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# ANDROID APPLICATION DEVELOPER



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## TRAINER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019



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### **3. Increased productivity**

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach, which can also increase productivity.

### **4. Reduced risk**

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

### **5. Increased customer satisfaction**

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

## **Lesson plans**

This manual provides a series of lesson plans that will guide delivery of each module for the *Android Application Developer* qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plan for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why you chose to do it like this?'

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why they do something, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how an *Android Application Developer* acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainee where they do not meet those standards, and where they repeat it correction until they have internalized those standards.

## Demonstration of skill

Demonstration or modeling a skill is a powerful tool, which is used, in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material, which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.
- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY - describe each step as it is completed.
- j) Encourage the learners to move around and watch what you are doing from a number of different angles.
- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.
- l) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learners: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learners to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learners. A trainer may need to do repeated demonstrations of difficult or complex skills.

## Overview of the program

<b>Course:</b> Android Application Developer	<b>Total Course Duration:</b> 3220 hours
<b>Course Overview:</b>	
<i>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.</i>	
<i>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.</i>	

Module Title and Aim	Learning Units	Duration
<p><b>Module 1:</b> Comply Personal Health and Safety Guidelines</p> <p><b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Comply Personal Health and Safety Guidelines</p>	<p><b>LU1:</b> Identify Personal Hazards at Workplace  <b>LU2:</b> Apply Personal Protective and Safety Equipment (PPE)  <b>LU3:</b> Comply Occupational Safety and Health (OSH)  <b>LU4:</b> Dispose of hazardous Waste/materials from the designated area</p>	30 hours
<p><b>Module 2:</b> Communicate the Workplace Policy and Procedure</p> <p><b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Communicate the Workplace Policy and Procedure</p>	<p><b>LU1:</b> Identify workplace communication procedures  <b>LU2:</b> Communicate at workplace  <b>LU3:</b> Draft Written Information  <b>LU4:</b> Review Documents</p>	20 hours
<p><b>Module 3:</b> Perform Basic Communication (Specific)</p> <p><b>Aim:</b> This module aims to develop the</p>	<p><b>LU1:</b> Communicate in a team to achieve intended outcomes  <b>LU2:</b> Follow Supervisor’s instructions as per organizational SOPs  <b>LU3:</b> Develop Generic communication skills at workplace</p>	30 hours

Module Title and Aim	Learning Units	Duration
<p>knowledge, skills and understanding needed to Perform Basic Communication (Specific)</p>		
<p><b>Module 4:</b> Perform Basic Computer Application (Specific) <b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Perform Basic Computer Application (Specific)</p>	<p><b>LU1:</b> Create Word Documents <b>LU2:</b> Use internet for Browsing</p>	40 hours
<p><b>Module 5:</b> Use information technology skills capable of Android Development <b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Use information technology skills capable of Android Development</p>	<p><b>LU1:</b> Use IT Fundamentals to operate the computer <b>LU2:</b> Perform Networking in regard to Data Communication <b>LU3:</b> Use internet for Browsing <b>LU4:</b> Use MS Office for documentation <b>LU5:</b> Follow E-Marketing using digital platforms <b>LU6:</b> Follow Cyber Laws as per relevant industry requirement</p>	120 hours
<p><b>Module 6:</b> Use Basics of Programming <b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Use Basics of Programming</p>	<p><b>LU1:</b> Use basic Language for Mobile App <b>LU2:</b> Use Object Oriented Programming <b>LU3:</b> Identify Data Structure</p>	200 hours

Module Title and Aim	Learning Units	Duration
<p><b>Module 7:</b> Interpret Technical Requirements for Apps Development</p> <p><b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Interpret Technical Requirements for Apps Development</p>	<p><b>LU1:</b> Interpret technical texts for required Android App</p> <p><b>LU2:</b> Identify Programming challenges for software design</p> <p><b>LU3:</b> Identify Components for Apps Development</p>	110 hours
<p><b>Module 8:</b> Use Data Bases for Apps Development</p> <p><b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to Use Data Bases for Apps Development</p>	<p><b>LU1:</b> Identify the basics of Data base for Apps Development</p> <p><b>LU2:</b> Draw Entity Relationship Diagrams for Apps Development</p> <p><b>LU3:</b> Perform Operations for Database Development</p> <p><b>LU4:</b> Develop Database for Apps development</p>	150 hours
<p><b>Module 9:</b> Design User Interface for Mobile Apps</p> <p><b>Aim:</b> This module aims to develop the knowledge, skills and understanding needed to</p>	<p><b>LU1:</b> Make Wireframes</p> <p><b>LU2:</b> Make Graphic User Interface</p> <p><b>LU3:</b> Prepare Use Case</p> <p><b>LU4:</b> Identify the Elements of the Interface</p>	120 hours



<b>FORMAT FOR LESSON PLAN</b>			
<b>Module5: Use information technology skills capable of Android Development</b>			
<b>Learning Unit 1: Use IT Fundamentals to operate the computer</b>			
Methods	Key Notes	Media	Time
The tools, material and techniques used for using IT Fundamentals to operate the computer			
<b>Introduction</b>			
This session will introduce learners to the tools, techniques and material used for preparing android application developer, using presentation, demonstration, question and answer, and practical skills development.			
<b>Main Body</b>			
Identify the components of computer <ul style="list-style-type: none"> <li>• CPU</li> <li>• Input &amp; Output Devices</li> <li>• Memory &amp; Storage Device</li> </ul> Use Operating System <ul style="list-style-type: none"> <li>• Install Basic Computer Software as per requirement</li> </ul>			
<b>Conclusion</b>			
To conclude the session, review the tools, techniques and material used for using IT Fundamentals to operate the computer. Give learners the opportunity to ask questions.			
<b>Assessment</b>			
Question and answer, discussion groups with feedback, observation of practice skills development			

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**Trainer’s guidelines**

<b>Module 1: Comply Personal Health and Safety Guidelines</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1:			
LU2:			
LU3:			
LU4:			

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<b>Module 2: Communicate the Workplace Policy and Procedure</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1:			
LU2:			
LU3:			
LU4:			

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<b>Module 3: Perform Basic Communication (Specific)</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1:			
LU2:			
LU3:			
LU4:			

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<b>Module 4: Perform Basic Computer Application (Specific)</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1:			
LU2:			
LU3:			
LU4:			

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Module-5  
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Module 5: 0613001016 Use information technology skills capable of Android Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1:</b> <b>Use IT Fundamentals to operate the computer</b>	<p>Deliver an illustrated presentation on how to Use IT Fundamentals to operate the computer. Ensure that the presentation focuses on the following:</p> <ol style="list-style-type: none"> <li>1. Identify the components of computer <ul style="list-style-type: none"> <li>- CPU</li> <li>- Input &amp; Output Devices</li> <li>- Memory &amp; Storage Device</li> </ul> </li> <li>2. Use Operating System</li> <li>3. Install Basic Computer Software as per requirement</li> </ol> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about how to Use IT Fundamentals to operate the computer. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three</b></p>	Practical Classrooms  labs,	Learner Guide Handouts Videos Multi-media projector

Module 5: 0613001016 Use information technology skills capable of Android Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p><b>main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for how to Use IT Fundamentals to operate the computer. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for how to Use IT Fundamentals to operate the computer. Enable learners to practice using the appropriate materials for how to Use IT Fundamentals to operate the computer in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Use IT Fundamentals to operate the computer in an appropriate practical setting. Ensure that learners have the opportunity</p>		

<b>Module 5: 0613001016 Use information technology skills capable of Android Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	to ask questions to support their understanding.		
<b>LU2: Perform Networking in regard to Data Communication</b>	<p>Lead a discussion on how to Perform Networking in regard to Data Communication. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the following points:</p> <ol style="list-style-type: none"> <li>1. Perform connectivity of computers for data sharing.</li> <li>2. Apply Internet Protocol (IP) Address for connectivity</li> <li>3. Perform basic Troubleshooting commands for networking</li> </ol> <p>Learners need to devise 10 quiz questions with answers based on how to Perform Networking in regard to Data Communication. They must make sure their questions cover key topics for how to Perform Networking in regard to Data Communication.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about how to Perform Networking in regard to Data Communication. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1</p>	Practical Classrooms labs,	Learner Guide Handouts Videos Multi-media projector

<b>Module 5: 0613001016 Use information technology skills capable of Android Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner’s answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team’s score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners’ question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one.</p> <p>Demonstrate the materials needed for how to Perform Networking in regard to Data Communication. Enable learners to practice using the appropriate materials for how to Perform Networking in regard to Data Communication in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Perform Networking in regard to Data Communication in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		

Module 5: 0613001016 Use information technology skills capable of Android Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU3: Use Internet for Browsing</b>	<p>Lead a brainstorm on how to Use Internet for Browsing. List the brainstorm ideas on a flipchart. If necessary, prompt learners to consider the following:</p> <ol style="list-style-type: none"> <li>1. Perform web surfing to find relevant information</li> <li>2. Browse information on specific topic (Videos, Images, articles etc.)</li> <li>3. Use digital platforms for communication such as Gmail, Skype,</li> </ol> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing key topics for how to Use Internet for Browsing. Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify <b>three main points</b> that related to <b>each key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for how to Use Internet for Browsing. Discuss these main points briefly with the whole group. Learners</p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

<b>Module 5: 0613001016 Use information technology skills capable of Android Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>should make additional notes to record additional points their group had not identified.</p> <p>Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary.</p> <p>Demonstrate the materials needed for how to Use Internet for Browsing. Enable learners to practice using the appropriate materials for how to Use Internet for Browsing in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Use Internet for Browsing in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU4: Use MS Office for documentation</b>	<p>Deliver an illustrated presentation on how to Use MS Office for documentation. Ensure that the presentation focuses on the following:</p> <ol style="list-style-type: none"> <li>1. Prepare Word document as per required forma</li> <li>2. Prepare Excel Sheet as per given required format</li> <li>3. Prepare presentation in PowerPoint as per given guidelines</li> </ol>	Practical Classrooms      labs,	Learner Guide Handouts Videos Multi-media projector



<b>Module 5: 0613001016 Use information technology skills capable of Android Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Learners need to devise 10 quiz questions with answers based on how to Use MS Office for documentation. They must make sure their questions cover key topics for how to Use MS Office for documentation.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about how to Use MS Office for documentation. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner’s answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team’s score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners’ question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their</p>		

<b>Module 5: 0613001016 Use information technology skills capable of Android Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>answer to the correct one.</p> <p>Demonstrate the materials needed for how to Use MS Office for documentation. Enable learners to practice using the appropriate materials for how to Use MS Office for documentation in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Use MS Office for documentation in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU5: Follow E-Marketing using digital platforms</b>	<p>Lead a discussion on how to Follow E-Marketing using digital platforms. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the following points:</p> <ol style="list-style-type: none"> <li>1. Perform E-Marketing using emails.</li> <li>2. Perform E-Marketing using social media</li> </ol> <p>Display a slide or flip chart with a key question relating to how to Follow E-Marketing using digital platforms.</p> <p><b>Step 1 – Think</b></p>	<p>Practical Classrooms</p> <p>labs,</p>	<p>Learner Guide</p> <p>Handouts</p> <p>Videos</p> <p>Multi-media projector</p>

Module 5: 0613001016 Use information technology skills capable of Android Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p> <p><b>Step 2 – Pair</b> For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p><b>Step 3 – Share</b> The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to how to Follow E-Marketing using digital platforms.</p> <p>Demonstrate the materials needed for how to Follow E-Marketing using digital platforms. Enable learners to practice using the appropriate materials for how to Follow E-Marketing using digital platforms in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Follow E-Marketing using digital platforms in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		



**Module 5: 0613001016 Use information technology skills capable of Android Development**

<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>as per relevant industry requirement. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for how to Follow Cyber Laws as per relevant industry requirement. Enable learners to practice using the appropriate materials for how to Follow Cyber Laws as per relevant industry requirement in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Follow Cyber Laws as per relevant industry requirement in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		

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Module 6: 0613001017 Use Basics of Programming			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1: Use basic Language for Mobile App</b>	<p>Deliver an illustrated presentation on using basic Language for Mobile App. Ensure that the presentation focuses on the following:</p> <ul style="list-style-type: none"> <li>• Introduction of basic programming</li> <li>• Prepare basic algorithm as per given task</li> <li>• Prepare basic pseudo code as per given algorithm</li> <li>• Draw flowchart as per given algorithm</li> <li>• Write basic program as per given task</li> </ul> <p>Learners need to devise 10 quiz questions with answers based on using basic Language for Mobile App. They must make sure their questions cover key topics for using basic Language for Mobile App.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about using basic Language for Mobile App. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if</p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

<b>Module 6: 0613001017 Use Basics of Programming</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>the learner’s answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team’s score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners’ question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one.</p> <p>Demonstrate the materials needed for using basic Language for Mobile App. Enable learners to practice using the appropriate materials for using basic Language for Mobile App in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to using basic Language for Mobile App in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU2: Use Object Oriented Programming</b>	<p>Deliver an illustrated presentation on how to Use Object Oriented Programming. Ensure that the presentation focuses on the following</p> <ul style="list-style-type: none"> <li>• Prepare a class for an object using inheritance as per given requirements.</li> </ul>	Practical Classrooms      labs,	Learner Guide Handouts Videos Multi-media projector



Module 6: 0613001017 Use Basics of Programming			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> <li>• Prepare a basic program by using polymorphism techniques as per given requirements</li> <li>• Prepare a basic application as per given requirements.</li> </ul> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about how to Use Object Oriented Programming. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for how to Use Object Oriented Programming. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their</p>		

<b>Module 6: 0613001017 Use Basics of Programming</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for how to Use Object Oriented Programming. Enable learners to practice using the appropriate materials for how to Use Object Oriented Programming in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Use Object Oriented Programming in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU3: Identify Data Structure</b>	<p>Lead a discussion on how to Identify Data Structure. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the following points:</p> <p>Prepare a program to swap data as per given requirements</p> <p>Prepare a program to show contact list by using hash-map techniques as per given requirements</p>	<b>Practical Classrooms</b>	<b>labs,</b> <b>Learner Guide</b> <b>Handouts</b> <b>Videos</b> <b>Multi-media projector</b>

<b>Module 6: 0613001017 Use Basics of Programming</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Learners need to devise 10 quiz questions with answers based on how to Identify Data Structure. They must make sure their questions cover key topics for how to Identify Data Structure.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about how to Identify Data Structure. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner’s answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team’s score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners’ question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct</p>		

<b>Module 6: 0613001017 Use Basics of Programming</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Demonstrate the materials needed for how to Identify Data Structure. Enable learners to practice using the appropriate materials for how to Identify Data Structure in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to Identify Data Structure in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		

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Module 7: 0613001018 Interpret Technical Requirements for Apps Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1: Interpret technical texts for required Android App</b>	<p>Deliver an illustrated presentation on interpret technical texts for required android app. Ensure that the presentation focuses on the following:</p> <ul style="list-style-type: none"> <li>• How to create a block diagram for interpreted technical statement</li> <li>• Build a report listing functional and non-functional needs of system to be developed.</li> </ul> <p>Asks learner to prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about interpret technical texts for required android app. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for interpret technical texts for required android app. Discuss these main points briefly</p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

Module 7: 0613001018 Interpret Technical Requirements for Apps Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for interpret technical texts for required android app. Enable learners to practice using the appropriate materials for interpret technical texts for required android app in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to interpret technical texts for required android app in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		

**Module 7: 0613001018 Interpret Technical Requirements for Apps Development**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<p><b>LU2:</b> <b>Identify Programming challenges for software design</b></p>	<p>Deliver an illustrated presentation on Identify Programming challenges for software design. Ensure that the presentation focuses on the following:</p> <ol style="list-style-type: none"> <li>1. Identify the activities, services, broadcasts, app/ additional resources, app permissions of system</li> <li>2. Identify any potential challenges and solutions</li> </ol> <p>Learners need to devise 10 quiz questions with answers based on Identify Programming challenges for software design. They must make sure their questions cover key topics for Identify Programming challenges for software design.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about Identify Programming challenges for software design. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner’s answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team’s score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners’ question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their</p>	<p>Practical labs, Classrooms</p>	<p>Learner Guide Handouts Videos Multi-media projector</p>



**Module 7: 0613001018 Interpret Technical Requirements for Apps Development**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<p><b>LU3: Identify Components for Apps Development</b></p>	<p>Lead a discussion on Identify Components for Apps Development. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the following points</p> <ol style="list-style-type: none"> <li>1. Create a Proposal Document based on App requirements specifications.</li> </ol> <p>Display a slide or flip chart with a key question relating to Identify Components for Apps Development.</p> <p><b>Step 1 – Think</b></p> <p>Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.</p> <p><b>Step 2 – Pair</b></p> <p>For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.</p> <p><b>Step 3 – Share</b></p> <p>The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to Identify Components for Apps Development</p> <p>Demonstrate the materials needed for Identify Components for Apps Development. Enable learners to practice using the appropriate materials for Identify Components for Apps Development in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Identify Components for Apps Development in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Practical Classrooms</p> <p>labs,</p>	<p>Learner Guide Handouts Videos Multi-media projector</p>

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Module 8: 0613001019 Use Data Bases for Apps Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1:</b> <b>Identify the basics of Data base for Apps Development</b>	<p>Lead a discussion on Identify the basics of Data base for Apps Development. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the following points:</p> <ol style="list-style-type: none"> <li>1. How to create data tables</li> <li>2. Create Relationship between tables.</li> </ol> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about Identify the basics of Data base for Apps Development. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Identify the basics of Data</p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

<b>Module 8: 0613001019 Use Data Bases for Apps Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>base for Apps Development. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for Identify the basics of Data base for Apps Development. Enable learners to practice using the appropriate materials for Identify the basics of Data base for Apps Development in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Identify the basics of Data base for Apps Development in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU2: Draw Entity Relationship Diagrams for Apps</b>	Deliver an illustrated presentation on Draw Entity Relationship Diagrams for Apps Development. Ensure that the presentation focuses on the following:	Practical Classrooms	labs, Learner Guide Handouts Videos

<b>Module 8: 0613001019 Use Data Bases for Apps Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
<b>Development</b>	<ol style="list-style-type: none"> <li>1. Identify system entities and relationships for database as per requirements</li> <li>2. Create ERD (Entity Relationship Diagram) using software (Microsoft Visio etc.)</li> </ol> <p>Learners need to devise 10 quiz questions with answers based on Draw Entity Relationship Diagrams for Apps Development. They must make sure their questions cover key topics for Draw Entity Relationship Diagrams for Apps Development.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about Draw Entity Relationship Diagrams for Apps Development. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to</p>		Multi-media projector

<b>Module 8: 0613001019 Use Data Bases for Apps Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct</p> <p>Demonstrate the materials needed for Draw Entity Relationship Diagrams for Apps Development. Enable learners to practice using the appropriate materials for Draw Entity Relationship Diagrams for Apps Development in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Draw Entity Relationship Diagrams for Apps Development in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU3: Perform Operations for Database Development</b>	<p>Lead a brainstorm on Perform Operations for Database Development. List the brainstorm ideas on a flipchart. If necessary, prompt learners to consider the following:</p> <ol style="list-style-type: none"> <li>1. Apply CRUD (Create, Read, Update &amp; Delete)</li> <li>2. Apply joins</li> <li>3. Apply aggregate functions</li> </ol>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

Module 8: 0613001019 Use Data Bases for Apps Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>4. Create Stored procedures and views</p> <p>Learner need to prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about Perform Operations for Database Development. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Perform Operations for Database Development. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p>		

<b>Module 8: 0613001019 Use Data Bases for Apps Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for Perform Operations for Database Development. Enable learners to practice using the appropriate materials for Perform Operations for Database Development in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Perform Operations for Database Development in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU4: Develop Database for Apps development</b>	<p>Deliver an illustrated presentation on how to Develop Database for Apps development. Ensure that the presentation focuses on the following:</p> <ol style="list-style-type: none"> <li>1. Apply DDL (Data Definition Language)</li> <li>2. Develop basic Database Project</li> </ol> <p>Display a flip chart showing the following key question related to Develop Database for Apps development: <i>'How tables are created and modified using data</i></p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector



Module 8: 0613001019 Use Data Bases for Apps Development			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p><i>definition languages)</i></p> <p>Give each learner a sheet of paper and asked them to write their name at the top. Explain to learners that they will be sharing their work with other learners.</p> <p>Ask learners to write silently for 3-5 minutes answering the question displayed on the flip chart. When learners have completed writing, instruct them to pass their paper to the learner on their left. Each learner will read what their partner has passed to them and write a response. This will also be done silently.</p> <p>After another 2-3 minutes, instruct the learners to pass the paper to their left a second time. Repeat the same procedure, also done in silence.</p> <p>At the end of the activity, ask the learners to return the paper to the original writer. Allow learners a few moments to read over the responses to their writing.</p> <p>Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart.</p> <p>When this activity is concluded, collect the papers and make copies for each learner.</p> <p>Demonstrate the materials needed for Develop Database for Apps development. Enable learners to practice using the appropriate materials for Develop database for Apps development in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Develop database for Apps</p>		

<b>Module 8: 0613001019 Use Data Bases for Apps Development</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	development in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		

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<b>Module 9: 0613001020 Design User Interface for Mobile Apps</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for how to make wireframes. Enable learners to practice using the appropriate materials for how to make wireframes in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to make wireframes in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<b>LU2: Make Graphic User Interface</b>	<p>Deliver an illustrated presentation on how to make graphic user interface. Ensure that the presentation focuses on the following:</p> <ol style="list-style-type: none"> <li>1. Make prototype using up -to-date design software</li> <li>2. Make final design using up-to-date design software</li> <li>3. Apply transition using up-to-date design software</li> </ol>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

## Module 9: 0613001020 Design User Interface for Mobile Apps

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing key topics for how to make graphic user interface. Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify <b>three main points</b> that related to <b>each key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for how to make graphic user interface. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified.</p> <p>Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary.</p> <p>Demonstrate the materials needed for how to make graphic user interface. Enable learners to practice using the appropriate materials for how to make graphic user interface in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to make graphic user</p>		

<b>Module 9: 0613001020 Design User Interface for Mobile Apps</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	interface in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		
<b>LU3: Prepare Use Case</b>	<p>Lead a brainstorm on how to prepare use case. List the brainstorm ideas on a flipchart. If necessary, prompt learners to consider the following:</p> <ol style="list-style-type: none"> <li>1. Prepare Use Case Diagram using relevant software as per given requirement</li> <li>2. Create paths and user scenario as per provided document</li> <li>3. Make relationship and system boundaries as per given requirement</li> </ol> <p>Learners need to devise 10 quiz questions with answers based on how to prepare use case. They must make sure their questions cover key topics for how to prepare use case.</p> <p>Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about how to prepare use case. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team</p>	Practical Classrooms	labs, Learner Guide Handouts Videos Multi-media projector

<b>Module 9: 0613001020 Design User Interface for Mobile Apps</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)</p> <p>The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.</p> <p>Total the scores at the end of the quiz to see which team won.</p> <p>After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one.</p> <p>Demonstrate the materials needed for how to prepare use case. Enable learners to practice using the appropriate materials for how to prepare use case in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to prepare use case in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding</p>		
<b>LU4: Identify the Elements of</b>	Lead a discussion on how to identify the elements of the interface. Encourage ALL trainees to participate in the discussion. Ensure that the discussion addresses the	Practical Classrooms	labs, Learner Guide Handouts



Module 9: 0613001020 Design User Interface for Mobile Apps			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
the Interface	<p>following points</p> <ol style="list-style-type: none"> <li>1. Perform content prioritization as per design requirement</li> <li>2. Apply space distribution as per design requirement</li> <li>3. Apply intendant action as per design requirement</li> <li>4. Perform input controls</li> </ol> <p>Learner need to prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about how to identify the elements of the interface. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for how to identify the elements of the interface. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their</p>		Videos Multi-media projector

<b>Module 9: 0613001020 Design User Interface for Mobile Apps</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p> <p>Demonstrate the materials needed for how to identify the elements of the interface. Enable learners to practice using the appropriate materials for how to identify the elements of the interface in a controlled environment.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to how to identify the elements of the interface in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding</p>		

## Frequently Asked Questions

<p>1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?</p>	<p>Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.</p>
<p>2. What is the passing criterion for CBT certificate?</p>	<p>You shall be required to be declared “Competent” in the summative assessment to attain the certificate.</p>
<p>3. What are the entry requirements for this course?</p>	<p>The entry requirement for this course is 8th Grade or equivalent.</p>
<p>4. How can I progress in my educational career after attaining this certificate?</p>	<p>You shall be eligible to take admission in the National Vocational Certificate Level-4 in Android application developer. You shall be able to progress further to National Vocational Certificate Level-4 in Android application developer (Supervisor); and take admission in a level-5, DAE or equivalent course. In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).</p>
<p>5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?</p>	<p>You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.</p>

6. What is the entry requirement for Recognition of Prior Learning program (RPL)?	There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.
7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
8. What is the duration of this course?	The duration of the course work is 1200 hours
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The criteria for equivalence and equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the android application development industry which comprises of development of applications for play store as well as testing and optimization of the apps.
13. What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.

14. Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.
16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount.
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
18. What is the teaching language of this course?	The teaching language of this course is Urdu and English.
19. Is it possible to switch to other certificate programs during the course?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
20. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
21. Does this certificate enable me to work as freelancer?	You can start your small business/ software house related to android application development and you can work as freelancer as well after the completion of the course. You may need additional skills on entrepreneurship to support your initiative.

## Test Yourself (Multiple Choice Questions)

MODULE 5

**Question 1** Which computer form is Tablet?

- A Mini computer
- B Mega Computer
- C Super Computer
- D Main Frame

**Question 2** IP addresses exist in the numeric format of XXX.YYY.ZZZ.AAA. This format of specifying addresses is referred to as the dotted decimal notation. Each address consists of four \_\_\_\_\_ separated by dots (.).

- A 8 bit fields
- B 4 bit fields
- C 6 bit fields
- D 2 bit fields

**Question 3** Which of the following are the cheapest memory devices in terms of Cost/Bit?

A Semiconductor memories

B Magnetic Disks

C Compact Disks

D Magnetic Tapes

**Question 4** Which of the following have the fastest access time?

A Semiconductor memories

B Magnetic Disks

C Compact Disks

D Magnetic Tapes

**Question 5** Which component in computer is capable to store single binary bit?

- A Register
- B Flip Flop
- C Capacitor
- D Inductor

**MODULE 6**

**Question 6** The operator << is called

- A An insertion operator
- B Put to operator
- C Either a or b
- D None of these



**Question 7** What is FIFO?

- A First in Few out
- B Few in Few out
- C First in first out
- D Few in first out

**Question 8** What is a reference?

- A An operator
- B Used to rename object
- C A reference is an alias for an object
- D None of these

**Question 9** Which data structure uses LIFO?

A Array

B Int

C Stacks

D Queues

**Question 10** What is a Syntax Error?

A An error you will never find

B An error you find at the end when the program gives out a wrong value due to logic error

C An error caused by language rules being broken.

D An error caused by language rules being broken.

**MODULE 7**

**Question 11** What is a diagrammatic representation that illustrates the sequence of operations to be performed to get the solution of a problem?

- A Algorithm
- B Flowchart
- C Pseudo code
- D Programming

**Question 12**



This image is called the:

- A Terminal
- B Of Page connector
- C On Page connector
- D Decision symbol

**Question 13** Which of the following does not belong to transitions?

A View Switcher

B View flipper

C View animator

D View slider

**Question 14** Fragment is not a part of activity

A True

B False

C

D

**Question 15** Which one of the following is not included in API level 8 or lesser?

- A Spinner
- B Fragment
- C List view
- D Progress bar

**MODULE 8**

**Question 16** In a database program, a set of related information is called as?

- A Field
- B Entry
- C file
- D Record

**Question 17** What software do you use to make databases?

- A Microsoft Access
- B Microsoft Word
- C Microsoft Excel
- D Microsoft powerpoint

**Question 18** What is a property that describes various characteristics of an entity

- A ER Diagram
- B Column
- C Relationship
- D Attribute

**Question 19** Duplication of data is the disadvantage of DBMS

A True

B False

C

D

**Question 20** What is an association between entities

A Relation

B One to one

C Generalization

D Specialization

**MODULE 9**

**Question 21** What are the skeleton of a mobile app

- A Graphs
- B Displays
- C Views
- D Wireframe images

**Question 22** What basically is mobile user interface (mobile UI)

- A Graphical display
- B Displays
- C Views
- D Wireframe images



**Question 23** Which option is UML diagram that facilitates requirements gathering and interacts between system and external users, is called as

A Flowchart Diagram

B Sequence Diagram

C Use Case Diagram

D Data Flow Diagram

**Question 24** How UML diagrams, relationship between object and component parts is represented by

A Ordination

B Aggregation

C Segregation

D increment

**Question 25** Which one is not a input control

A CPU

B Toggles

C Button

D Data Field

## Answers

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