

Model Curriculum

Telecom Terminal Equipment Application Developer (Android)

SECTOR: TELECOM
SUB-SECTOR: HANDSET
OCCUPATION: TERMINAL EQUIPMENT APPLICATION DEVELOPER
REF ID: TEL/Q2300, V2.0
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

TELECOM SECTOR SKILL COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/ Qualification Pack: '**Telecom Terminal Equipment Application Developer (Android) v2.0**'
QP No. '**TEL/Q2300 NSQF Level 4**'

Date of Issuance: **Jan 12th, 2017**

Valid up to*: **Jan 12th, 2019**

*Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Telecom Sector Skill Council)

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Telecom Terminal Equipment Application Developer (Android)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Telecom Terminal Equipment Application Developer (Android)”, in the “Telecom” Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Telecom Terminal Equipment Application Developer (Android)		
Qualification Pack Name & Reference ID.	TEL/Q2300, Version 2.0		
Version No.	1.0	Version Update Date	18-09-2018
Pre-requisites to Training	12 th Class		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • set-up of Android Framework/development environment and create User Interface. • develop Android VAS application. • testing and publishing of Android application. 		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Telecom Terminal Equipment Application Developer (Android)” Qualification Pack issued by “TSSC: Telecom Sector Skill Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> State the objectives of the program and skills required for the job Outline mobile application eco-system, various platforms and development environment Identify the opportunities in mobile application development area Infer the relevance and advantages of business-based applications vis-à-vis traditional websites Recall Java Programming, Object oriented programming List application security features and compliances Relate the fundamentals of Networking 	NA
2	<p>Set-up Android Framework/development environment and creating user interface</p> <p>Theory Duration (hh:mm) 25:00</p> <p>Practical Duration (hh:mm) 60:00</p> <p>Corresponding NOS Code TEL/N2300</p>	<ul style="list-style-type: none"> Distinguish various mobile operating systems, its key features and benefits Identify different versions of android operating system and different types of tools required in the development process Install and configure android application development framework Create Android virtual devices and identify components of the project Identify features of system libraries and framework related files Apply styles and themes to activities Illustrate android elements (text, image etc.) and their properties Create user interface programmatically Implement menu, helper methods, options Menu and context menu 	Development Tools and Framework, Computer Lab, Broadband, Various Smartphone (working with versions of Android), Internet/ Broadband connectivity
3	<p>Developing Android VAS application</p> <p>Theory Duration (hh:mm) 25:00</p> <p>Practical Duration (hh:mm) 60:00</p> <p>Corresponding NOS Code TEL/N2301</p>	<ul style="list-style-type: none"> Implement data persistence Share and load preferences Test data connectivity Apply commands to query data Use of loaders to load database and bundle database with application Provide interface to application data using content providers and resolvers Send and receive SMS and Email programmatically or using intent Download text files, binary data, access web services Implement MAP concept for android and create a MAP project 	Development Tools and Framework, Computer Lab, Broadband, Various Smartphone (working with versions of Android), Internet/ Broadband connectivity

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Obtain MAP API Keys and display the MAP Navigate to specific location and add markers Perform geo-coding and reverse geo-coding Monitor locations Perform long-running tasks, repeated tasks, asynchronous tasks in a service Communicate between service and an activity Build activity into services Outline Android priorities for tasks and implement alarms Illustrate the concepts of efficient data transfer to minimise battery drain 	
4	Testing and Publishing Android Applications Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 50:00 Corresponding NOS Code TEL/N2302	<ul style="list-style-type: none"> Test various application methodologies and associated processes of Android Illustrate the security of android applications Implement the concept of debugging methodologies and re-testing process Follow the compliance process/procedures and tests for hosting applications at app stores List the tools used for application functional and security testing Publish android applications Perform pre-publishing checks and address vulnerabilities Perform best practices for Android VAS applications Store licensing policies 	Computer Lab, Broadband, Various Smartphone (working with versions of Android), Internet/ Broadband connectivity
	Total Duration Theory Duration 80:00 Practical Duration 170:00	Unique Equipment Required: White/black board, Projection System with PC/Laptop Development Tools and Framework, sample smartphones (for app deployment & testing), Internet/Broadband connectivity	

Grand Total Course Duration: 250 **Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by **TSSC: Telecom Sector Skill Council**)

Trainer Prerequisites for Job role: “Telecom Terminal Equipment Application Developer (Android)” mapped to Qualification Pack: “TEL/Q2300, V. 2.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “TEL/Q2300, Version No. 2.0”.
2	Personal Attributes	This job requires the individual to possess influencing and persuasion skills; excellent verbal and non-verbal communication skills; English & regional language proficiency; must be energetic and flexible and should have a pleasing personality.
3	Minimum Educational Qualifications	Graduation (in any stream)
4a	Domain Certification	Certified for Job Role: “Telecom Terminal Equipment Application Developer (Android)” mapped to QP: “TEL/Q2300, Version No. 2.0”. Minimum accepted score should be mentioned as 80%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102, Version No. 1.0”. Minimum accepted score as per SSC guidelines is 80%.
5	Experience	<ul style="list-style-type: none"> The trainer should be certified by TSSC as ‘Train the Trainer’ and ‘Assessor’ Worked as Telecom Terminal Equipment Application Developer (Android) for a minimum of 6-8 months.

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Telecom Terminal Equipment Application Developer (Android)
Qualification Pack	TEL/Q2300, V. 2.0
Sector Skill Council	Telecom

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4	Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/ training center.
5	To pass the Qualification Pack, every trainee should score a minimum 70% of aggregate marks to successfully clear the assessment.
6	In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Assessable Outcome	Assessment Criteria	Total Mark (300)	Out Of	Theory	Skills Practical
TEL/N2300 Set-up up Android framework/development environment and creating user interface	PC1. differentiate various Mobile operating Systems , key features and benefits	100	4	4	0
	PC2. identify key features for various versions of Android		4	4	0
	PC3. identify the various tools and software required for developing an Android Application		4	4	0
	PC4. install Java		6	3	3
	PC5. install and configure Android development framework		3	1	2
	PC6. create Android Virtual Devices		3	1	2
	PC7. identify the components of an Android Project		3	2	1
	PC8. create Android Project		4	3	1
	PC9. identify and understand features of system libraries and files related to the installed framework		4	1	3
	PC10. understand and link activities and intents		3	2	1
	PC11. apply Styles and themes to activities		5	2	3
	PC12. start activities using Intents		3	1	2
	PC13. understand parent child activity relationship		3	1	2
	PC14. understand the components of a Screen, Views and view Groups		7	3	4
	PC15. understand Layouts		5	2	3
	PC16. work with emulators		4	1	3
	PC17. Understand Display orientation, views and sizing (for various devices)		5	2	3
	PC18. Creating User Interfaces programmatically		4	1	3
	PC19. Implement event listeners		3	1	2
	PC20. Create Basic Views		5	1	4
	PC21. display of images		5	2	3
	PC22. Use Menus , Helper Methods, Options Menu and Context Menu		5	2	3
	PC23. Understand basics of working with Android camera		8	2	6
Total				46	54
TEL/N2301 Developing Android VAS application	PC1. implementing Data Persistence	100	5	2	3
	PC2. sharing and Loading user Preferences		4	2	2
	PC3. storing Data to internal Storage, External Storage		3	2	1
	PC4. Test data connectivity		3	1	2
	PC5. using Database		3	2	1
	PC6. applying commands to query data		6	3	3
	PC7. Use of loaders to load database		5	2	3
	PC8. bundling Database with Application		3	1	2
	PC9. using Content Providers and resolve to provide an interface to the app's data		2	1	1
	PC10. sending SMS messages programmable/ using intent		3	1	2
	PC11. receiving SMS and Processing SMS		3	0	3
	PC12. sending Email		2	0	2

	PC13. working with Bluetooth		3	1	2
	PC14. downloading Text Files, Binary Data, Accessing Web Services		2	1	1
	PC15. performing Asynchronous Call		3	1	2
	PC16. understanding the MAP concept for Android and creating a MAP Project		7	4	3
	PC17. obtaining the Maps API Keys, Displaying the Map		3	1	2
	PC18. controlling the Zoom and changing the views		3	1	2
	PC19. navigating to specific locations		3	1	2
	PC20. Adding Markers		3	1	2
	PC21. getting a location that was touched		3	1	2
	PC22. geo coding and reverse Geocoding		1	1	0
	PC23. monitoring Locations		3	1	2
	PC24. creating your Own Android Services		3	2	1
	PC25. performing Long-Running tasks, Repeated Tasks, Asynchronous Tasks in a Service		3	1	2
	PC26. communicating between a Service and Activity		3	1	2
	PC27. building Activities into Services		3	1	2
	PC28. understand how Android prioritizes tasks		3	2	1
	PC29. implement alarms		6	3	3
	PC30. understand the concepts of efficient data transfer to minimize battery drain		3	0	3
	Total			41	59
TEL/N2302 Testing and publishing Android Applications	PC1. testing fundamentals, Types of Tests, define/wite App specific test cases	100	8	5	3
	PC2. testing Android Application using Unit Testing		8	3	5
	PC3. functional /Usability Testing Android Applications		8	3	5
	PC4. UI Testing		8	3	5
	PC5. performance testing		8	3	5
	PC6. battery Impact analysis		8	5	3
	PC7. troubleshoot and debug code		10	5	5
	PC8. understand built-in security features of Android framework		2	2	0
	PC9. Pre-publishing checks and addressing vulnerabilities		10	5	5
	PC10. Security Best Practices for Android VAS Applications		10	7	3
	PC11. bundle application for release on app store		10	6	4
	PC12. publishing procedure/processes		4	4	0
	PC13. store licensing policies		4	4	0
	PC14. options for monetization strategies		2	2	0
	Total			53	47
Grand Total			300		