo code accordingly</p>

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Define gathered client requirements.
- K2:** Explain 5 W's (Who, What, Where, When, Why)
- K3:** Understand functional and non-functional requirements.
- K4:** Understand problem constraints.
- K5:** Understand time complexity.
- K6:** Understand the solution consideration.
- K7:** Understand Selected Algorithm.
- K8:** Understand flow chart components and rules.
- K9:** Understand Parsing Algorithm into annotations and words.

Critical Evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Write pseudo code that reads in three numbers and writes them all in sorted order using best solutions.

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computer System(as per software requirement	25
2.	Note Book	1
3.	Pencil	1
4.	Eraser	1
5.	Visio Computer Software	1
6.	Printer	1

0613001028 Develop Software Development Life Cycle (SDLC) for Apps Development

Overview: This competency standard will enable learner to understand and follow all steps required in planning of a project. After completion of this competency standard learner will be able to execute the project successfully.

Competency Unit	Performance Criteria
CU1. Plan a Project	<p>P1. Use task management tools to develop a timeline for a given project</p> <p>P2. Distribute tasks across software team as per the project specifications</p> <p>P3. Track tasks of the team as per assigned module</p> <p>P4. Generate report to evaluate performance of the team as per assigned task.</p>
CU2. Perform Requirement Analysis	<p>P1. Gather requirements by communicating with the customer for given project</p> <p>P2. Analyze requirements to determine the quality of the given project</p> <p>P3. Develop Software Requirement Specification (SRS) document for the given project</p>
CU3. Design a Project	<p>P1. Design components as per project specification</p> <p>P2. Draw data flow diagrams according to Software requirement specification</p> <p>P3. Create Entity Relationship diagram (ERD) according to data flow diagram</p> <p>P4. Create UML diagram according to Software Requirement Specification (SRS)</p>
CU4. Implement a Project	<p>P1. Design Interface as per application requirements</p> <p>P2. Create database as per Entity Relationship diagram ERD</p> <p>P3. Develop an application as per design UML and ERD</p>
CU5. Test a Project	<p>P1. Perform validation technique as per project requirements</p> <p>P2. Test project as per Software Requirement Specification (SRS) document</p>

CU6. Execute a Project	<p>P1. Deploy project in production environment as per client requirement.</p> <p>P2. Perform user acceptance test as per client requirements</p>
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Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Explain task management tools for scheduling
- K2:** Explain plan sprints (Tasks Distribution)
- K3:** Explain tasks tracking and reports
- K4:** Explain requirements gathering techniques
- K5:** Explain requirements analysis
- K6:** Explain software requirement specification document
- K7:** Describe user flow diagrams
- K8:** Describe data flow diagrams
- K9:** Explain language for user interface designing
- K10:** Explain language for project development
- K11:** Explain Database Management System
- K12:** Explain validation of a project
- K13:** Explain testing techniques for project validation and verification
- K14:** Explain testing reports for evaluation purpose
- K15:** Explain deployment of project
- K16:** Explain server, hosting and domain

Critical Evidence(s)

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Create schedules using task management tools
- Create Software Requirement Specification Document
- Create User flow and Data flow diagrams for specific system

- Implement project using coding concepts for specific project
- Create database for specific project
- Deploy specific project in the said production environment
- Perform beta testing

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computers	According to class strength
2.	MS Office	For each computer
3.	JIRA	For each computer
4.	Emulator	For each computer
5.	Android Phones	As per requirements
6.	Internet	As per requirements
7.	Android Data cable for connectivity	As per requirements
8.	USB	As per requirements
9.	Papers	As per requirements
10.	Pencils	As per requirements
11.	Eraser	As per requirements

0613001029 Apply Design Pattern for Android App

Overview: This competency standard will provide skills and knowledge about the application of Design pattern for Android App. Learners will be able to identify the Basic of design pattern for Android App and its implementation. The learners will be able to implement and test design pattern for android app.

Competency Unit	Performance Criteria
CU1. Identify the Basic of Design Pattern for Android App	P1. P1 Identify design pattern for android APP P2. P2 Identify relevant design pattern as per requirement
CU2. Implement Design Pattern for android app	P1. Build appropriate design pattern as per requirements. P2. Implement selected design pattern as per structure
CU3. Test Design pattern for android App	P1. Implement J-Unit Testing with MOCKITO for activity P2. Implement fragment scenario testing for fragment

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

- K1:** Explain design pattern
- K2:** Explain types of design pattern
- K3:** Explain structure of design pattern
- K4:** Describe MOCKITO
- K5:** Describe ESPRESSO android
- K6:** Explain fragment lifecycle
- K7:** Explain activity lifecycle

Critical Evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Create login form as per requirement
- Handle Error using MOCKITO unit testing
- Code using ESPRESSO

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Android Studio	25
2.	Computer	25
3.	Memory Stick	01
4.	Printer	01
5.	Scanner	01
6.	Internet	As Per Each PC

0613001030 Develop Professional Android App

Overview: This competency standard enables the learner to manage and control the version system. After completion of this competency standard learner will be able to develop Android App using Web API's and Advance Interface Design.

Competency Unit	Performance Criteria
CU1. Apply Version Control System	<p>P1. Create repository in third party cloud platform (GitHub) for version controlling</p> <p>P2. Commit the code to the cloud for version control management as per specification</p> <p>P3. Create team in cloud for centralized Project</p>
CU2. Develop Android App using Web API's	<p>P1. Create new project in android studio</p> <p>P2. Create network layer between mobile and web API's</p> <p>P3. Integrate android app with Web API's for data communications</p> <ul style="list-style-type: none">• Check Web API's Compatibility• Verify Web API's working• Apply "Get" and "post" methods for communication with API's <p>P1. Use Network communication libraries (Volly, Retrofit).</p>
CU3. Develop Advance Interface Design	<p>P1. Develop design using up-to-date design software as per requirement</p> <p>P2. Select appropriate layout mode using Android Studio as per specification</p> <p>P3. Implement design for different screens using Android Studio as per requirement</p> <p>P4. Check Compatibility for portrait and landscape mode</p>

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

K1: Describe online cloud platforms

- Describe sub techniques like push, pull and merge
- Explain about team creation

- Understand various network connection methods
- Explain API (Applications Programming Interface) Functionality (GET, POST)
- Explain REST (Representational State Transfer) and SOAP (Simple Object Access Protocol) API
- Explain JSON (JavaScript Object Notation) and XML (Extensible Markup Language)
- Explain server errors
- Define complex layout
- Explain specific resource folder management

K2: Explain different screen resolutions

Critical Evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Create repository in third party cloud platform, add team members and integrate with android studio
- Create a professional android app using web API's.
- Create advanced front end design using complex layouts (e.g. Constraint Layout, Coordinator Layout) compatible with all android screen resolutions.

Tools and Equipment

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Android Studio	25
2.	Graphic Design Software (Adobe XD etc.)	25
3.	Computers	25
4.	Memory Sticks	01
5.	Printer	01
6.	Scanner	01
7.	Internet	As Per Each PC
8.	Papers	As per requirement

9.	Pencils	For each student
10.	Sharpeners	For each student
11.	Eraser	For each student
12.	Charts	For each student
13.	Colors	1 set for each student
14.	DVDs	1 for each student

0613001031 Assure the Quality of Mobile App

Overview: This competency standard enables learner able to prepare test cases for Application Programming Interface. Learner will be able to execute test cases and Assure Quality of Mobile App.

Competency Unit	Performance Criteria
CU1. Prepare test cases	<p>P1. Create functional test cases as per user requirements</p> <p>P2. Create non-functional test cases as per user requirements</p> <p>P3. Create unit test cases as per user requirements</p> <p>P4. Create system test cases as per specification</p> <p>P5. Create integration test case as per the required specification</p> <p>P6. Create regression test cases as per given requirements</p> <p>P7. Create beta test cases as per user requirements</p> <p>P8. Create interface test cases as per given design</p>
CU2. Execute Test Cases	<p>P1. Perform functional testing as per user requirements</p> <p>P2. Perform non-functional testing as per user requirements</p> <p>P3. Perform unit test cases as per requirements</p> <p>P4. Perform system test cases as per specification</p> <p>P5. Perform integration test case as per the required specification</p> <p>P6. Perform regression test cases as per given requirements</p> <p>P7. Perform beta test cases as user requirements</p> <p>P8. Execute interface test cases as per given design.</p>
CU3. Comply with Privacy Policy of App	<p>P1. Comply with GDPR (General Data Protection Regulations) Policy</p> <p>P2. Ensure the Standards of Mobile App according to GDPR</p>

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore, he/she must be able to:

K1: Understand Describe Testing

K2: Explain Unit testing

- K3:** Explain Regression testing
- K4:** Explain System testing
- K5:** Explain Alpha testing
- K6:** Explain Beta testing
- K7:** Explain Integration testing
- K8:** Explain Interface testing
- K9:** Define White box testing
- K10:** Define Black box testing
- K11:** Explain Manual testing
- K12:** Explain Automated testing
- K13:** Explain Sanity testing
- K14:** Explain the needs for implementing Privacy Policy
- K15:** Explain GDPR policy

Critical evidence(s) required for Competency Standards

The candidate needs to produce any or all the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Create test cases as per required specifications
- Perform testing as per requirements

Tools and Equipment required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computers	25
2.	MS Office	For each computer
3.	Emulator	For each computer
4.	Software Testing Tools (Appium, Robotium)	For each computer
5.	Android Phones	As per requirements
6.	Internet	As per requirements
7.	Android Data cable for connectivity	As per requirements
8.	USB device	As per requirements

9.	Papers	As per requirements
10.	Pencils	As per requirements
11.	Eraser	As per requirements

0613001032 Develop Professionalism Capable of Android Development

Overview: In this competency standard learners will be able to develop professional, social and entrepreneurial skills that will facilitate them for choosing a better career path and professional growth. After completing this competency standard learner will be able to develop freelance business and expand professional network through different means.

Competency Unit	Performance Criteria
Develop Employability Skills	<p>P1. Develop technical introduction and related portfolio.</p> <p>P2. Participate in interpersonal activities</p> <ul style="list-style-type: none">• Group discussions• Team Competitions <p>P3. Organize internal activities to improve employability skills</p> <p>P4. Develop a career goal</p>
Develop Freelance Business	<p>P1. Develop a profile on Upwork/Fiver with portfolio.</p> <p>P2. Develop business communication skills required for android development field</p> <ul style="list-style-type: none">• Proposals• e-mails• Tools like Skype, Slack & Zoom etc. <p>P3. Schedule a mockup client/freelancer interview session</p>
Expand Professional Network	<p>P1. Create a Linked-In profile and expand professional network.</p> <p>P2. Create a Mobile App Development blog and share it online.</p> <p>P3. Create a Professional Resume with portfolio, experience and blogging info.</p>

Knowledge and Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore he/she must be able to:

K1: Describe different types of occupational communications skills used in IT Industry

K2: Explain the importance of team work.

- K3:** Describe success stories of famous tech founders.
- K4:** Brief to Freelancing marketplaces like Upwork & fiver etc.
- K5:** Describe how to earn a freelance project.
- K6:** Define professional social interaction
- K7:** Explain the technical blogging
- K8:** Describe Resume/CV writing

Critical evidence(s) Required

The candidate needs to produce any or all of the following documents/evidences:

- Portfolio
- Assignment(s)/Project(s)
- Relevant Certification(s)
- Relevant Job/Experience Letter

Furthermore, the candidate must execute demonstration(s) which may include the following:

- Organize a group team event to discuss the importance of Career Development and how to achieve it.
- Organize a group event to present a Business Idea and defend it in-front of attendees.
- Showcase your Mobile App Development Blog among peers and get feedback from them.
- Schedule a call (with a professional Client) and try to earn a project by pitching your portfolio and showing internet presence.

Tools and Equipment Required

The tools and equipment required for this competency standard are given below:

Sr#	Description	Quantity
1.	Computers	25
2.	Microsoft Windows	25
3.	MS Office.	25
4.	Communication Platform (Skype, Slack, Zoom etc.)	25
5.	Pencil	As per requirement
6.	Eraser	As per requirement
7.	Paper	As per requirement
8.	Sharpener	As per requirement
9.	Modern Internet Browser (Google, Firefox and Safari)	
10.	Internet	As per requirement

Abbreviations	
API	Application Programming Interface
ASO	App Search Optimization
CPU	Central Processing Unit
CRUD	Create Read Update Delete
DDL	Data Definition Language
ERD	Entity Relationship Diagram
GDPR	General Data Protection Regulations Policy
HTTP	Hypertext Transfer Protocol
JDK	Java Development Kit
JSON	Java Script Object Notation
POJO	Plain Old Java Object
REST	Representational State Transfer
SDK	Software Development Kit
SOAP	Simple Objection Access Protocol
SRS	Software Requirements Specification
TCP / IP	Transmission Control Protocol / Internet Protocol
UML	Unified Modeling Language
WWW	World Wide Web
XML	Extensible Markup Language

