



**COMPETENCY STANDARDS & ASSESSMENT GUIDE  
FOR  
MOBILE APPLICATION DEVELOPMENT  
(ANDROID)**

**Skills for Employment Investment Program (SEIP)  
Finance Division, Ministry of Finance**

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The Competency Standards for Mobile Application Development (Android) is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing trainings consistent with the requirement of industry in order for individuals who passed through the set standard via assessment would be qualified and settled for a relevant job.

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## **INTRODUCTION:**

The Skills for Employment Investment Program (SEIP) Project of the Finance Division of the Ministry of Finance has embarked on a project which aims to qualitatively and quantitatively expand the skilling capacity of identified public and private training providers by establishing and operationalizing a responsive skill eco system and delivery mechanism through a combination of well-defined set of funding triggers and targeted capacity support.

Among the many components of the project, one is to promote a Market Responsive Inclusive Skills Training Delivery program. Key priority economic growth sectors identified by government have been targeted by the project to improve current job skills along with up-skilling of the existing workforce to ensure 'required skills to industry standards'. Training providers are encouraged, supported to work with the industry to address identified skills to enable industry growth, and increased employment through the provision of market responsive inclusive skills training programs. Priority sectors were identified to adopt a demand driven approach to training with effective inputs from Industry Skills Councils (ISCs), Employer Associations and Employers.

This document is developed to improve skills in accordance with the job roles and skill sets of the occupation and ensure that the required skills are aligned to industry requirements.

The document details the format, sequencing, wording and layout of the Competency Standard for an occupation that comprised Units of Competence and its corresponding Elements.

## **OVERVIEW:**

A **Competency Standard** is a written specification of the knowledge, skills and attitudes required for the performance of a job or occupation or trade corresponding to the standard of performance required in the workplace.

Competency standard:

- Provides a consistent and reliable set of components for training, recognizing and assessing people's skills, and may have optional support materials.
- Enables industry recognized qualifications to be awarded through direct assessment of workplace competencies
- Encourages the development and delivery of flexible training which suits individual and industry requirements
- Encourages learning and assessment in a work-related environment that leads to verifiable workplace outcomes.

A working group who comprised national and international process experts develops competency Standards and the participation of experts from the industry to identify the competencies required of an occupation in a particular sector.

Competency Standards describe the skills, knowledge and attitude needed to perform effectively in the workplace. Competency Standards acknowledge that people can achieve vocational and technical competency in many ways by emphasizing what the learner can do, not how or where they learned to do it.

With Competency Standards, training and assessment may be conducted at the workplace or at training organization or any combination of these.

A Unit of Competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of Competency are documented in a standard format that comprises:

- Reference to Industry Sector, Occupational Title and Occupational Description
- Unit code
- Unit title
- Unit descriptor
- Unit of Competency
- Elements and performance criteria
- Variables and range statement
- Evidence guides

Together all the parts of a Unit of Competence:

- Describe a work activity
- Guide the assessor in determining whether the candidate is competent.

Identification and validation of units of competency and elements for each occupation were made by expert of various construction companies through an industry consultative workshop held at the Bangladesh Association of Software and Information Services (BASIS)20<sup>TH</sup> of March 2016.

Profile of experts and facilitators who participated in the Competency Verification and Validation Workshop are given below.

**Competency Verification-Validation Experts:**

Name	Company	Job Position
Mr. Md. Mokhlesur Rahman	SPONDON	CEO
Mr. MdFaruk Hossain	Bording Vista Ltd.	Team Leader, Graphic Design
Mrs. Sayma Begum	BITM	Asst. Trainer
Mr. ZohirulAlamTiemoon	Nerd Castle, Ltd	CEO
Mr. Tayabur Rahman Masud	BITM	Asst. Trainer
Mr. MianZadidRusdid	BITM	Lead Trainer
Mr. Khondoker Ali Asgor Pavel	BitBirds Solution	CEO
Md. Hasib	BITM	Executive,IT
Sifat-E-Tanzim	Liveoutsource,LTd.	Software Engineer

**Workshop Facilitators:**

Md. Mohiuzzaman	SEIP	Course Specialist
Emeterio Cedillo, Jr.	SEIP	International Specialist
Mr. Muhammad Mofizur Rahman	SEIP	National Consultant

The ensuing sections of this document comprise a description of the respective occupation with all the key components of a Unit of Competency:

- A chart with an overview of all Units of Competency for the respective occupation including the Unit Codes and the Unit of Competency titles and corresponding Elements.
- The Competency Standards that include the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide.

**COMPETENCY PROFILE/CHART for#  
Mobile Application Development (Android)**

**UNITS OF  
COMPETENCY**

**ELEMENTS**

**A. Generic (Basic) Competencies**

<b>PERFORM COMPUTATIONS USING BASIC MATHEMATICAL CONCEPTS</b> (SEIP-IT-MOB-1-G)	Identify calculation requirements in the workplace.	Select appropriate mathematical methods/concepts for the calculation.	Use tool/instrument to perform calculations	
<b>APPLY OCCUPATIONAL HEALTH AND SAFETY (OHS) PRACTICES IN THE WORKPLACE</b> (SEIP-IT-MOB-2-G)	Identify OHS policies and procedures	Apply personal health and safety practices	Report hazards and risks	Respond to emergencies
<b>COMMUNICATE IN ENGLISH IN THE WORKPLACE</b> (SEIP-IT-MOB-3-G)	Read and understand Workplace documents in English	Write simple workplace written communications in English.	Listen and comprehend to English conversation	Perform conversations in English language
<b>WORK IN A SELF-DIRECTED TEAM.</b> (SEIP-IT-MOB-4-G)	Identify team goals and processes.	Communicate and cooperate with team members.	Work as a team member	Solve problems as a team member

**B. Sector Specific (Common) Competencies**

<b>OPERATE A PERSONAL COMPUTER AND USE OFFICE APPLICATION</b> (SEIP-IT-MOB-1-S)	Start and shut down the computer	Access basic system information	Work with files, folders and user application programs	Print documents
<b>TYPE DOCUMENTS IN BANGLA AND ENGLISH</b> (SEIP-IT-MOB-2-S)	Install the application	Select appropriate tools and keyboard layout	Type document using different style format	
<b>SEND AND RETRIEVE INFORMATION USING EMAIL, WEB BROWSERS, VIDEO/AUDIO TOOLS</b> (SEIP-IT-MOB-3-S)	Access the internet	Search the internet	Research and apply 'netiquette' principals	Organize and send message
<b>COMPLY TO ETHICAL STANDARDS IN IT WORKPLACE</b> (SEIP-IT-MOB-4-S)	Uphold the interests of clients	Deliver quality products and services	Demonstrate professionalism at work	Obey workplace code of conduct.

### C. Occupation Specific (Core) Competencies

<b>DESCRIBE ANDROID BASIC</b> (SEIP-IT-MOB-1-O)	Describe android	Define main building blocks	Describe android user interface	
<b>DESCRIBE OOP</b> (SEIP-IT-MOB-2-O)	Describe class properties, constants & visibility	Explain encapsulation	Explain inheritance	Use Polymorphism
<b>WORK WITH JAVA BASICS</b> (SEIP-IT-MOB-3-O)	Create Java data types	Use Java		
<b>MANAGE DATABASE</b> (SEIP-IT-MOB-4-O)	Operate SQLite Database	Use content providers	Use lists and adapters	Demonstrate use of preferences & file system
<b>APPLY WEB SERVICE &amp; PUSH NOTIFICATION</b> (SEIP-IT-MOB-5-O)	Use Application Program Interface (API)	Explain HTTP & Web Services	Implement Google Cloud Messaging (GCM)	
<b>CARRY OUT SERVICE AND APPLICATION SIGNING</b> (SEIP-IT-MOB-6-O)	Describe broadcast receivers	Start a service	Introduce application signing and deployment	

## Units & Elements at Glance:

### A. Generic (Basic) Competencies (46hrs.)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
SEIP-IT-MOB-1-G	Perform Computations Using Basic Mathematical Concepts	<ol style="list-style-type: none"> <li>1. Identify calculation requirements in the workplace.</li> <li>2. Select appropriate mathematical methods/concepts for the calculation.</li> <li>3. Use tool/instrument to perform calculations.</li> </ol>	14
SEIP-IT-MOB-2-G	Apply Occupational Health and Safety (OHS) Practices in the Workplace	<ol style="list-style-type: none"> <li>1. Identify OHS policies and procedures.</li> <li>2. Apply personal health and safety practices.</li> <li>3. Report hazards and risks.</li> <li>4. Respond to emergencies.</li> </ol>	10
SEIP-IT-MOB-3-G	Communicate in English in the Workplace	<ol style="list-style-type: none"> <li>1. Read and understand workplace documents in English</li> <li>2. Write simple workplace communications in English</li> <li>3. Listen and comprehend to English conversations</li> <li>4. Perform conversations in English language</li> </ol>	14
SEIP-IT-MOB-4-G	Work in a Self-Directed Team	<ol style="list-style-type: none"> <li>1. Identify team goals and work processes</li> <li>2. Communicate and cooperate with team members.</li> <li>3. Work as a team member.</li> <li>4. Solve problems as a team member</li> </ol>	8
<b>Total Hours</b>			<b>46</b>



## B. Sector Specific (Common) Competencies (64 hrs.)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
SEIP-IT-MOB-1-S	Operate a Personal Computer and Use Office Application	<ol style="list-style-type: none"> <li>1. Start and shut down the computer</li> <li>2. Access basic system information</li> <li>3. Work with files, folders and user application programs</li> <li>4. Print documents</li> </ol>	24
SEIP-IT-MOB-2-S	Type Documents in Bangla and English	<ol style="list-style-type: none"> <li>1. Install the application</li> <li>2. Select appropriate tools and keyboard layout</li> <li>3. Type document using different style format</li> </ol>	12
SEIP-IT-MOB-3-S	Send and Retrieve Information Using Email, Web Browsers, Video/Audio Tools	<ol style="list-style-type: none"> <li>1. Access the internet</li> <li>2. Search the internet</li> <li>3. Research and apply 'netiquette' principals</li> <li>4. Organize and send message</li> </ol>	16
SEIP-IT-MOB-4-S	Comply to Ethical Standards in IT Workplace	<ol style="list-style-type: none"> <li>1. Uphold the interests of clients</li> <li>2. Deliver quality products and services</li> <li>3. Demonstrate professionalism at work</li> <li>4. Obey workplace code of conduct.</li> </ol>	12
Total Hours			64

## C. Occupation Specific (Core) Competencies (250hrs.)

Code	Unit of Competency	Elements of Competency	Duration Hours
SEIP-IT-MOB-1-O	Describe Android Basic	<ol style="list-style-type: none"> <li>1. Describe android</li> <li>2. Define main building blocks</li> <li>3. Describe android user interface</li> </ol>	52
SEIP-IT-MOB-2-O	Describe OOP	<ol style="list-style-type: none"> <li>1. Describe class properties, constants &amp; visibility</li> <li>2. Explain encapsulation</li> <li>3. Explain inheritance</li> <li>4. Use Polymorphism</li> </ol>	28
SEIP-IT-MOB-3-O	Work with Java Basics	<ol style="list-style-type: none"> <li>1. Create Java data types</li> <li>2. Use Java</li> </ol>	18
SEIP-IT-MOB-4-O	Manage Database	<ol style="list-style-type: none"> <li>1. Operate SQLite Database</li> <li>2. Use content providers</li> <li>3. Use lists and adapters</li> <li>4. Demonstrate use of preferences &amp; file system</li> </ol>	76
SEIP-IT-MOB-5-O	Apply Web Service and Push Notification	<ol style="list-style-type: none"> <li>1. Use Application Program Interface (API)</li> </ol>	30

		2. Explain HTTP& Web Services 3. Implement Google Cloud Messaging (GCM)	
SEIP-IT-MOB-6-O	Carry Out Service and Application Signing	1. Describe broadcast receivers 2. Start a service 3. Introduce application signing and deployment	46
<b>Total Hours</b>			<b>250</b>

**COMPETENCY STANDARD: MOBILE APPLICATION DEVELOPMENT (ANDROID)**

**A. The Generic (Basic Competencies)**

<b>Unit of Competency:</b> <b>PERFORM COMPUTATIONS USING BASIC MATHEMATICAL CONCEPTS</b>	<b>Nominal Duration:</b> 14 hrs.	<b>Unit Code:</b> SEIP-IT-MOB-1-G
<b>Unit Descriptor:</b> This unit of competency requires the knowledge, skills and attitude to perform computations using basic mathematical concepts in the workplace. It specifically includes the tasks of identifying calculation requirements in the workplace, selecting appropriate mathematical method/concept for the calculation and using appropriate instruments tools to carry out calculation.		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Identify calculation requirements in the workplace	1.1 <b><u>Calculation requirements</u></b> are identified from <b><u>workplace information</u></b> .
2. Select appropriate mathematical methods/concepts for the calculation.	2.1 <b><u>Appropriate method</u></b> is selected to carry out the calculation requirements.
3. Use tool/instrument to perform calculations	3.1 Calculations are completed using appropriate <b><u>tools and instruments</u></b> .

**Range of variables:**

<b>Variable</b>	<b>Range</b>
	May include but not limited to:
1. Calculation requirements.	1.1 Area 1.2 Height 1.3 Length/Breath/thickness 1.4 Diameter 1.5 Weight 1.6 Capacity 1.7 Time 1.8 Temperature. 1.9 Material usage 1.10 Speed 1.11 Costing 1.12 Mass 1.13 Density
2. Workplace information	2.1 Mechanical Plan 2.2 Design 2.3 Working drawing

	2.4 Verbal instructions 2.5 Job order
3. Appropriate method	3.1 Addition 3.2 Subtraction 3.3 Division 3.4 Multiplication 3.5 Conversion 3.6 Percentage and ratio calculation 3.7 Simple equation
4. Tools/instruments	4.1 Calculator 4.2 Computer

### Curricular Content Guide

1. Underpinning Knowledge	1.1 Numerical concept 1.2 Basic mathematical methods such as addition, subtraction, multiplication, division, and percentage. 1.3 Mathematical language, symbols and terminology. 1.4 Measuring units 1.5 Knowledge of computer application
2. Underpinning Skills	2.1 Adding numbers 2.2 Subtracting numbers 2.3 Multiplying numbers. 2.4 Dividing numbers. 2.5 Measuring of linear 2.6 Using of mathematical language, symbols, terminology and technology. 2.7 Measuring of different physical parameter. 2.8 Calculating geometrical parameters: angle, parallelism, perpendicularity, area and volume
3. Underpinning Attitudes	3.1 Commitment to occupational health and safety practices 3.2 Promptness in carrying out activities. 3.3 Tidiness and timeliness. 3.4 Respect to peers, sub-ordinates and seniors in workplace. 3.5 Environmental concern. 3.6 Sincerity and honesty
4. Resource Implications	The following resources must be provided. 4.1 Stationeries 4.2 Consumables 4.3 Calculators 4.4 Computers 4.5 Measuring tape

### Assessment Evidence Guide

1. Critical Aspects of Competency	Assessment required evidence that the candidate: 1.1 Identified calculation requirements from workplace information 1.2 Selected appropriate method to carry out the calculation requirements 1.3 Completed calculations using appropriate tools/instruments
2. Methods of Assessment	Methods of assessment may include but not limited to: 2.1 Written test 2.2 Oral questioning 2.3 Demonstration.
5. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

<b>Unit of Competency:</b> <b>APPLY OCCUPATIONAL HEALTH AND SAFETY</b>	<b>Nominal Duration:</b> 10 hrs.	<b>Unit Code:</b> SEIP-IT-MOB-2-G
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<b>(OHS) PRACTICES IN THE WORKPLACE</b>		
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required to apply Occupational Health and Safety (OH&S) practices in the workplace. It specifically includes the tasks of identifying OHS policies and procedures, applying personal health and safety practices, reporting hazards and risks and responding to emergencies.		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Identify OHS policies and procedures	1.1 <b><u>OHS policies</u></b> and safe operating procedures are read and understood. 1.2 Safety signs and symbols are identified and followed. 1.3 Emergency response, evacuation procedures and other contingency measures are determined.
2. Apply personal health and safety practices	2.1 OHS policies and procedures are followed and practiced. 2.2 <b><u>Personal Protective Equipment (PPE)</u></b> is selected and used. 2.3 Personal hygiene is maintained.
3. Report hazards and risks	3.1 <b><u>Hazards and risks</u></b> are identified, assessed and controlled. 3.2 Incidents arising from hazards and risks are reported to authority. 3.3 Corrective actions are implemented to correct unsafe conditions in the workplace.
4. Respond to emergencies	4.1 Alarms and warning devices are responded. 4.2 <b><u>Emergency response plans and procedures</u></b> are implemented. 4.3 <b><u>First aid procedure</u></b> is applied during emergency situations.

**Range of Variables**

<b>Variable</b>	<b>Range</b>
	May include but not limited to:
1. OHS policies	1.1 International OHS requirements 1.2 Bangladesh standards for OHS 1.3 Building Code 1.4 Fire Safety Rules and Regulations 1.5 Light Engineering Industry Guidelines
2. Personal Protective Equipment (PPE)	2.1 Apron 2.2 Gas Mask 2.3 Gloves 2.4 Safety shoes 2.5 Helmet 2.6 Face mask 2.7 Overalls 2.8 Goggles and safety glasses 2.9 Ear plugs

	2.10 Sun block 2.11 Chemical/Gas masks
3. Hazards and risks	3.1 Chemical hazards 3.2 Biological hazards 3.3 Physical Hazards 3.3.1 Machine hazards 3.3.2 Materials hazards 3.3.3 Tools and Equipment hazards
4. Emergency response plans and procedures	4.1 Firefighting procedures 4.2 Earthquake response procedures 4.3 Evacuation procedures 4.4 Medical and first aid
5. First aid procedure	5.1 Washing of open wound 5.2 Washing chemically infected area 5.3 Applying bandage 5.4 Tourniquet 5.5 Applying CPR (Cardiopulmonary Resuscitation) 5.6 Taking appropriate medicine

**Curricular Evidence Guide:**

1. Underpinning Knowledge	1.1 OHS workplace policies and procedures. 1.2 Work safety procedures 1.3 Emergency procedures 1.3.1 Firefighting 1.3.2 Earthquake response 1.3.3 Explosion response 1.3.4 Accident response 1.4 Types of (biological, chemical and physical) and their effects 1.5 PPE types and uses 1.6 Personal hygiene practices 1.7 OHS awareness
2. Underpinning Skills	2.1 Identifying OHS policies and procedures 2.2 Following personal work safety practices 2.3 Reporting hazards and risks 2.4 Responding to emergency procedures 2.5 Maintaining physical well-being in the workplace 2.6 Performing first aids 2.7 Performing basic firefighting accessories using fire extinguishers 2.8 Applying basic first aid procedures
3. Underpinning Attitudes	3.1 Commitment to occupational health and safety practices 3.2 Communication with peers, sub-ordinates and seniors in workplace 3.3 Promptness in carrying out activities 3.4 Tidiness and timeliness 3.5 Respect of peers, sub-ordinates and seniors in workplace 3.6 Environmental concern

	3.7 Sincere and honest to duties
4. Resource Implications	4.1 Workplace (simulated or actual) 4.2 PPEs 4.3 Firefighting equipment 4.4 Emergency response manual 4.5 First aid kits

**Assessment Evidence Guide:**

1. Critical Aspects of Competency	Assessment required evidence that the candidate: 1.1 Followed OHS policies and procedures 1.2 Selected and used personal protective equipment (PPE) 1.3 Reported incidents arising from hazards and risks to authority 1.4 Emergency response plans and procedures are implemented 1.5 Applied basic first aid procedure
2. Methods of Assessment	Methods of assessment may include but not limited to: 2.1 Written test 2.2 Demonstration. 2.3 Oral questioning 2.4 Interview.
3. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

<b>Unit of Competency:</b> <b>COMMUNICATE IN ENGLISH IN THE WORKPLACE</b>	<b>Nominal Duration:</b> 14 hrs.	<b>Unit Code:</b> SEIP-IT-MOB-3-G
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**Unit Descriptor:**

This unit covers the knowledge, skills and attitudes required to apply English communication in the workplace. It specifically includes work tasks of reading and understanding workplace documents in English, writing simple workplace written communications in English, listening and comprehending to English conversations and performing conversations in English.

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Read and understand workplace documents in English	1.1 Workplace documents are read and understood. 1.2 Visual information is interpreted.
2. Write simple workplace communications in English	2.1 Simple <b><u>routine workplace documents</u></b> are prepared using key words, phrases, simple sentences and <b><u>visual aids</u></b> are prepared. 2.2 Key information is written in the appropriate places in standard forms.
3. Listen and comprehend to English conversations	3.1 Active listening is demonstrated.
4. Perform conversations in English language	4.1 Conversation is performed in English with peers, customers and management to the required workplace standard.

**Range of Variables**

<b>Variable</b>	<b>Range</b>
	May Include but not limited to:
1. Routine workplace documents	1.1 Agenda 1.2 Simple reports such as progress and incident reports 1.3 Job sheets 1.4 Operational manuals 1.5 Brochures and promotional material 1.6 Visual and graphic materials 1.7 Standards 1.8 OSH information 1.9 Signs
2. Visual aids	2.1 Maps 2.2 Diagrams 2.3 Forms 2.4 Labels 2.5 Graphs 2.6 Charts

**Curricular Evidence Guide:**

1. Underpinning Knowledge	1.1 Read workplace documents in English
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	<p>1.2 Write simple routine workplace documents in English</p> <p>1.3 Listen to conversation in English</p> <p>1.4 Perform conversation in English</p> <p>1.5 Interaction skills (i.e., teamwork, interpersonal skills, etc.)</p> <p>1.6 Job roles, responsibilities and compliances</p>
2. Underpinning Skills	<p>2.1 Ability to read and understand workplace documents in English by using appropriate vocabulary and grammar, standard spelling and punctuation</p> <p>2.2 Ability to write simple routine workplace documents in English such as Schedules and agenda, job sheets, operational manuals and brochures and promotional material.</p> <p>2.3 Ability of listening in English and interpreting</p> <p>2.4 Ability to perform conversation in English with peers, customers and management to the required workplace standard.</p> <p>2.5 Work effectively with others.</p> <p>2.5.1 Listening and questioning skills</p> <p>2.5.2 Ability to follow simple directions</p>
3. Underpinning Attitudes	<p>3.1 Commitment to occupational health and safety practices</p> <p>3.2 Promptness in carrying out activities.</p> <p>3.3 Tidiness and timeliness.</p> <p>3.4 Respect of peers, sub-ordinates and seniors in workplace.</p> <p>3.5 Environmental concern.</p> <p>3.6 Sincere and honest to duties.</p>
4. Resource Implications	<p>The following resources must be provided:</p> <p>4.1 Work place Procedure</p> <p>4.2 Materials relevant to the proposed activity</p> <p>4.3 All tools, equipment, material and documentation required.</p> <p>4.4 Relevant specifications or work instructions</p>

#### Assessment Evidence Guide:

1. Critical Aspects of Competency	<p>Assessment required evidence that the candidate:</p> <p>1.1 Converse in English with peers and customers.</p> <p>1.2 Made reports of workplace documents in English.</p>
2. Methods of Assessment	<p>Methods of assessment may include but not limited to:</p> <p>2.1 Written test</p> <p>2.2 Demonstration</p> <p>2.3 Oral questioning</p> <p>2.4 Interview</p>
3. Context of Assessment	<p>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.</p>

<b>Unit of Competency:</b> <b>WORK IN A SELF-DIRECTED TEAM</b>	<b>Nominal Duration:</b> 8 hrs.	<b>Unit Code:</b> SEIP-IT-MOB-4-G
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required to work in a self-directed team. It specifically includes work tasks of identifying team goals and work processes, communicating and cooperating with team members, working and solving problems as a team member.		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Identify team goals and work processes	1.1 Team goals and collaborative decision making processes are identified. 1.2 Roles and responsibilities of team members are identified. 1.3 Relationships within team and with other workers are identified.
2. Communicate and cooperate with team members.	2.1 Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives. 2.2 Formal and informal <b><u>forms of communication</u></b> are used effectively to support team achievement. 2.3 Diversity in character is respected and valued in team functioning. 2.4 Views and opinions of other team members are understood and valued. 2.5 Workplace terminology is used correctly to assist communication.
3. Work as a team member.	3.1 Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team. 3.2 Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures. 3.3 Team member's support with other members are made to ensure team achieves goals, awareness and requirements. 3.4 Agreed reporting lines are followed using standard operating procedure.
4. Solve problems as a team member	4.1 Current and potential problems faced by team are identified. 4.2 A solution to the problem is identified. 4.3 Problems are solved effectively and the outcome of the implemented solution is evaluated.

**Range of Variables**

<b>Variable</b>	<b>Range</b>
	May Include but not limited to:
1. Forms of communication	1.1 Agenda 1.2 Simple reports such as progress and incident reports 1.3 Job sheets 1.4 Operational manuals

	<ul style="list-style-type: none"> <li>1.5 Brochures and promotional material</li> <li>1.6 Visual and graphic materials</li> <li>1.7 Standards.</li> <li>1.8 OSH information</li> <li>1.9 Signs</li> </ul>
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**Curricular Evidence Guide:**

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 Team goals and collaborative decision making processes</li> <li>1.2 Roles and responsibilities of team members</li> <li>1.3 Relationships within team and with other workers</li> <li>1.4 Effective interpersonal skills to interact with team members</li> <li>1.5 Effective formal and informal forms of communication</li> <li>1.6 Value of diversity in team functioning</li> <li>1.7 Correct use of workplace terminology</li> <li>1.8 Team’s duties, responsibilities, authorities, objectives and task requirements</li> <li>1.9 Support mechanism to other members of team to ensure achievements of goals</li> <li>1.10 Methods of identifying current and potential problems faced by a team</li> <li>1.11 Effectively problems solving methods and evaluation of outcomes</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>2.1 Identifying team goals and collaborative decision making processes</li> <li>2.2 Identifying roles and responsibilities of team members</li> <li>2.3 Identifying relationships within team and with other workers</li> <li>2.4 Using effective interpersonal skills to interact with team members and to contribute to activities and objectives</li> <li>2.5 Using formal and informal forms of communication</li> <li>2.6 Understanding and valuing views and opinions of other team members</li> <li>2.7 Performing tasks in accordance with organizational and team requirements, specifications and workplace procedures.</li> <li>2.8 Supporting other members of the team to ensure team achieves goals, awareness and requirements</li> <li>2.9 Identifying current and potential problems faced by the team</li> <li>2.10 Identifying solutions to the problem</li> <li>2.11 Solving problems effectively and evaluating the outcome of the implemented solution</li> </ul>
3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Teamwork</li> <li>3.2 Promptness in carrying out activities.</li> <li>3.3 Tidiness and timeliness.</li> <li>3.4 Respect of peers, sub-ordinates and seniors in workplace.</li> <li>3.5 Sincere and honest to duties</li> </ul>
4. Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> <li>4.1 Workplace (simulated or actual)</li> </ul>

	4.2 Pens 4.3 Papers 4.4 Work books 4.5 Learning manuals
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**Assessment Evidence Guide:**

1. Critical Aspects of Competency	Assessment required evidence that the candidate: 1.1 Identified team goals and work processes. 1.2 Communicated and cooperated with team members. 1.3 Worked as a team member. 1.4 Solved problems as a team member.
2. Methods of Assessment	Methods of assessment may include but not limited to: 2.1 Written test 2.2 Demonstration 2.3 Oral questioning 2.4 Interview
3. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

**B. The Sector Specific (Common) Competencies**

<b>Unit of Competency:</b>	<b>Nominal Duration:</b>	<b>Unit Code:</b>
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<b>OPERATE A PERSONAL COMPUTER AND USE OFFICE APPLICATIONS</b>	24 Hrs.	SEIP-IT-MOB-1-S
<p><b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required for a worker to operate a personal computer and use office applications. It specifically includes the tasks of starting and shutting down the computer, accessing basic system information, working with files, folders, and user application programs and printing documents.</p>		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Start and shut down the computer	1.1 <b><u>Peripheral devices</u></b> are checked for correct connection, position and usability. 1.2 Input <b><u>electrical parameters</u></b> of the device are Checked in accordance with peripheral device specification. 1.3 Power of computer and other peripheral devices are Switched on. 1.4 All open <b><u>applications programs</u></b> are logged out in accordance with standard application procedure. 1.5 All open files/documents are exited. 1.6 Personal computer is shut down in accordance with standard shut off procedure. 1.7 The computer and other peripherals are switched off and unplugged power supply in accordance with standard procedure.
2. Access basic system information	2.1 User name and password as prompted and note access, privacy, security and related conditions of use displayed on introductory screens are Inserted. 2.2 PC desktop environment/ <b><u>Graphical User Interface (GUI)</u></b> settings is arranged and customized. 2.3 The <b><u>operating system</u></b> information is identified. 2.4 System configuration and application versions in operation are navigated. 2.5 On-line help functions are used as required.
3. Work with files, folders and user application programs	3.1 Desktop environment is navigated and manipulated. 3.2 Desktop icons are selected, opened and closed to access application programs. 3.3 Application windows and return to desktop original condition are manipulated. 3.4 Basic directory and sub-directories are created and named. 3.5 Attributes of directories are identified. 3.6 Files for user and organization requirements are created and organized 3.7 Data are entered into the desired office application in accordance with work requirements 3.8 Files are copied and saved to available <b><u>data storage</u></b> /disk drives

4. Print documents	1.1 <b>Printer settings</b> , if required, are entered into the program 1.2 Default printer is changed where necessary 1.3 Print command is entered to effect printing of documents 1.4 Adjust document print output where necessary
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### Range of Variables

Variable	Range (Includes but not limited to :)
1. Peripheral devices	1.1 Input Devices 1.1.1 keyboard , MIDI keyboard 1.1.2 mouse 1.1.3 touch screen 1.1.4 pen tablet 1.1.5 joystick 1.1.6 scanner 1.1.7 digital camera 1.1.8 video camera 1.1.9 microphone 1.2 Output Devices 1.2.1 monitor 1.2.2 projector 1.2.3 TV screen 1.2.4 printer 1.2.5 plotter 1.2.6 speakers 1.3 Both input/output 1.3.1 external hard drives 1.3.2 USB drives 1.3.3 media card readers 1.3.4 digital camcorders 1.3.5 digital mixers 1.3.6 MIDI equipment
2. Electrical parameters	2.1 Voltage 2.1.1 AC volts 2.1.2 DC volts 2.2 Current (Ampere) 2.3 Phase 2.4 Cycle
3. Applications programs	3.1 Office programs 3.2 Database programs 3.3 Word processors 3.4 Email programs 3.5 Internet browsers 3.6 System browsers 3.7 Spreadsheets
4. Graphical User Interface (GUI)	4.1 Desktop 4.2 Pointer

	<ul style="list-style-type: none"> <li>4.3 Icons</li> <li>4.4 Menus</li> <li>4.5 Dialog boxes</li> <li>4.6 Scroll bars</li> <li>4.7 Toolbars</li> <li>4.8 Folders</li> <li>4.9 Wall papers</li> <li>4.10 Widgets</li> </ul>
5. Operating system	<ul style="list-style-type: none"> <li>5.1 Microsoft Windows</li> <li>5.2 Apple Mac OS</li> <li>5.3 Ubuntu Linux</li> <li>5.4 Google android</li> <li>5.5 iOS</li> </ul>
6. Data storage	<ul style="list-style-type: none"> <li>6.1 Random Access Memory (RAM)</li> <li>6.2 Floppy disk</li> <li>6.3 Hard disk</li> <li>6.4 CD disk</li> <li>6.5 DVD disk</li> <li>6.6 Flash drive</li> <li>6.7 External hard disk</li> </ul>
7. Printer settings	<ul style="list-style-type: none"> <li>7.1 Default Printer Brand and model</li> <li>7.2 Pages</li> <li>7.3 Printing sides</li> <li>7.4 Collate</li> <li>7.5 Page orientation</li> <li>7.6 Paper size</li> <li>7.7 Margins</li> <li>7.8 Number of pages per sheet</li> </ul>

### Curricular Content Guide

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 Basic software operation</li> <li>1.2 Methods and procedure of checking input electrical parameters</li> <li>1.3 Steps/procedure n switching on the power of computer and other peripheral devices</li> <li>1.4 Computer functions</li> <li>1.5 Basic parts of a computer and various hardware components</li> <li>1.6 Organizational benchmarks for minimum typing skills, including speed and accuracy</li> <li>1.7 Creating and opening documents</li> <li>1.8 Formatting documents</li> <li>1.9 Inserting tables and images</li> <li>1.10 Saving, printing and closing documents</li> <li>1.11 Mail merge function</li> <li>1.12 Basic keyboarding skills</li> <li>1.13 Storage devices and basic categories</li> </ul>
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	<p>1.14 Exiting procedure for open files/documents</p> <p>1.15 Methods and procedure in switching on and off the computer and other peripherals</p> <p>1.16 Selection, opening and closing procedures of desktop icons to access application programs</p> <p>1.17 Method of creating and organizing files for user and organization requirements</p> <p>1.18 Data inputting techniques in accordance with standard typing procedure and office application</p> <p>1.19 Printing procedure and commands</p>
2. Underpinning Skills	<p>2.1 Checking input electrical parameters of the device in accordance with peripheral device specification.</p> <p>2.2 Switching on power of computer and other peripheral devices</p> <p>2.3 Exiting all open files/documents</p> <p>2.4 Switching off the computer and other peripherals and unplugging power supply in accordance with standard procedure</p> <p>2.5 Arranging, customizing and manipulating PC desktop environment/graphical user interface (GUI) settings</p> <p>2.6 Selecting, opening and closing desktop icons to access application programs</p> <p>2.7 Creating and organizing Files for user and organization requirements</p> <p>2.8 Entering data into the desired office application in accordance with work requirements</p> <p>2.9 Entering print command to effect printing of documents</p>
3. Underpinning Attitudes	<p>3.1 Eagerness to learn</p> <p>3.2 Patience</p> <p>3.3 Orderliness</p> <p>3.4 Observance to OHS requirements</p>
4. Resource Implications	<p>1.5 Workplace (simulated or actual)</p> <p>1.6 Personal Computer and peripherals</p> <p>1.7 Software</p> <p>1.8 Pens</p> <p>1.9 Papers</p> <p>1.10 Work sheets</p>

### Assessment Evidence Guide

1. Critical Aspects of Competency	<p>Assessment required evidence that the candidate:</p> <p>1.1 Checked input electrical parameters of the device in accordance with peripheral device specification.</p> <p>1.2 Switched on power of computer and other peripheral devices.</p> <p>1.3 Exited all open files/documents.</p> <p>1.4 Switched off the computer and other peripherals and unplugged power supply in accordance with standard procedure.</p>
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	<p>1.5 Arranged, customized and manipulated PC desktop environment/graphical user interface (GUI) settings.</p> <p>1.6 Selected, opened and closed desktop icons to access application programs</p> <p>1.7 Created and organized files for user and organization requirements.</p> <p>1.8 Entered data into the desired office application in accordance with work requirements</p> <p>1.9 Entered print command to effect printing of documents</p>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <p>2.1 Written examination</p> <p>2.2 Demonstration</p> <p>2.3 Oral questioning</p> <p>2.4 Workplace observation</p> <p>2.5 Portfolio</p>
3. Context of Assessment	<p>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module</p>

<b>Unit of Competency:</b> <b>TYPE DOCUMENTS IN BANGLA AND ENGLISH</b>	<b>Nominal Duration:</b> 12 hrs.	<b>Unit Code:</b> SEIP-IT-MOB-2-S
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**Unit Descriptor:**

This unit covers the skills, knowledge and attitudes required of a worker to type documents in Bangla and English. It specifically includes the tasks of installing the application, selecting appropriate tools and keyboard layout, typing document using different style format in both Bangla and English.

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

Elements of Competency	Performance Criteria
1. Install the application	1.1 Specialized utilities for typing Bangla and English are installed and available.
2. Select appropriate tools and keyboard layout	2.1 Appropriate tools are selected for typing. 2.2 Appropriate <b><u>keyboard layout</u></b> is selected.
3. Type document using different style format	3.1 Document content is typed with different format. 3.2 Document is typed at a minimum speed in English and in Bangla in accordance with workplace requirements.

**Range of Variables**

Variable	Range (Includes but not limited to:)
1. keyboard layout	1.1 QWERTY 1.2 Munir 1.3 Bijoy 1.4 Unijoy 1.5 Phonetics 1.6 Inscript 1.7 Avro

**Curricular Content Guide**

1. Underpinning Knowledge	1.1 Procedure for Installing specialized utilities on the computer 1.2 Selection of tools used for typing 1.3 Types of keyboard layout 1.4 Techniques and procedure of Typing 1.5 Standard typing speeds
2. Underpinning Skills	2.1 Installing specialized utilities for typing Bangla and English 2.2 Selecting appropriate tools for typing 2.3 Selecting appropriate keyboard layout 2.4 Typing document at a minimum speed of 40wpm in English and 30wpm in Bangla
3. Underpinning Attitudes	3.1 Eagerness to learn 3.2 Tidiness and timeliness 3.3 Concern to proper use computer and peripherals 3.4 Orderliness
4. Resource Implications	4.1 Workplace (simulated or actual) 4.2 Personal Computer and peripherals

	4.3 Software 4.4 Pens 4.5 Papers 4.6 Work sheets
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### Assessment Evidence Guide

5. Critical Aspects of Competency	Assessment required evidence that the candidate: 1.1 Installed specialized utilities for typing Bangla and English. 1.2 Selected appropriate tools for typing. 1.3 Selected appropriate keyboard layout. 1.4 Typed document content. 1.5 Typed document at a minimum speed of 40wpm in English and 30wpm in Bangla.
6. Methods of Assessment	Competency should be assessed by: 2.1 Written examination 2.2 Demonstration 2.3 Oral questioning 2.4 Workplace observation 2.5 Portfolio
7. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

<b>Unit of Competency:</b> SEND AND RETRIEVE INFORMATION USING	<b>Nominal Duration:</b> 16 Hrs.	<b>Unit Code:</b> SEIP-IT-MOB-3-S
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EMAIL, WEB BROWSERS, VIDEO/AUDIO TOOLS		
<b>Unit Descriptor:</b>		
This unit covers the skills, knowledge and attitudes required of a worker to send and retrieve information using e-mail, web browsers and video/audio tools. It specifically includes the tasks of accessing the internet, searching in the internet, researching and applying 'netiquette' principals and organizing and sending messages.		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are elaborated in the range of variables).

Elements of Competency	Performance Criteria
1. Access the internet	1.1 <b><u>Internet browser</u></b> is opened and a home page is set.
2. Search the internet	2.1 <b><u>Search engine</u></b> is located and selected. 2.2 Search engine is used to search for information.
3. Research and apply 'netiquette' principals	3.1 Netiquette' (or web etiquette) principles are applied when working with emails and browsing. 3.2 Rules of <b><u>good online manners</u></b> from at least two <b><u>netiquette sites</u></b> are reviewed.
4. Organize and send message	4.1 Email application package is used to create a new Email. 4.2 Email message is sent. 4.3 Email messages are replied to and forwarded as appropriate, using the carbon copy and forward features. 4.4 Attachment and/or email is opened and saved to relevant folders. 4.5 Email message is deleted as required. 4.6 Inbox is sorted according to sender's name and date received.

**Range of Variables**

Variable	Range (Includes but not limited to):
1. Internet browser	1.1 Microsoft Internet 1.2 Mozilla Firefox 1.3 Google chrome 1.4 AOL explorer 1.5 Apple safari 1.6 Opera 1.7 Rockmelt 1.8 Maxthon 1.9 Deepnet explorer
2. Search engine	2.1 Google 2.2 Bing 2.3 Yahoo search 2.4 Ask 2.5 Aol Search 2.6 Wow

	<ul style="list-style-type: none"> <li>2.7 WebCrawler</li> <li>2.8 Info space</li> <li>2.9 Info</li> <li>2.10 DuckDuckGo</li> <li>2.11 Dogpile</li> <li>2.12 Ahea</li> <li>2.13 ixQuick</li> </ul>
3. Good online manners/netiquette	<ul style="list-style-type: none"> <li>3.1 Respecting others opinions</li> <li>3.2 Tone down your language</li> <li>3.3 Picking the right tone</li> <li>3.4 Keeping a straight face</li> <li>3.5 Considering others' privacy</li> <li>3.6 Avoiding inappropriate material</li> <li>3.7 Be forgiving</li> <li>3.8 Thinking before hitting the send button</li> <li>3.9 Testing for clarity</li> <li>3.10 Conciseness is best</li> <li>3.11 Sticking to the point</li> <li>3.12 Thoughtless email</li> <li>3.13 Read first, write later</li> <li>3.14 Netspeak (DO NOT TYPE IN ALL CAPS)</li> </ul>

### Curricular Content Guide

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 Procedure for opening internet browser and setting a home page</li> <li>1.2 Method of Locating and selecting search engine</li> <li>1.3 Procedure for searching for information Using search engine</li> <li>1.4 Principles of netiquette' or web etiquette</li> <li>1.5 Procedure for Replying to received email messages and forwarding</li> <li>1.6 Steps in opening attachment and saving to relevant folders</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>2.1 Opening internet browser and setting a home page</li> <li>2.2 Locating and selecting search engine</li> <li>2.3 Using search engine to search for information</li> <li>2.4 Applying netiquette' (or web etiquette) principles when working with emails and browsing</li> <li>2.5 Replying to received email messages and forwarding as appropriate, using the carbon copy and forward features</li> <li>2.6 Sending Email message</li> <li>2.7 Opening and saving attachment and/or email to relevant folders</li> </ul>
3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Eagerness to learn</li> <li>3.2 Tidiness and timeliness</li> <li>3.3 Concern to proper use computer and peripherals</li> <li>3.4 Orderliness</li> <li>3.5 Observing netiquette</li> </ul>

4. Resource Implications	4.1 Workplace (simulated or actual) 4.2 Personal Computer and peripherals 4.3 Software 4.4 Pens 4.5 Papers 4.6 Work sheets
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### Assessment Evidence Guide

1. Critical Aspects of Competency	Assessment required evidence that the candidate: <ol style="list-style-type: none"> <li>1.1 Opened internet browser and set a home page.</li> <li>1.2 Located and selected search engine.</li> <li>1.3 Used search engine to search for information.</li> <li>1.4 Applied netiquette' (or web etiquette) principles when working with emails and browsing.</li> <li>1.5 Replied to Email messages and forwarded as appropriate, using the carbon copy and forward features.</li> <li>1.6 Sent Email message.</li> <li>1.7 Opened and saved attachment and/or email to relevant folders.</li> </ol>
2. Methods of Assessment	Competency should be assessed by: <ol style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ol>
3. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

<b>Unit of Competency:</b>	<b>Nominal Duration:</b>	<b>Unit Code:</b>
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<b>COMPLY TO ETHICAL STANDARDS IN IT WORKPLACE</b>	12 Hrs.	SEIP-IT-MOB-4-S
<b>Unit Descriptor:</b> This unit covers the skills, knowledge and attitudes required of a worker to comply to ethical standards in it workplace. It specifically includes the tasks of upholding the interests of clients, delivering quality products and services, demonstrating professionalism at work and obeying workplace code of conduct.		

**Elements and Performance Criteria:**

(Terms in the performance criteria that are written in **bold and underlined** are described in the range of variables).

<b>Elements of Competency</b>	<b>Performance Criteria</b>
1. Uphold the interests of clients	1.1 <b><u>Customers/clients</u></b> views are respected at all times. 1.2 Confidentiality of information is upheld in accordance with organizational policies, <b><u>national legislation</u></b> and workplace policies. 1.3 Potential conflicts of interest are identified and involved parties of potential conflicts are notified. 1.4 Proprietary rights of client/customer is asserted.
2. Deliver quality products and services	2.1 Products and services are provided that match the operational and financial needs of clients. 2.2 Work is completed to industry and international standards. 2.3 Quality processes are implemented when developing products and services.
3. Demonstrate professionalism at work	3.1 <b><u>Work processes</u></b> are delivered effectively and efficiently within known <b><u>standards.</u></b> 3.2 Skills, knowledge and qualifications are presented in a professional manner. 3.3 Services and products developed by self and others are correctly delivered. 3.4 Unbiased and objective information are provided to clients. 3.5 Realistic estimates for time, cost and delivery of outputs are presented during negotiation.
4. Obey workplace code of conduct.	4.1 Workplace code of conduct is followed.

**Range of Variables**

<b>Variable</b>	<b>Range (Includes but not limited to:)</b>
1. Customers/clients	1.1 Interdepartmental offices 1.2 External establishments 1.3 Individual customers 1.4 Co-employees 1.5 Contractual workers 1.6 Trainees/apprentices 1.7 Department heads 1.8 Superiors



	1.9 Employer and internal employees.
2. National legislation	2.1 Occupational Health and Safety Requirements 2.2 Industry/ sectoral code of ethics 2.3 International and national guidelines for consumer protection 2.4 International and national copyright laws 2.5 Intellectual property rights law 2.6 Legal and regulatory policies in the information technology sector
3. Work processes	3.1 Encoding 3.2 Printing 3.3 Web designing 3.4 Graphic designing 3.5 Technical support 3.6 Business system analysis 3.7 Data base administration
4. Standards	4.1 ISO standards 4.2 IEC standards 4.3 AS standards 4.4 DIN standards 4.5 Bangladesh standards

### Curricular Content Guide

1. Underpinning Knowledge	1.1 Corporate code of confidentiality of information 1.2 organizational policies, national legislation and workplace policies in relation to IT sector 1.3 Law and regulations pertaining to proprietary rights 1.4 International standards related to Information Technology 1.5 Quality processes for products and services 1.6 Procedure of provided to client information 1.7 Method of estimating for time, cost and delivery products and services 1.8 Workplace code of conduct in IT sector
2. Underpinning Skills	2.1 Upholding confidentiality of information in accordance with organizational policies, national legislation and workplace policies 2.2 Asserting proprietary rights of client/customer 2.3 Completing work in accordance with industry and international standards 2.4 Implementing quality processes when developing products and services 2.5 Delivering correctly services and products developed by self and others 2.6 Providing unbiased and objective information are to clients. 2.7 Presenting realistic estimates for time, cost and delivery of outputs during negotiation 2.8 Following workplace code of conduct

3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Eagerness to learn</li> <li>3.2 Tidiness and timeliness</li> <li>3.3 Concern to proper use computer and peripherals</li> <li>3.4 Orderliness</li> <li>3.5 Observing netiquette</li> </ul>
4. Resource Implications	<ul style="list-style-type: none"> <li>4.1 Workplace (simulated or actual)</li> <li>4.2 Personal Computer and peripherals</li> <li>4.3 Software</li> <li>4.4 Pens</li> <li>4.5 Papers</li> <li>4.6 Work sheets</li> </ul>

**Assessment Evidence Guide**

1. Critical Aspects of Competency	<p>Assessment required evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Upheld confidentiality of information in accordance with organizational policies, national legislation and workplace policies.</li> <li>1.2 Asserted proprietary rights of client/customer.</li> <li>1.3 Completed work to industry and international standards.</li> <li>1.4 Implemented quality processes when developing products and services.</li> <li>1.5 Delivered services and products developed by self and others.</li> <li>1.6 Provided unbiased and objective information to clients.</li> <li>1.7 Presented realistic estimates for time, cost and delivery of outputs during negotiation.</li> <li>1.8 Followed workplace code of conduct.</li> </ul>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ul>
3. Context of Assessment	<ul style="list-style-type: none"> <li>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.</li> </ul>

### C. Occupation Specific (Core) Competencies

<b>Unit of Competency:</b> <b>DESCRIBE ANDROID BASIC #</b>	<b>Nominal Duration:</b> 52 Hrs.	<b>Unit Code:</b> SEIP-IT-MOB-1-O
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required of a worker to describe android basic. It specifically includes the tasks of describing android, defining main building blocks and describing android user interface.		

#### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Describe android	1.1 History of Apps Development is explained. 1.2 Overview of Android Apps development is described. 1.3 Computer is configured for setting up <b><u>android application</u></b> development environment. 1.4 Android Apps Development Environment in a computer is explained.
2. Define main building blocks	2.1 Main building block of Android apps is defined. 2.2 Intents and service are explained. 2.3 Content Providers, broadcast receivers and application context are explained.
3. Describe android user interface #	3.1 Activity life cycle is defined. 3.2 View and <b><u>Layout</u></b> are described. 3.3 UI Widgets are described. 3.4 A simple activity layout is designed for some basic user operation. 3.5 UI with fragments and action bar is designed.

#### Range of Variables

Variable	Range (Includes but not limited to :)
1. Android application	1.1 Music 1.2 Sport 1.3 Travel 1.4 Business 1.5 Social media 1.6 News 1.7 Lifestyle 1.8 Weather 1.9 Multimedia 1.10 Navigation 1.11 Reference 1.12 Books
2. layout	2.1 Linear

	<ul style="list-style-type: none"> <li>2.2 Relative</li> <li>2.3 Table</li> <li>2.4 Absolute</li> <li>2.5 Frame</li> <li>2.6 List view</li> <li>2.7 Grid view</li> </ul>
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### Curricular Content Guide

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 History of APPS development</li> <li>1.2 Overview of android APPS development</li> <li>1.3 Computer configuration for setting up android application development environment</li> <li>1.4 Android APPS development environment in a computer</li> <li>1.5 Main building block of android APPS</li> <li>1.6 Intents and service</li> <li>1.7 Content providers, broadcast receivers and application context</li> <li>1.8 Activity life cycle.</li> <li>1.9 View and layout</li> <li>1.10 Familiarization of UI widgets</li> <li>1.11 Designing a simple activity layout</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>2.1 Explaining history of APPS development</li> <li>2.2 Describing overview of android APPS development</li> <li>2.3 Configuring computer for setting up android application development environment</li> <li>2.4 Explaining android APPS development environment in a computer</li> <li>2.5 Defining main building block of android APPS</li> <li>2.6 Explaining intents and service</li> <li>2.7 Explaining content providers, broadcast receivers and application context</li> <li>2.8 Defining activity life cycle</li> <li>2.9 Describing view and layout</li> <li>2.10 Familiarizing UI widgets</li> <li>2.11 Designing a simple activity layout for some basic user operation</li> <li>2.12 Designing UI with fragments and action bar</li> </ul>
1. Underpinning Attitudes	<ul style="list-style-type: none"> <li>1.1 Eagerness to learn</li> <li>1.2 Tidiness and timeliness</li> <li>1.3 Concern to proper use computer and peripherals</li> <li>1.4 Orderliness</li> <li>1.5 Observing netiquette</li> </ul>

2. Resource Implications	2.1 Workplace (simulated or actual) 2.2 Personal Computer and peripherals 2.3 Software (System & Application) 2.4 Internet 2.5 Pens 2.6 Papers 2.7 Mobile phone
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**Assessment Evidence Guide**

1. Critical Aspects of Competency	Assessment required evidence that the candidate: # 1.1 Explained android apps development environment in a computer 1.2 Defined main building block of android apps 1.3 Described UI widgets 1.4 Designed a simple activity layout or some basic user operation
2. Methods of Assessment	Competency should be assessed by: 2.1 Written examination 2.2 Demonstration 2.3 Oral questioning 2.4 Workplace observation 2.5 Portfolio
3. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

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<b>Unit of Competency:</b> DESCRIBE OOP #	<b>Nominal Duration:</b> 28 Hrs.	<b>Unit Code:</b> SEIP-IT-MOB-2-O
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required of a worker to describe OOP. It specifically includes the tasks of describing class properties, constants & visibility, explaining encapsulation, explaining inheritance and using polymorphism.		

#### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Describe class properties, constants & visibility	1.1 PHP <b><u>Magic Method</u></b> is explained. 1.2 Field, property and method inside a class is kept. 1.3 <b><u>Different areas</u></b> in making OOP is applied 1.4 <b><u>Advantages</u></b> and <b><u>limitations</u></b> of OOP are described.
2. Explain encapsulation	2.1 Encapsulation is described. 2.2 Language mechanism is explained for restricting access to object component. 2.3 Language construction is explained which facilitates bundling of data. 2.4 <b><u>Association relationship</u></b> is defined. 2.5 Association relationship between two classes are created. 2.6 Data and its functionality is encapsulated.
3. Explain inheritance	3.1 The inheritance is explained. 3.2 Types of inheritance are identified. 3.3 Subclasses and super classes of inheritance are explained. 3.4 Essence of inheritance relationship is described. 3.5 Inheritance relationship between classes is created. 3.6 Inheritance vs sub typing is explained.
4. Use Polymorphism	4.1 Static Polymorphism is used. 4.2 Dynamic Polymorphism is applied.

#### Range of Variables

Variable	Range (Includes but not limited to):
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1. Magic Methods	<ul style="list-style-type: none"> <li>1.1 __construct()</li> <li>1.2 __destruct()</li> <li>1.3 bbcall()</li> <li>1.4 bbcall Static</li> <li>1.5 __get</li> <li>1.6 bbset()</li> <li>1.7 bbisset()</li> <li>1.8 bbunset()</li> <li>1.9 bbsleep()</li> <li>1.10 bbwakeup()</li> <li>1.11 bbto String()</li> <li>1.12 bbinvoke()</li> <li>1.13 bbset_state()</li> <li>1.14 bbclone()</li> <li>1.15 bbdebug Info()</li> </ul>
2. Different areas	<ul style="list-style-type: none"> <li>2.1 Image processing</li> <li>2.2 Pattern recognition</li> <li>2.3 Computer assisted concurrent engineering</li> <li>2.4 Computer aided design and manufacturing</li> <li>2.5 Computer aided teaching</li> <li>2.6 Intelligent systems</li> <li>2.7 Data base management systems</li> <li>2.8 Web based applications</li> <li>2.9 Distributed computing and application</li> <li>2.10 Component based applications</li> <li>2.11 Business process reengineering</li> <li>2.12 Enterprise resource planning</li> <li>2.13 Data security and management</li> <li>2.14 Mobile computing</li> <li>2.15 Data warehousing and data mining</li> <li>2.16 Parallel computing</li> </ul>
3. Advantages	<ul style="list-style-type: none"> <li>3.1 Software reuse is enhanced.</li> <li>3.2 Software maintenance cost can be reduced.</li> <li>3.3 Data access is restricted providing better data security.</li> <li>3.4 Software is easily developed for complex problems.</li> <li>3.5 Software may be developed meeting the requirements on time, on the estimated budget.</li> <li>3.6 Software has improved performance.</li> <li>3.7 Software quality is improved.</li> <li>3.8 Class hierarchies are helpful in the design process allowing increased extensibility.</li> <li>3.9 Modularity is achieved.</li> <li>3.10 Data abstraction is possible</li> </ul>
4. limitations	<ul style="list-style-type: none"> <li>4.1 lengthy process</li> <li>4.2 Requires intensive testing procedures.</li> </ul>
5. Association relationship	<ul style="list-style-type: none"> <li>5.1 One-to-one</li> </ul>

**Curricular Content Guide**

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 PHP Magic Methods</li> <li>1.2 Field, property and method inside a class</li> <li>1.3 The different areas in making OOP</li> <li>1.4 Advantages and limitations of OOP</li> <li>1.5 Encapsulation</li> <li>1.6 Language mechanism for restricting access to some of the object component.</li> <li>1.7 Language construction that facilitates the bundling of data with the methods.</li> <li>1.8 Association relationship</li> <li>1.9 Association relationship between two classes</li> <li>1.10 Data and its functionality</li> <li>1.11 The inheritance</li> <li>1.12 Types of inheritance</li> <li>1.13 Subclasses and super classes of inheritance</li> <li>1.14 Essence of inheritance relationship</li> <li>1.15 Inheritance relationship between classes</li> <li>1.16 Inheritances vs sub typing</li> <li>1.17 Static Polymorphism (compile time polymorphism/ Method overloading)</li> <li>1.18 Dynamic Polymorphism (run time polymorphism/ Method Overriding).</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>2.1 Explaining PHP magic methods</li> <li>2.2 Keeping field, property and method inside a class</li> <li>2.3 Applying the different areas in making OOP</li> <li>2.4 Describing advantages and limitations of OOP</li> <li>2.5 Describing encapsulation</li> <li>2.6 Explaining language mechanism for restricting access to some of the object component.</li> <li>2.7 Explaining language construction that facilitates the bundling of data with the methods.</li> <li>2.8 Defining association relationship</li> <li>2.9 Creating association relationship between two classes</li> <li>2.10 Encapsulating data and its functionality</li> <li>2.11 Explaining the inheritance</li> <li>2.12 Identifying types of inheritance</li> <li>2.13 Explaining subclasses and super classes of inheritance</li> <li>2.14 Describing essence of inheritance relationship</li> <li>2.15 Creating inheritance relationship between classes</li> <li>2.16 Explaining inheritances vs sub typing</li> <li>2.17 Using static polymorphism</li> <li>2.18 Applying dynamic polymorphism</li> </ul>



3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Eagerness to learn</li> <li>3.2 Tidiness and timeliness</li> <li>3.3 Concern to proper use computer and peripherals</li> <li>3.4 Orderliness</li> <li>3.5 Observing netiquette</li> </ul>
4. Resource Implications	<ul style="list-style-type: none"> <li>4.1 Workplace (simulated or actual)</li> <li>4.2 Personal computer and peripherals</li> <li>4.3 Different operating software, local web server</li> <li>4.4 Internet</li> <li>4.5 Pens</li> <li>4.6 Papers</li> <li>4.7 Mobile phone</li> </ul>

### Assessment Evidence Guide

1. Critical Aspects of Competency	<p>Assessment required evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Described class properties, constants and visibility</li> <li>1.2 Described advantages and limitations of OOP</li> <li>1.3 Explained encapsulation</li> <li>1.4 Encapsulated data and its functionality</li> <li>1.5 Explained inheritance</li> <li>1.6 Used Polymorphism</li> </ul>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ul>
3. Context of Assessment	<ul style="list-style-type: none"> <li>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.</li> </ul>

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<b>Unit of Competency:</b> <b>WORK WITH JAVA BASICS</b>	<b>Nominal Duration:</b> 18 Hrs.	<b>Unit Code:</b> SEIP-IT-WEB-3-O
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required of a worker to work with Java basics. It specifically includes the tasks of creating Java data types and using java.		

#### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Create Java data types	1.1 Basic anatomy of a java program for android application is described. 1.2 <b><u>Java variables</u></b> are presented. 1.3 Conditional statement is explained. 1.4 Conditional loops are used. 1.5 Data types in Java is created.#
2. Use Java#	2.1 An application is created. 2.2 The <b><u>numbers</u></b> are seen in display. 2.3 Methods in java is implemented.#

#### Range of Variables

Variable	Range (Includes but not limited to:)
1. Java variables	1.1 Integer 1.2 String 1.3 Double
2. Number	2.1 List of number 2.2 Even number 2.3 Odd number

#### Curricular Content Guide

1. Underpinning Knowledge	1.1 Basic anatomy of a java program for android application 1.2 Java variables 1.3 Conditional statement 1.4 Conditional loops 1.5 Data types in Java 1.6 An application 1.7 The numbers display. 1.8 Methods in java
2. Underpinning Skills	2.1 Describing basic anatomy of a Java program for android application 2.2 Presenting Java variables 2.3 Explaining conditional statement 2.4 Using conditional loops 2.5 Creating data types in Java

	<ul style="list-style-type: none"> <li>2.6 Creating an application</li> <li>2.7 Displaying the numbers in display.</li> <li>2.8 Implementing methods in Java</li> </ul>
3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Eagerness to learn</li> <li>3.2 Tidiness and timeliness</li> <li>3.3 Concern to proper use computer and peripherals</li> <li>3.4 Orderliness</li> <li>3.5 Observing netiquette</li> </ul>
4. Resource Implications	<ul style="list-style-type: none"> <li>4.1 Workplace (simulated or actual)</li> <li>4.2 Personal Computer and peripherals</li> <li>4.3 Different Operating Software, Local web server</li> <li>4.4 Java program</li> <li>4.5 Internet</li> <li>4.6 Pens</li> <li>4.7 Papers</li> </ul>

### Assessment Evidence Guide

1. Critical Aspect of Assessment	<p>Assessment required Evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Created Java data types</li> <li>1.2 Used Java</li> <li>1.3 Implemented methods in java</li> </ul>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ul>
3. Context of Assessment	<ul style="list-style-type: none"> <li>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.</li> </ul>

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<b>Unit of Competency:</b> <b>MANAGE DATABASE</b>	<b>Nominal Duration:</b> 76 Hrs.	<b>Unit Code:</b> SEIP-IT-WEB-4-O
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required of a worker to manage database. It specifically includes the tasks of operating SQLite Database, using content providers, using lists and adapters and Demonstrating the use of preferences and file system.		

#### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Operate SQLite Database#	1.1 SQLite and Database design is described. 1.2 Managing SQLite database is explained. 1.3 <b><u>CRUD</u></b> operation in database is made. 1.4 Table in SQLite is created. 1.5 <b><u>Data operation</u></b> from database using Android Applications made.
2. Use content providers#	2.1 Method to create content provider is explained. 2.2 Content provider is used. 2.3 Data from one process to another is passed. 2.4 Database operation is simplified.
3. Use lists and adapters#	3.1 List is defined. 3.2 List is used. 3.3 Collection of items using list are demonstrated. 3.4 Working with list in Android is demonstrated. 3.5 Custom list is created using adapter.
4. Demonstrate use of preferences & file system#	4.1 Basic concept of shared preferences and file system in android is explained. 4.2 Saving and getting data in shared preference is demonstrated.

#### Range of Variables

Variable	Range (Includes but not limited to:)
1. Crud	1.1 Create 1.2 Retrieve/read 1.3 Update 1.4 Delete
2. Date operation	2.1 Select 2.2 Save 2.3 Modify 2.4 Edit 2.5 Add 2.6 Insert() 2.7 Update()

	2.8 Delete() 2.9 query()
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### Curricular Content Guide

1. Underpinning Knowledge	<ul style="list-style-type: none"> <li>1.1 SQLite and Database design</li> <li>1.2 Managing SQLite database</li> <li>1.3 CRUD operation in database</li> <li>1.4 Table in SQLite</li> <li>1.5 Data operation from database using Android Application</li> <li>1.6 Method to create content provider.</li> <li>1.7 Content provider</li> <li>1.8 Data from one process to another</li> <li>1.9 Database operation.</li> <li>1.10 Collection of items using list</li> <li>1.11 Working with list in Android</li> <li>1.12 Custom list</li> <li>1.13 Basic concept of shared preferences and file system in android</li> <li>1.14 Saving and getting data in shared preference</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>2.1 Describing SQLite and database design</li> <li>2.2 Explaining managing SQLite database</li> <li>2.3 Making crud operation in database</li> <li>2.4 Creating table in SQLite</li> <li>2.5 Making data operation from database using android application</li> <li>2.6 Explaining method to create content provider</li> <li>2.7 Using content provider</li> <li>2.8 Passing data from one process to another</li> <li>2.9 Simplifying database operation</li> <li>2.10 Defining and using list</li> <li>2.11 Demonstrating collection of items using list</li> <li>2.12 Demonstrating working with list in android</li> <li>2.13 Creating custom list using adapter</li> <li>2.14 Explaining basic concept of shared preferences and file system in android</li> <li>2.15 Demonstrating saving and getting data in shared preference</li> </ul>
3. Underpinning Attitudes	<ul style="list-style-type: none"> <li>3.1 Eagerness to learn</li> <li>3.2 Tidiness and timeliness</li> <li>3.3 Concern to proper use computer and peripherals</li> <li>3.4 Orderliness</li> <li>3.5 Observing netiquette</li> </ul>
4. Resource Implications	<ul style="list-style-type: none"> <li>4.1 Workplace (simulated or actual)</li> <li>4.2 Personal Computer and peripherals</li> </ul>

	4.3 Different Operating Software , Local web server 4.4 Internet 4.5 Pens 4.6 Papers
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### Assessment Evidence Guide

1. Critical Aspect of Assessment	Assessment required Evidence that the candidate: 1.1 Operated SQLite Database. 1.2 Used content providers. 1.3 Used lists and adapters. 1.4 Demonstrated use of preferences and file system.
2. Methods of Assessment	Competency should be assessed by: 2.1 Written examination 2.2 Demonstration 2.3 Oral questioning 2.4 Workplace observation 2.5 Portfolio
3. Context of Assessment	3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.

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<b>Unit of Competency:</b> <b>APPLY WEB SERVICE AND PUSH NOTIFICATION</b>	<b>Nominal Duration:</b> 30 Hrs.	<b>Unit Code:</b> SEIP-IT-WEB-5-O
<b>Unit Descriptor:</b> This unit covers the knowledge, skills and attitudes required of a worker to apply web service & push notification. It specifically includes the tasks <del>r#</del> using application program interface (API), explaining HTTP & WEB services and implementing Google Cloud Messaging (GCM).		

### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined>** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Use Application Program Interface (API) #	1.1 Location API is described. 1.2 Working with Map API is explained. 1.3 Telephony network information is retrieve. 1.4 Introduction to sensor is presented. 1.5 Users' location is found. 1.6 Routes on map is drawn. 1.7 <u>Switch on/off to display using proximity sensor is used.</u>
2. Explain HTTP& Web Services#	2.1 Web service is defined. 2.2 Json based web service is described. 2.3 Open weather Map API and display weather information are presented.
3. Implement Google Cloud Messaging (GCM)	3.1 GCM in Android is described. 3.2 Client and server in GCM is defined. 3.3 GCM client is implemented. 3.4 GCM server is implemented. 3.5 Working with user notification is demonstrated.

### Range of Variables

Variable	Range (Includes but not limited to:)

### Curricular Content Guide

1. Underpinning Knowledge	1.1 Location API 1.2 Working with Map API 1.3 Telephony network information 1.4 Introduction to sensor 1.5 Users location 1.6 Routes on Map 1.7 Switch on/off to display using proximity sensor 1.8 Web service 1.9 Json based web service
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	<ul style="list-style-type: none"> <li>1.10 Open weather Map API and display weather information</li> <li>1.11 GCM in Android is described</li> <li>1.12 Client and server in GCM</li> <li>1.13 GCM client</li> <li>1.14 GCM server</li> <li>1.15 Working with user notification</li> </ul>
1. Underpinning Skills	<ul style="list-style-type: none"> <li>1.1 Describing location API</li> <li>1.2 Explaining on how to work with map API</li> <li>1.3 Retrieving telephony network information</li> <li>1.4 Presenting introduction to sensor</li> <li>1.5 Finding users location</li> <li>1.6 Drawing routes on map</li> <li>1.7 Using switch on/off to display using proximity sensor</li> <li>1.8 Defining Web service</li> <li>1.9 Describing Json based web service</li> <li>1.10 Consuming open weather map API and display weather information</li> <li>1.11 Describing GCM in android</li> <li>1.12 Defining client and server in GCM</li> <li>1.13 Implementing GCM client</li> <li>1.14 Implementing GCM server</li> <li>1.15 Demonstrating on how to work with user notification</li> </ul>
2. Underpinning Attitudes	<ul style="list-style-type: none"> <li>2.1 Eagerness to learn</li> <li>2.2 Tidiness and timeliness</li> <li>2.3 Concern to proper use computer and peripherals</li> <li>2.4 Orderliness</li> <li>2.5 Observing netiquette</li> </ul>
3. Resource Implications	<ul style="list-style-type: none"> <li>3.1 Workplace (simulated or actual)</li> <li>3.2 Personal Computer and peripherals</li> <li>3.3 Different Operating Software, Local web server</li> <li>3.4 Internet</li> <li>3.5 Pens</li> <li>3.6 Papers</li> </ul>

### Assessment Evidence Guide

1. Critical Aspect of Assessment	<p>Assessment required Evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Used Application Program Interface (API).</li> <li>1.2 Used switch on/off to display using proximity sensor.</li> <li>1.3 Explained HTTP and web services</li> <li>1.4 Implemented Google Cloud Messaging (GCM)</li> </ul>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ul>
3. Context of Assessment	<ul style="list-style-type: none"> <li>3.1 Competency assessment must be done in a training</li> </ul>



	center or in an actual or simulated work place after completion of the training module.
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<b>Unit of Competency:</b> <b>CARRY OUT SERVICE AND APPLICATION SIGNING</b>	<b>Nominal Duration:</b> 46 Hrs.	<b>Unit Code:</b> SEIP-IT-WEB-6-O
Unit descriptor: This unit covers the knowledge, skills and attitudes required of a worker to carry out service and application signing. It specifically includes the tasks of describing broadcast receivers, starting a service and introducing application signing and deployment.		

#### Elements and Performance Criteria Template:

(Terms in the performance criteria that are written in **bold and underlined>** are described in the range of variables).

Elements of Competency	Performance Criteria
1. Describe broadcast receivers#	1.1 Event receiving is explained. 1.2 Starting a service by using broadcast receiver is demonstrated. 1.3 An event is received.
2. Start a service#	2.1 Lifecycle of services is explained. 2.2 Different types of <b><u>services</u></b> are implemented. 2.3 Notification using service is generated. 2.4 Music playing as a background service is made.
3. Introduce application signing and deployment	3.1 Key store file to make signed APK is generated. 3.2 Application signing and deployment is introduced.

#### Range of Variables

Variable	Range (Includes but not limited to:)
1. Services	1.1 On start command()# 1.2 On bind()# 1.3 On create()# 1.4 On destroy()# 1.5 Bind service()# 1.6 Stop self()# 1.7 Stop service()

#### Curricular Content Guide

1. Underpinning Knowledge	1.1 Event receiving 1.2 Starting a service by using broadcast receiver 1.3 Receiving techniques of an event 1.4 Lifecycle of services 1.5 Different types of services 1.6 Notification using service 1.7 Music playing as a background service
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	<ul style="list-style-type: none"> <li>1.8 Key store file to make signed APK.</li> <li>1.9 Application signing and deployment</li> </ul>
2. Underpinning Skills	<ul style="list-style-type: none"> <li>1.1 Explaining event receiving</li> <li>1.2 Demonstrating on how to start a service by using broadcast receiver</li> <li>1.3 Receiving an event</li> <li>1.4 Explaining lifecycle of services</li> <li>1.5 Implementing different types of services</li> <li>1.6 Generating notification using service</li> <li>1.7 Making music playing as a background service</li> <li>1.8 Generating key store file to make signed APK.</li> <li>1.9 Introducing application signing and deployment</li> </ul>
2. Underpinning Attitudes	<ul style="list-style-type: none"> <li>2.1 Eagerness to learn</li> <li>2.2 Tidiness and timeliness</li> <li>2.3 Concern to proper use computer and peripherals</li> <li>2.4 Orderliness</li> <li>2.5 Observing netiquette</li> </ul>
3. Resource Implications	<ul style="list-style-type: none"> <li>3.1 Workplace (simulated or actual)</li> <li>3.2 Personal Computer and peripherals</li> <li>3.3 Different Operating Software, Local web server</li> <li>3.4 Internet</li> <li>3.5 Pens</li> <li>3.6 Papers</li> </ul>

**Assessment Evidence Guide**

1. Critical Aspect of Assessment	<p>Assessment required Evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Demonstrated starting a service by using broadcast receiver.</li> <li>1.2 Describe broadcast receivers</li> <li>1.3 Start a service</li> <li>1.4 Generated notification using service</li> <li>1.5 Introduced application signing and deployment</li> </ul>
2. Methods of Assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> <li>2.1 Written examination</li> <li>2.2 Demonstration</li> <li>2.3 Oral questioning</li> <li>2.4 Workplace observation</li> <li>2.5 Portfolio</li> </ul>
3. Context of Assessment	<ul style="list-style-type: none"> <li>3.1 Competency assessment must be done in a training center or in an actual or simulated work place after completion of the training module.</li> </ul>

**End of Competency Standard**

# **Assessment Guide**

## **A Framework for Effective Assessment**

### **Mobile Application Development (Android)**

## *How to Use this Assessment Guide*

- This Assessment Guide presents need-to-know information for Assessors and others who want to know more about the assessment process. A handy Table of Contents Guide on the next page shows you where to look.
- If you want the basics of assessment, its key terms and definitions, in a Question & Answer (Q&A) format, see Section One.
- If you want a knowledge of who does what, the key roles and responsibilities involved in assessment, see Section Two.
- If you want a “toolbox” of tools and templates, that you can select from depending on your assessment need, see Section Three.
- If you want to look at working samples of completed assessment tools, see the Appendices.

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## Section One: Q&A linked to Key Terms & Definitions

	Page No.	
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1.20	What is the Purpose of evidence gathering tools?	
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1.24	What kinds of Assessment Methods can be used for Evidence gathering	

- 1.25 Define the term “evidence gathering tools” giving examples
- 1.26 Define the term “portfolio.”
- 1.27 Outline a 6-step method for preparing an evidence plan.
- 1.28 Outline the steps (sequence of activities) involved in developing an assessment tool.
- 1.29 Describe the four dimensions of competency.

## Section Two: Roles and Responsibilities

- 2.1 The Assessment System: Planning Guide for the Assessor
- 2.2 Assessor Role and Responsibilities
- 2.3 Trainer Role and Responsibilities
- 2.4 Candidate Role and Responsibilities

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## Section Three: Tools and Templates

- 3.1 Demonstration Checklist
- 3.2 Observation Checklist
- 3.3 Oral Questions Checklist
- 3.4 Evidence Plan (Overall Summary)
- 3.5 Assessor Job Sheet and Specifications (Spec) Form
- 3.6 Competency Assessment Results
- 3.7 Assessor Planning Checklist Tool
- 3.8 General Guidelines for Effective Questioning
- 3.9 Assessor Guide to Conducting Competency Assessments
- 3.10 Assessor’s Quick Start

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# Assessment Guide

## Section One: Objectives linked to Key Terms & Definitions

### *Define assessment.*

Assessment is a systematic process of collecting proof or evidence on whether or not a candidate has demonstrated competence in the performance of a work-related activity/task that is directly linked to a performance standard. The assessment confirms that the individual can perform to the standard expected in the workplace and/or the nationally approved competency standard.

### *Give an example of assessment.*

A helpful example in this regard is the driving test. The driver must prove his competence to drive by demonstrating to the driving assessor his ability to do so. The driving assessor uses a checklist to assess the candidate and make the necessary recommendations, based on the evidence he has collected in observing the candidate's driving. S/He either records/recommends that the candidate is **competent** or **not yet competent**.

### *What is the purpose of assessment?*

The Purpose of Assessment is to confirm that a trainee can perform competently to the standards expected in the workplace.

### *What is Assessment based on?*

- An effective Assessment is based on a Competency Standard.
- A Competency Standard describes the skills, knowledge, and attitudes needed to perform effectively in the workplace, not the classroom.

### *Define the term “competency.”*

Competency is the ability to do a task successfully. Aspects of competency include:

- The capacity to perform tasks to the required standard consistently
- The ability to respond to different needs in the workplace
- The ability to plan and integrate a variety of tasks to attain a work outcome
- 

*Describe what makes up a competency standard.*

It must be noted that a competency standard is made up of individual units of competency that include elements of competency as well as the performance criteria needed to accomplish them.

*Define the term “Assessment tool.”*

An assessment tool is, in effect, an evidence-gathering tool. It contains both the instrument used for the assessment and instructions for gathering evidence in the assessment process. As an assessment instrument it contains the context and conditions for the assessment; tasks to be administered to the learner; an outline of the evidence to be gathered for the learner; the criteria for judging the evidence; and the necessary housekeeping records for recording and reporting requirements.

*Describe the difference between Conventional Testing & Competency Based Assessment.*

Conventional Testing	CBT Assessment
<ul style="list-style-type: none"> <li>• Emphasis on knowledge/memorization</li> <li>• Teachers/Training Providers have main role</li> <li>• Theory &amp; practical Tests can become outdated</li> <li>• High cost &amp; central control</li> <li>• Relatively inflexible</li> </ul>	<ul style="list-style-type: none"> <li>• Based on competency standards</li> <li>• Involve industry partners in crucial role</li> <li>• Assessment based on demonstration of work skills rather than classroom knowledge</li> <li>• Flexible delivery</li> <li>• Competencies widely recognized</li> <li>• Guidelines &amp; Templates used</li> </ul>



*Describe briefly what makes up an assessment system.*

An Assessment System must be understood as a well-coordinated set of documented policies and procedures, including assessment materials and tools, that ensure assessments are consistently valid, reliable, flexible, fair, and safe.

*Define the purpose of the Assessor role.*

The role of Assessor is the heart and soul of effective competency based assessment. Without this pivotal role, determining the competency of the trainee is mere guesswork.

Note:

- The Industry Assessor will be asked to provide specs and practical demonstration tests from his workplace that will provide the evidence for determining competency.
- The importance of this input cannot be overemphasized for it best matches and tests the required performance criteria from the Standard.

*Describe the basic questions that an Assessor must ask when planning an Assessment.*

#### **Planning an Assessment: What Needs to Happen?**

- Determine which Units of Competency need to be assessed?
- Determine what Assessment Methods will be used?
- Determine what evidence-based tools (specs) need to be developed by the Assessor to guide the assessment?
- Determine how long it will take?
- Determine when the assessment will occur?
- Determine where the assessment will take place?
- Determine how it will be recorded?

*Give some Assessor Requirements/Competencies.*

#### **Requirements/Competencies of an Assessor-**

- The ability to use assessment tools to gather evidence effectively is essential, adjusting the language where necessary to reflect the language/literacy/numeracy levels of the workplace and not to exceed them in order to ensure learner understanding. This will also entail an ability to respond to learner needs such as responding to learner disability.
- The skill to develop specifications and practical tests, based on performance criteria, that provide evidence of competency that will fast track the assessment process.
- The ability to clearly demonstrate current industry skills and competencies relevant to the Standard.
- The Assessor is selected/appointed by Industry to act as an Assessor because of his proven competencies.
- Knows what needs to be done to assess the performance criteria
- Demonstrates a high level of expertise in the technical area to be examined
- Can provide constructive feedback

*Define the challenges of the Assessor Role.*

#### **Assessor Role: Challenges**

- Needs to be objective and unbiased
- Must have interpersonal skills to relax nervous candidates or deal with those who are aggressive or emotional
- Must have ability to deal with those who have literacy problems or difficult dialect

*Review some basic need-to-know elements concerning assessment.*

#### **Assessment Basics: Need to Know Elements**

- Assessment to be conducted by Industry Assessor selected by industry
- Industry assessor must be familiar with units of competency outlined in the course standards
- Industry Assessor should drafts specs that reflect industry requirements for trainees and that are based on critical aspects of competency
- Industry assessor is responsible for making final judgment of **competent** or **not yet competent**
- Trainer will assist industry assessor

- Trainees must demonstrate competence based on the units of competency outlined in the standards
- All resources related to units of competency must be made available prior to the assessment event, e.g., tools, equipment, materials

*Describe the trainer’s role in the assessment process.*

The Trainer acts as a primary resource for the Assessor and acts as a Facilitator.

Trainer ensures:

- All industry required tools, equipment, and materials are available for the assessment
- The training venue is booked and has sufficient space for demonstrations/tasks
- That all logistics such as admission slips, signature sheets, and records are readily available for distribution and collection
- That all teaching materials and Standard documents and Assessment tools are ready for the Assessor

*Discuss the importance of principles of assessment and what is involved.*

**Principles of Assessment Table**

Key Principles	Relevance/Meaning
<b>Valid</b>	Ensures assessment aligned with the Unit of Competency and is based on evidence that shows the learner can demonstrate skills and knowledge in other similar contexts (workplace)
<b>Reliable</b>	Evidence presented for assessment is consistently interpreted regardless of the Assessor
<b>Flexible</b>	Assesses competencies held by the learner regardless of where they have been acquired; reflects the individual learner’s needs
<b>Fair</b>	The individual learner’s needs or disability is considered in the assessment process; the learner is provided with information about the assessment process and given the opportunity to challenge the result of the assessment if warranted
<b>Safe</b>	The assessor has inspected the venue for assessment and determined that it is safe for all involved and that emergency

	evacuations are in place if needed
--	------------------------------------

*Define the term “evidence.”*

Evidence is information that is gathered and matched against a Unit of Competency to provide proof of competency.

*State the different forms of evidence that can be collected.*

Different forms of evidence that can be collected are-

- **Direct** such as demonstration test, or observation of Candidate
- **Indirect** such as Candidate’s self-assessment or third party reports such as an employer interview

*Describe and outline what is involved in “rules of evidence” and why they are important.*

Rules of Evidence Table

Rules of Evidence	Meaning
<b>Valid</b>	The assessor is given assurance that the learner possesses the skills, knowledge, and attitudes described in the Unit of Competency and related assessment requirements
<b>Sufficient</b>	The assessor is assured that the quality, quantity, and relevance of the evidence is sufficient to enable a judgment to be made on the learner’s competency
<b>Authentic</b>	The assessor is assured that the evidence provided for assessment is the learner’s own work
<b>Current</b>	The assessor is assured that the assessment evidence demonstrates current competency of the learner. This evidence must be from the present or very recent past.

*Describe the purpose of evidence gathering tools.*

The Purpose of evidence gathering tools are-

- To help candidates understand what is expected of them
- To provide a focus for the assessment
- To identify what is needed to verify competency

*State the use of the evidence guide.*

The evidence guide provides useful advice on Unit of Competency assessment and must be read in conjunction with the performance criteria, required underpinning skills/knowledge/attitudes, range statement, and the critical aspects of competency for the Standard.

*State why assessment evidence is important.*

Evidence is the information gathered that provides proof that the performance criteria of a unit of competency has been met. Evidence can take many forms:

- **Observation:** watching the trainee perform
- **Questioning:** asking the trainee questions
- **Demonstration of specific skills:** seeing how the trainee performs a procedure or creates a final product
- **Examining** previous work the trainee has done

*Describe the kinds of Assessment Methods that can be used for Evidence gathering purposes.*

Various kinds of Assessment Methods can be used for Evidence gathering purposes. A wide range of assessment methods are available for Evidence- gathering purposes. Assessment methods are not limited to those listed below. The greater the range of assessment methods applied, the better the accuracy of the assessment.

Assessment Methods Table

Methods	Examples
Direct Observation of Candidate	Actual real-time activities in the workplace Work activities in a simulated workplace/training center
Questioning	Written questions; interviews; self-evaluation with questions; verbal questioning; questionnaires
Evidence compiled by Candidate	Portfolio; collection of work samples; products with supporting documentation; logbooks; information about life experience
Methods	Examples
Review of Product	Work samples and products; products as a result of a demonstration test/spec
Third Party Feedback	Reports/testimonials from Employers and Supervisors; evidence of training; interviews with Employers and Supervisors

**Advice to the Assessor:** use these methods and examples as a means of making your assessment valid, reliable, flexible, fair, and safe.

*Define the term “evidence gathering tools” and give some examples of these tools.*

Evidence gathering tools are the actual instruments that the Assessor uses to collect evidence. Evidence may be collected through:

- Demonstration of work activity
- Observation Checklist
- Question List
- Third party reports e.g. supervisor to verify consistent performance
- Review of candidate’s portfolio

- Verifying the Candidate's capacity to deal with contingencies (unexpected things that come up)
- Written test

*Define the term "portfolio."*

A collection of evidence that may be presented by the Candidate to an Assessor to prove the Candidate's competence at a job or task.

What are some examples of Portfolio Evidence?

- Training results and certificates
- Training workbooks
- References from employers
- Job description and work experience
- Photos and videos
- Work journals
- Awards
- Work samples
- Letters and memos

*Outline a 6-step method for preparing an evidence plan.*

### **Steps in Preparing an Evidence Plan (Sequence of Steps to Follow)-**

The Evidence Plan is the most important planning tool for an Assessor. A good evidence plan generates a list of the evidence that the Assessor must gather when conducting the assessment for a specific Unit of Competency. The following 6-Point Method for preparing an Evidence Plan provides a useful sequence of inter-related steps to follow:

1. Select Unit of Competency for assessment
2. Read full Unit of Competency
3. Identify evidence requirements based on:
  - a. Elements and Performance Criteria
  - b. Dimensions of Competence
  - c. Underpinning skills knowledge
  - d. Critical aspects of competency
4. Develop a list of evidence requirements
5. Identify best ways of collecting evidence (tools)
6. Document evidence plan

*Outline the steps (sequence of activities) involved in developing an assessment tool.*

Following are the steps (sequence of activities) involved in developing an assessment tool:

1. Select the Unit of Competency
2. Read the Unit of Competency
3. Identify the required evidence: critical aspects of competency
4. Identify the evidence gathering method
5. Complete the evidence plan
6. Select the appropriate template
7. Complete the template
8. Check the evidence gathering tools against the evidence plan and Unit of Competency
9. Check the tool with another Assessor for his opinion

*Describe the four dimensions of competency.*

**Task Skills:** the capacity to perform tasks in the workplace and demonstrate competence that meets the required Standard;

**Task Management Skills:** the ability to plan and integrate several tasks simultaneously that achieve a desired work outcome such as those skills involved in budgeting for a work operation, securing supplies and equipment for the work operation, completing the task in a timely, cost-effective manner, and ensuring safety practices are followed throughout;

**Contingency Management Skills:** the ability to respond to crises and breakdowns in the workplace, such as accidents and emergency situations that are unanticipated and require immediate action and resolution;

**Job/Role Environment Skills:** the capacity to own the responsibilities and expectations of the work environment that involves working with others effectively and participating in creating a work culture where all can contribute their best within the parameters of their job role



# Assessment Guidelines

## Section Two: Roles and Responsibilities

### *The Assessment System: Planning Guide for the Assessor*

An Assessment System must be understood as a well-coordinated set of documented policies and procedures, including assessment materials and tools, that ensure assessments are consistently valid, reliable, flexible, fair, and safe.

*Competency Assessment is a systematic process of collecting proof or evidence on whether or not a candidate has demonstrated competence in the performance of a work-related activity/task that is directly linked to a performance standard. The assessment confirms that the individual can perform to the standard expected in the workplace and/or the nationally approved competency standard.*

Each **Unit of Competency** contained in a Standard describes a distinct part of a Mason's work and job profile. Within each Unit of Competency, the following components appear:

- Unit Title
- Unit Descriptor
- Elements of Competency
- Performance Criteria
- Range of Variables
- Evidence Guide

As a prelude to conducting assessments, the Assessor must be thoroughly familiar with all of the particulars and details of the Unit of Competency that is being assessed. This is a "must" for the role of the Assessor. He must be especially familiar with the Evidence Guide for gathering critical information.

The three sample assessment tools found below focus on the critical aspects of competency that can provide the required evidence to determine competency- the evidence guide. These sample assessment tools are as follows:

- Demonstration Checklist
- Observation Checklist
- Oral Questions Checklist

### **The duties of the Assessor include:**

- Covering all of the key elements of the Unit of Competency under assessment
- Applying rigorously the Evidence Guide for the Unit of Competency as this contains the method and context of assessment, resources required for the assessment, the critical aspects of competency, and the required underpinning knowledge, skills, and attitudes
- Developing specifications (specs) for the task sheet for Demonstration as required
- Requiring the candidate to perform project tasks that cover interrelated units of competency- known as a “clustering.”
- Making what can be termed “reasonable adjustments” for candidates with disabilities or for example, those candidates with regional dialects that prove difficult to understand

Note: These “reasonable adjustments” may involve reconfiguring a simulated workplace site so that a candidate’s disability does not impede the assessment process, or for example, finding someone who can understand a regional dialect and assist the Assessor with essential communication skills.

## *Roles and Responsibilities of Assessor*

Prior to any assessment, the Assessor should follow the specific instructions below to ensure a well-planned assessment event. In most cases s/he will be assisted by a Trainer. Nevertheless, s/he should make certain that good preparation has taken place for the assessment event.

1. Visit the assessment venue or workplace to ensure an adequate work area or platform containing:
  - Sufficient space for working- ensure square meters of work space enough for task to be carried out effectively and safely
  - Fire extinguisher and safety equipment within reach
  - Emergency procedures in place
  - All necessary tools, equipment, and materials ready at hand
  - All necessary machinery in good working order
2. Assessment is drawn and extracted from the relevant Unit of Competency based on an approved Standard and on an Evidence plan that clearly focuses on critical aspects of competency.
3. The duration of time to assess the demonstration is clearly indicated, for example, 3 hours. This information is shared with the Candidate along with other pertinent

information such as the sequence of tasks that he must follow, and the fact that he will be closely observed as the tasks are performed.

4. After the Candidate has performed the task, the Assessor will provide feedback to the Candidate on his performance.

5. The responsibility on finally deciding whether or not the Candidate was Competent or Not Yet Competent belongs to the accredited Assessor.

6. At the conclusion of the assessment, the Assessor will provide feedback on whether or not the Candidate was Competent or Not Yet Competent. S/He will also share information on next steps. These next steps include where to obtain the certificate related to the assessment or, if unsuccessful, how to re-try for competency within a specified period of time.

## *Roles and Responsibilities of Trainer*

Prior to the assessment, you will have studied and become familiar with the Competency Standard for the industry occupation. You will also have met with or contacted the Assessor beforehand and discussed preparations and arrangements for the assessment. Your role will be to facilitate the assessment process and ensure all necessary resources are available, assisting the Assessor wherever possible. For example, once a draft spec has been produced by the Assessor, you will ensure it is fully consistent with the evidence plan and copied appropriately for use by both the Assessor and Candidate.

In addition to confirming a suitable training venue and time, you will ensure that:

- Sufficient space is allotted for task work- square meters of work space enough for demonstration tasks to be carried out effectively and safely
- Fire extinguisher and safety equipment within reach if necessary
- Emergency procedures in place
- All necessary tools, equipment, and materials ready at hand
- All necessary machinery in good working order

Your duties include:

- **notifying** the Assessor and candidates of planned assessment events and their location
- **advising and assisting** the Assessor on planned assessment events
- **collecting** admission slips and signature sheets for assessment events
- **ensuring** all required forms and reporting mechanisms are in place and ready for distribution to the Assessor and to the Candidate
- **ensuring** all requisite forms are duly signed and forwarded to the SEIP Office, or certifying body

- **responding** to candidate queries and concerns such as re-assessment procedures
- **reconfiguring** workplace simulations so that candidates with disabilities are able to participate fully and without impediment
- **working** closely with the SEIP contact to ensure a successful assessment event

## *Roles and Responsibilities of Candidate*

Prior to the assessment, you will have studied and become familiar with the Competency Standard for your industry.

1. Initially, you will be given information on the task you are to perform, and the estimated time you will require to perform it. These tasks are based on the critical aspects of competency related to the performance criteria within the approved Competency Standard.

Given the necessary instructions, and/or a task-related spec and the necessary tools, materials, and equipment, you will carry out and complete a work task. You will observe that there is:

- Sufficient space for working- square meters of work space enough for task to be carried out effectively and safely
- Fire extinguisher and safety equipment within reach if necessary
- Emergency procedures in place
- All necessary tools, equipment, and materials ready at hand
- All necessary machinery in good working order

2. Assessment is drawn and extracted from the relevant Unit of Competency based on the approved Competency Standard and on an Evidence plan (proof of competence) developed by the Assessor that clearly focuses on critical aspects of competency. The Evidence plan will be based on critical assessment tools such as demonstration/task; observation; oral questions.

3. The duration of time to assess the demonstration should be clearly indicated, for example, 3 hours. This information will be given to you along with other pertinent information such as the procedure or sequence of tasks that you must follow. It is important to note that you will be closely observed and assessed throughout the duration of your demonstration. You will be given time to ask questions and request clarification. You will also be given 10 minutes to familiarize yourself with the resources to be used in the assessment.

4. Based on your performance in demonstrating the task, you will be assessed by the Assessor to be Competent or Not Yet Competent. Regardless of the result you will be given feedback from the Assessor on your performance and the next steps.

5. After you have performed the task, the Assessor will provide feedback to you on your performance.

6. The responsibility on finally deciding whether or not you are Competent or Not Yet Competent belongs to the accredited Assessor.

7. At the conclusion of the assessment, the Assessor will provide feedback on whether or not you have been assessed to be **Competent** or **Not Yet Competent**. Both your signatures will be required on the Assessment Form. You will also be allowed to make comments on the Assessor's decision. The Assessor will then share information on next steps. These next steps include where to obtain the certificate related to the successful assessment or, if unsuccessful, how to re-try for competency within a specified period of time.

## Section Three: Tools and Templates

This toolbox of Tools and Templates offers a wide range of assessment tools that will facilitate evidence gathering and other assessment-related needs. Evidence gathering, however, should not be limited to these tools and templates alone. The toolbox should be revised or expanded as necessary, to include other tools and templates that are deemed relevant.

- Demonstration Checklist
- Observation Checklist
- Oral Questions Checklist
- Evidence Plan (Overall Summary)
- Assessor Job Sheet and Specifications (Spec) Form
- Competency Assessment Results
- Assessor Planning Checklist Tool
- All About Questioning Techniques for Use in Assessment
- Quick Guide to Conducting Competency Assessments
- Assessor's Quick Start

# Demonstration Checklist

<b>Candidate's name:</b>			
<b>Assessor's name:</b>			
<b>Qualification:</b>			
<b>Project-Based Assessment Title</b>			
<b>Units of competency covered:</b>			
<b>Date of assessment:</b>			
<b>Time of assessment:</b>			
<b>Instructions for demonstration</b>			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
<b>Supplies and Materials</b> ▪ Please refer to attached specific instruction	<b>Tools and equipment</b> • Please refer to attached specific instruction		
			✓ to show if evidence is demonstrated
<b>During the demonstration of skills, did the candidate:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Observation Checklist

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:		
Code:		
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
<b>Candidate's performance was:</b>	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:



## Oral Questions Checklist

Candidate's name:	
Assessor's name	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	
Reference Standard:	

The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for competent/non yet competent.

List of Questions	Satisfactory Response	
-------------------	-----------------------	--

Indicate Y or N in the box provided	YES	NO
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

Feedback to Candidate:

Candidate's overall performance was (circle):	Satisfactory	Not Satisfactory
The Candidate's underpinning knowledge was (circle):	Satisfactory	Not Satisfactory

Assessor Signature:	Date:
Candidate Signature:	Date:

## EVIDENCE PLAN: Overall Summary

QUALIFICATION:				
Project-Based Assessment Title				
Units of competency covered				
Ways in which evidence will be collected: [tick the column]	Observation with Questioning	Demonstration with Questioning	Written Examination	Portfolio
The evidence must show that the candidate .....				
•				
•				
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# Assessor Job Sheet and Specifications (Spec) Form

This Spec is in reference to the \_\_\_\_\_ Standard, and has been developed by an Industry Representative/Assessor.

The Result\* indicates either C for Competent, or NYC for Not Yet Competent.

Unit of Competency	Elements Reviewed	Critical Aspects of Competency Covered	Result*: C/NYC

JOB #1 Procedure for Developing Specification (Spec): List the steps involved in performing the task/spec successfully. It will cover, in logical order, the critical aspects of competency listed above that will determine if the candidate is **Competent** or **Not Yet Competent**.

1.	
2.	
3.	
4.	
5.	

Tools and Equipment Required for Spec completion: List all tools, equipment, and materials required in completing Job #1:

Tools	Equipment	Materials

Assessor Name:

Date:

## Competency Assessment Results

Candidate's name:	
Assessor's name	
Qualification Title:	
Date of Assessment:	
Assessment Venue:	
Reference Standard:	
Unit of Competency:	

Assessment Unit	Competent	Not Yet Competent

Assessor's Recommendation and Comments:

Overall Assessment:

**Yes:** The Candidate successfully met the required evidence/standards and demonstrated all of the competencies necessary for certification in the Qualification and Units of Competency listed above.

**No:** The Candidate did not meet the evidence requirements. Re-assessment is recommended.

Assessor Signature:	Date:
Candidate Signature:	Date:
Assessment Center Manager Signature:	

## ASSESSMENT PLANNING CHECKLIST TOOL

Assessor's name:	
Date:	

**Directions: Circle the 'Yes' or 'No' response to each item.**

1.	The Assessor is familiar with the unit(s) of competency being assessed	Yes	No
2.	The Assessor has verified that the workplace or training center has the correct equipment, machinery, tools, and materials necessary to complete all of the relevant aspects of the unit of competency	Yes	No
3.	The Assessor has ensured that all materials and equipment were assembled and arranged in advance.	Yes	No
4.	The Assessor has all the necessary tools, templates, and specifications needed to assess the trainee including a variety of assessment tools covering practical demonstration, observation, oral question, and (where necessary) written tests relevant to the competency specified in the standard	Yes	No
5.	The Assessor has met with the trainer prior to the assessment event to discuss his/her role.	Yes	No
6.	The Assessor will discuss the performance test with the trainee and address any concerns prior to giving the test	Yes	No
7.	The Assessor will discuss and record with the trainee the results of their performance	Yes	No

**Action to be taken on "No" responses:**

## *General Guidelines for Effective Questioning*

- Keep questions short and focused on one key concept
- Ensure that questions are structured
- Test the questions to check that they are not ambiguous
- Use `open-ended questions such as `what if...?' and `why...?' questions, rather than closed questions
- Keep questions clear and straight forward and ask one at a time
- Use words that the candidate is able to understand
- Look at the candidate when asking questions
- Check to ensure that the candidate fully understands the questions
- Ask the candidate to clarify or re-phrase their answer if the assessor does not understand the initial response
- Confirm the candidate's response by repeating the answer back in his/her own words
- Encourage a conversational approach with the candidate when appropriate, to put him or her at ease
- Use questions or statements as prompts for keeping focused on the purpose of the questions and the kind of evidence being collected
- Use language at a suitable level for the candidate
- Listen carefully to the answers for opportunities to find unexpected evidence
- Follow up responses with further questions, if useful, to draw out more evidence or to make links between knowledge areas
- Compile a list of acceptable responses to ensure reliability of assessments

## *Recording responses*

When using oral questioning, you may need a tool that has a structured approach (see below) and also enables you to record a candidate's responses. If the candidate's response is insufficient the assessor should record why on the recording sheet or checklist. This provides information that can be used later, if necessary, to explain to the candidate where he or she needs to develop their skills and/or knowledge to achieve the required competence.

Recording sheet for oral questioning (template)

Candidate's Name		
Assessor or Observer's Name		
Unit of Competency)		
Code		
Date of Assessment		
Location		
Task/Procedure		
Questions to be Answered by candidate	Response/Answer*	Satisfactory (Yes/No)
What would you do if ...		
What would you do if ...		
What would you do if ...		
How do you ...		
What are ...		
Why did you... (Clarification)		
Follow up Questions		
The candidate's knowledge was:	Satisfactory Unsatisfactory	
Feedback to candidate:		
Candidate signature:		Date:
Assessor/Observer's Signature:		Date:

## ASSESSOR GUIDE TO CONDUCTING COMPETENCY ASSESSMENTS

1. BEFORE THE ASSESSMENT	2. DAY OF ASSESSMENT	3. DURING THE ASSESSMENT	4. POST ASSESSMENT
<p>- Review unit(s) of competency to be assessed especially evidence to be collected against performance criteria</p> <p>- Ensure the workplace or training center complies with all safety requirements and that high risk areas are clearly marked</p> <p>- Identify/request essential assessment resources:</p> <ul style="list-style-type: none"> <li>• tools and equipment</li> <li>• supplies and materials</li> <li>• personal protective equipment</li> <li>• print resources and rating sheets</li> <li>• Have trainees contacted if they have to bring any resources for the assessment, e.g. logbook</li> </ul>	<p>-Verify attendance through signed attendance sheet</p> <p>- Provide overview of what is to happen throughout day</p> <p>Orient the trainees to:</p> <ul style="list-style-type: none"> <li>• purpose of assessment</li> <li>• qualification to be assessed</li> <li>• assessment procedures to be followed</li> <li>• address needs of trainees and provide information on evidence requirements and assessment process</li> <li>• make all announcements just before start of assessment</li> </ul>	<p>Give clear instructions to trainees on what they are required to do:</p> <ul style="list-style-type: none"> <li>• time limits and expectations</li> <li>• all equipment and tools must be of the same quality for all trainees</li> <li>• written and verbal instructions translated into local dialects as needed</li> <li>• encourage questions</li> <li>• avoid providing any assistance to trainees during assessment</li> <li>• stop process if accident imminent</li> <li>• keep focused on evidence being valid, reliable, fair, flexible, and safe</li> <li>• Record details of evidence collected</li> </ul>	<p>Provide feedback on outcome of assessment process re:</p> <ul style="list-style-type: none"> <li>• give clear feedback on assessment decision</li> <li>• provide information on overcoming any gaps in competency assessment</li> <li>• provide opportunity to discuss assessment process and outcome</li> </ul> <p><b>Prepare required assessment reports:</b></p> <ul style="list-style-type: none"> <li>• all rating sheets signed by trainee as well as Assessor</li> <li>• maintain records of assessment procedures, evidence collected, and assessment outcome</li> <li>• verify assessment results/outcomes with training center</li> </ul> <p><b>Prepare</b></p> <p>recommendations for issuance of national certificate</p>



## *Assessor's Quick Start*

1. Identify the Unit(s) of Competency from the Program Standard that you are going to assess.
2. Review the Critical Aspects of Competency from the Unit of Competency that will be the basis of your Evidence Guide.
3. Select the Assessment Tools that you will use to gather evidence.
  - i. Demonstration Checklist
  - ii. Observation Checklist
  - iii. Oral Questions Checklist
4. Create spec sheet(s) for the Unit of Competency to be examined.
5. Review the assessment procedure with the Candidate and ask if there are any questions.
6. Complete the assessment using the assessment tools in the order above. You are free to use other tools as well if you wish.
7. Determine whether Candidate is **Competent** or **Not-Yet-Competent**
8. Complete all necessary record sheets.
9. Give feedback to the Candidate.

## *Demonstration Checklist: Describe Android Basic*

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Describe Android Basic (SEIP-IT-MOB-1-0)		
Date of assessment:			
Time of assessment:			
<b>Instructions for demonstration</b>			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
<b>Supplies and Materials</b> ▪ Please refer to attached specific instruction	<b>Tools and equipment</b> • Please refer to attached specific instruction		
	✓ to show if evidence is demonstrated		
<b>During the demonstration of skills, did the candidate:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Outline in clear terms the android apps development environment in a computer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Show evidence of an appropriate computer configuration for setting up an android application development environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Define the main building blocks of android apps ensuring that content providers, broadcast receivers, and application context are presented.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Describe the purpose of UI widgets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Prepare and design a simple activity layout or some basic user operation as requested by the Assessor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Observation Checklist: Describe Android Basic

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Describe Android Basic	
Code:	SEIP-IT-MOB-1-0	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Outline in clear terms the android apps development environment in a computer.		
2. Show evidence of an appropriate computer configuration for setting up an android application development environment.		
3. Define the main building blocks of android apps ensuring that content providers, broadcast receivers, and application context are presented.		
4. Describe the purpose of UI widgets.		
5. Prepare and design a simple activity layout or some basic user operation as requested by the Assessor.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## Oral Questions Checklist: Describe Android Basic

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Describe Android Basic
Reference Standard:	Mobile Application Development (Android)

The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. Identify at least 8 Android applications.		
2. Define what is meant by the term "activity life cycle."		
3. Describe what is meant by "intents and service."		
4. Why is it important to configure the computer for setting up an android application development environment.		
5. Describe an overview of android apps development.		

**Feedback to Candidate:**

The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory

The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory

<b>Assessor Signature:</b>	<b>Date:</b>
<b>Candidate Signature:</b>	<b>Date:</b>

## Demonstration Checklist: Describe OOP

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Describe OOP (SEIP-IT-MOB-2-0)		
Date of assessment:			
Time of assessment:			
Instructions for demonstration			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
Supplies and Materials ▪ Please refer to attached specific instruction	Tools and equipment • Please refer to attached specific instruction		
	✓ to show if evidence is demonstrated		
During the demonstration of skills, did the candidate:	Yes	No	N/A
1. Outline briefly the functions of class properties, constants & visibility showing these on the computer screen wherever possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Describe in clear terms the advantages and limitations of OOP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Define encapsulation and its functions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Define in clear terms association relationship and its relevance to encapsulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Show clearly a grasp of the inheritance concept outlining the relationship between classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Use polymorphism effectively to the satisfaction of the Assessor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Observation Checklist: Describe OOP

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Describe OOP	
Code:	SEIP-IT-MOB-2-0	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Outline briefly the functions of class properties, constants & visibility showing these on the computer screen wherever possible.		
2. Describe in clear terms the advantages and limitations of OOP.		
3. Define encapsulation and its functions.		
4. Define in clear terms association relationship and its relevance to encapsulation.		
5. Show clearly a grasp of the inheritance concept outlining the relationship between classes.		
6. Use polymorphism effectively to the satisfaction of the Assessor.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## Oral Questions Checklist: Describe OOP

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Describe OOP
Reference Standard:	Mobile Application Development (Android)

The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. Can you summarize the functions of Magic Methods?		
2. What are two common limitations of OOP?		
3. Can you state at least 6 advantages of OOP?		
4. What are some of the different areas where OOP is used effectively?		
5. Can you give state 2 dimensions of the association relationship?		

**Feedback to Candidate:**

The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory

The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory

<b>Assessor Signature:</b>	<b>Date:</b>
<b>Candidate Signature:</b>	<b>Date:</b>

## Demonstration Checklist: Work With JAVA Basics

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Work With JAVA Basics (SEIP-IT-MOB-3-0)		
Date of assessment:			
Time of assessment:			
Instructions for demonstration			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
Supplies and Materials ▪ Please refer to attached specific instruction	Tools and equipment • Please refer to attached specific instruction		
	✓ to show if evidence is demonstrated		
During the demonstration of skills, did the candidate:	Yes	No	N/A
1. Create common JAVA data types.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Use JAVA by creating an application whereby numbers are observed in the display.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Implement methods in JAVA that clearly demonstrate data types and the usage of conditional loops.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Use JAVA to create an application for android application.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Observation Checklist: Work With JAVA Basics

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Work With JAVA Basics	
Code:	(SEIP-IT-MOB-3-0)	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Create common JAVA data types.		
2. Use JAVA by creating an application whereby numbers are observed in the display.		
3. Implement methods in JAVA that clearly demonstrate data types and the usage of conditional loops.		
4. Use JAVA to create an application for android application.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## Oral Questions Checklist: Work With JAVA Basics

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Work With JAVA Basics
Reference Standard:	Mobile Application Development (Android)

**The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.**

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. Can you describe what is meant by a conditional statement?		
2. What are 3 JAVA variables?		
3. What is involved in using conditional loops?		
4. What is meant by observing netiquette?		
5. To what extent does different operating software affect implementing methods in JAVA?		

**Feedback to Candidate:**

The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory

The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory

Assessor Signature:	Date:
Candidate Signature:	Date:

## *Demonstration Checklist: Manage Database*

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Manage Database (SEIP-IT-MOB-4-0)		
Date of assessment:			
Time of assessment:			
<b>Instructions for demonstration</b>			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
<b>Supplies and Materials</b> ▪ Please refer to attached specific instruction	<b>Tools and equipment</b> • Please refer to attached specific instruction		
			✓ to show if evidence is demonstrated
<b>During the demonstration of skills, did the candidate:</b>	Yes	No	N/A
1. Operate SQLite Database using android application.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Outline a method for creating content provider.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Use adapters to create a custom list.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Demonstrate use of preferences in saving and getting data.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Use content providers to simplify database operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Make CRUD operation in database.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Observation Checklist: Manage Database

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Manage Database	
Code:	(SEIP-IT-MOB-4-0)	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Operate SQLite Database using android application.		
2. Outline a method for creating content provider.		
3. Use adapters to create a custom list.		
4. Demonstrate use of preferences in saving and getting data.		
5. Use content providers to simplify database operation.		
6. Make CRUD operation in database.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## Oral Questions Checklist: Manage Database

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Manage Database
Reference Standard:	Mobile Application Development (Android)

The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. How is a custom list created?		
2. What is the meaning of the term CRUD?		
3. How is saving and getting data achieved?		
4. What method is used to create content provider?		
5. How is a database operation simplified?		

**Feedback to Candidate:**

The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory

The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory

<b>Assessor Signature:</b>	<b>Date:</b>
<b>Candidate Signature:</b>	<b>Date:</b>

## *Demonstration Checklist: Apply Web Service and Push Notification*

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Apply Web Service and Push Notification (SEIP-IT-MOB-5-0)		
Date of assessment:			
Time of assessment:			
Instructions for demonstration			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
Supplies and Materials ▪ Please refer to attached specific instruction	Tools and equipment • Please refer to attached specific instruction		
			✓ to show if evidence is demonstrated
During the demonstration of skills, did the candidate:	Yes	No	N/A
1. Use the application program interface (API).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Use switch on/off to display using proximity sensor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Outline a number of http and web services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Implement Google Cloud Messaging (GCM).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Show how to work with user notification.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Retrieve telephony network information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# *Observation Checklist: Apply Web Service and Push Notification*

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Apply Web Service and Push Notification	
Code:	(SEIP-IT-MOB-5-0)	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Use the application program interface (API).		
2. Use switch on/off to display using proximity sensor.		
3. Outline a number of http and web services.		
4. Implement Google Cloud Messaging (GCM).		
5. Show how to work with user notification.		
6. Retrieve telephony network information.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## Oral Questions Checklist: Apply Web Service and Push Notification

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Apply Web Service and Push Notification
Reference Standard:	Mobile Application Development (Android)

The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. Can you define what is meant by web service?		
2. Can you describe Google Cloud Messaging (GCM) in android?		
3. Can you describe Json based web service?		
4. What is involved in retrieving telephony network information?		
5. To what extent is different operating software a key factor in utilizing web service?		

**Feedback to Candidate:**

The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory

The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory

<b>Assessor Signature:</b>	<b>Date:</b>
<b>Candidate Signature:</b>	<b>Date:</b>



## *Demonstration Checklist: Carry Out Service and Application Signing*

Candidate's name:			
Assessor's name:			
Qualification:	Mobile Application Development (Android)		
Project-Based Assessment Title			
Units of competency covered:	Carry Out Service And Application Signing (SEIP-IT-MOB-6-0)		
Date of assessment:			
Time of assessment:			
Instructions for demonstration			
Please see attached Instruction for Demonstration (Candidate/Assessor)			
Supplies and Materials ▪ Please refer to attached specific instruction	Tools and equipment • Please refer to attached specific instruction		
	✓ to show if evidence is demonstrated		
During the demonstration of skills, did the candidate:	Yes	No	N/A
1. Demonstrate how to start a service by using a broadcast receiver.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Describe broadcast receivers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Create music playing as a background service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Generate a notification using service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Describe how to introduce application signing and deployment to satisfaction of Assessor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Generate key store file to make signed apk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Describe method for receiving an event.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Observation Checklist: Carry Out Service and Application Signing

Candidate's name:		
Assessor's name:		
Date of Assessment:		
Unit of Competency:	Carry Out Service And Application Signing	
Code:	(SEIP-IT-MOB-6-0)	
Name of Workplace/Training Center		
Procedure to Follow:	Observe Candidate's performing the task, and following the spec- if a spec is provided	
During the demonstration of skills, did the Candidate do the following (List steps that reflect critical aspects of competency from performance criteria of Unit of Competency):		
	<b>YES</b>	<b>NO</b>
1. Demonstrate how to start a service by using a broadcast receiver.		
2. Describe broadcast receivers.		
3. Create music playing as a background service.		
4. Generate a notification using service.		
5. Describe how to introduce application signing and deployment to satisfaction of Assessor.		
6. Generate key store file to make signed apk.		
7. Describe method for receiving an event.		
	<b>COMPETENT</b>	<b>NOT YET COMPETENT</b>
<b>Feedback to Candidate:</b>		
<b>Candidate's Signature:</b>		Date:
<b>Assessor's Signature:</b>		Date:

## *Oral Questions Checklist: Carry Out Service and Application Signing*

Candidate's name:	
Assessor's name:	
Date of Assessment:	
Assessment Venue:	
Unit of Competency:	Carry Out Service And Application Signing
Reference Standard:	Mobile Application Development (Android)

**The List of Questions below must be pegged to the competency demonstration test and may involve related specs for each Unit of Competency tested. Underpinning skills for Knowledge may also be reviewed for Competent/Not Yet Competent designation.**

List of Questions	Satisfactory Response	
	YES	NO
<b>Indicate Y or N in the box provided</b>		
1. What is involved in event receiving?		
2. What is meant by a lifecycle of services?		
3. What are the different types of services available?		
4. What is the function of a key store file?		
5. How important is timeliness in this work?		

**Feedback to Candidate:**

**The Candidate's overall performance was (circle):      Satisfactory/ Not Satisfactory**

**The Candidate's underpinning knowledge was (circle): Satisfactory/ Not Satisfactory**

<b>Assessor Signature:</b>	<b>Date:</b>
<b>Candidate Signature:</b>	<b>Date:</b>