Telecom Terminal Equipment Application Developer (Native)

QP Code: TEL/Q2301

Version: 3.0

NSQF Level: 4

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector - 44 Gurgaon - 122003

Contents

Qualification Pack

TEL/Q2301: Telecom Terminal Equipment Application Developer (Native)

Brief Job Description

The individual is responsible for creating customized applications for various mobile platform that can be used by smartphone or tablets running across different platforms. The individual also performs tests for the written codes and ensures that adequate security measures are taken to protect valuable data used in the application from unauthorised external agents.

Personal Attributes

A telecom terminal equipment application developer (native) should be customer oriented, self-motivated, effective communicator and a team player with strong analytical and problem-solving skills. The individual should be proficient in the latest app development languages and have good coding skills with a flair for designing/structuring activities.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N2304: Develop Applications in HTML5 with JavaScript and Cascading Style Sheets (CSS3)

2. TEL/N2305: Configure Native Applications using HTML5 and JavaScript

3. TEL/N2306: Test and Publish Native Phone Applications

4. TEL/N9101: Organize Work and Resources as per Health and Safety Standards

5. TEL/N9102: Interact Effectively with Team Members and Customers

6. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Handset
Occupation	Terminal Equipment Application Developer
Country	India
NSQF Level	4

Credits	18
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2153.0102
Minimum Educational Qualification & Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 OR 10th Class (Pursuing 2nd year of 3-year regular Diploma (after 10th) OR 10th grade pass (with two years of any combination of NTC/NAC/CITS or equivalent) OR 8th grade pass with 2 year NTC plus 1 year NAC plus 1 year CITS OR 10th grade pass and pursuing continuous schooling (With No Experience required) OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	15 Years
Last Reviewed On	NA
Next Review Date	30/12/2024
NSQC Approval Date	30/12/2021
Version	3.0
Reference code on NQR	QG-04-TL-00444-2023-V1.1-TSSC
NQR Version	1.1

TEL/N2304: Develop Applications in HTML5 with JavaScript and Cascading Style Sheets (CSS3)

Description

This OS unit is about programming in Hypertext Mark-up Language (HTML5) and developing Cascading Style Sheets (CSS3) applications.

Scope

The scope covers the following :

- Implement and manipulate document structures and objects
- Implement program flow
- Access and secure data
- Execute CSS3 in applications
- Execute JavaScript in Application Development

Elements and Performance Criteria

Implement and manipulate document structures and objects

To be competent, the user/individual on the job must be able to:

PC1. create the document structure using different HTML tags such as section, article, navigation, header, footer, aside and other tags

PC2. develop User Interface (UI) elements

PC3. add and modify HTML elements programmatically

PC4. implement media controls, HTML canvas, Scalable Vector Graphics (SVG) and HTML5 Application Programming Interface (APIs)

PC5. create variables, objects and methods and implement them

Implement program flow

To be competent, the user/individual on the job must be able to:

PC6. create and modify the control statements of the applications

PC7. implement handling of events exposed by DOM (Document Object Model)

PC8. perform steps to manage exception handling

PC9. implement a callback

PC10. create a web worker process

Access and secure data

To be competent, the user/individual on the job must be able to:

PC11. validate user input using HTML5 elements and Java Script

PC12. use JavaScript Object Notation (JSON) and Extensive Markup Language (XML) data

PC13. ensure to serialize, deserialize, and transmit data

Execute CSS3 in applications

To be competent, the user/individual on the job must be able to:

PC14. implement style HTML text properties and box properties

PC15. interpret application requirements, User Interface (UI) requirements and logic/control flow

PC16. create a flexible content layout with an animated and adaptive UI

PC17. perform structuring of Cascading Style Sheets (CSS3) file by using selectors

PC18. find elements by using CSS selectors and jQuery

PC19. configure the native application suite/tools for application development

Execute Java Script in Application Development

To be competent, the user/individual on the job must be able to:

PC20. create objects and methods by using JavaScript

PC21. refine the code for maintainability and extensibility

PC22. create interactive pages using HTML5 Application Program Interface (API)

PC23. employ offline support to Web Applications

PC24. implement adaptive and animated UI and generics in the application

PC25. implement real-time communications by using web sockets

PC26. perform installation and set up the emulator

PC27. perform testing of the functionality and UI using the emulators

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. semantic elements of HTML

KU2. fundamentals of application development platforms and environment

KU3. software development process and lifecycle

KU4. HTML layout elements and techniques

KU5. use of canvas and SVG in HTML

KU6. scope of variables in programming

KU7. DOM standards

KU8. control flow and exception handling procedures

KU9. basics of web workers

KU10. process of form validation in HTML and JavaScript

KU11. features and application of JSON (JavaScript Object Notation) and XML (Extensive Markup Language)

KU12. concept of converting the data like serialization and deserialization

KU13. working of user interface in various devices

KU14. working of CSS in a proper manner

KU15. implementation process of generics

KU16. implementation process of web sockets

KU17. process of setting up an emulator

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and interpret manual and other materials

GS2. work systematically with required attention to detail and adherence to all safety requirements

GS3. communicate in the local language (preferable)

GS4. keep abreast with the new technologies and languages for programming

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Implement and manipulate document structures and objects	**8**	**13**	**-**	**3**
PC1. create the document structure using different HTML tags such as section, article, navigation, header, footer, aside and other tags	2	3	-	1
PC2. develop User Interface (UI) elements	2	3	-	-
PC3. add and modify HTML elements programmatically	1	3	-	1
PC4. implement media controls, HTML canvas, Scalable Vector Graphics (SVG) and HTML5 Application Programming Interface (APIs)	2	2	-	-
PC5. create variables, objects and methods and implement them	1	2	-	1
Implement program flow	**6**	**10**	**-**	**3**
PC6. create and modify the control statements of the applications	1	2	-	1
PC7. implement handling of events exposed by DOM (Document Object Model)	2	2	-	-
PC8. perform steps to manage exception handling	1	2	-	1
PC9. implement a callback	1	2	-	-
PC10. create a web worker process	1	2	-	1
Access and secure data	**4**	**5**	**-**	**2**
PC11. validate user input using HTML5 elements and Java Script	2	2	-	1
PC12. use JavaScript Object Notation (JSON) and Extensive Markup Language (XML) data	1	3	-	-
PC13. ensure to serialize, deserialize, and transmit data	1	-	-	1
Execute CSS3 in applications	**6**	**6**	**-**	**2**

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. implement style HTML text properties and box properties	1	-	-	-
PC15. interpret application requirements, User Interface (UI) requirements and logic/control flow	1	-	-	-
PC16. create a flexible content layout with an animated and adaptive UI	1	-	-	1
PC17. perform structuring of Cascading Style Sheets (CSS3) file by using selectors	1	2	-	-
PC18. find elements by using CSS selectors and jQuery	1	2	-	1
PC19. configure the native application suite/tools for application development	1	2	-	-
Execute Java Script in Application Development	**11**	**16**	**-**	**5**
PC20. create objects and methods by using JavaScript	2	2	-	1
PC21. refine the code for maintainability and extensibility	1	2	-	1
PC22. create interactive pages using HTML5 Application Program Interface (API)	2	2	-	1
PC23. employ offline support to Web Applications	1	2	-	-
PC24. implement adaptive and animated UI and generics in the application	2	2	-	1
PC25. implement real-time communications by using web sockets	1	2	-	-
PC26. perform installation and set up the emulator	1	2	-	1
PC27. perform testing of the functionality and UI using the emulators	1	2	-	-
NOS Total	**35**	**50**	**-**	**15**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N2304
NOS Name	Develop Applications in HTML5 with JavaScript and Cascading Style Sheets (CSS3)
Sector	Telecom
Sub-Sector	Handset
Occupation	Terminal Equipment Application Developer
NSQF Level	4
Credits	5
Version	3.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

TEL/N2305: Configure Native Applications using HTML5 and JavaScript

Description

This OS unit is about setting up native application development tools/suite, developing basic and Value Added Services (VAS) native applications using HTML5 and JavaScript for various mobile operating systems.

Scope

The scope covers the following :

- Configure the native application platform suite/tools
- Enhance the UI Design using various layouts and controls
- Perform data and file handling, and other database operations
- Implement process lifetime management and VAS support for the application

Elements and Performance Criteria

Configure the native application platform suite/tools

To be competent, the user/individual on the job must be able to:

PC1.   identify the native application development tools/suite available from different vendor as per the requirement

PC2.   perform installation of the native application suite/tools and the emulator

PC3.   make the required configuration changes for application ready platform

PC4.   design a theme for User Interface and navigation flow of the application (with the user and mobile device) as per the specifications of the selected development tool/suite

Execute principles and components of UI (User Interface) design, layouts and control

To be competent, the user/individual on the job must be able to:

PC5.   create layout controls and templates for UI design

PC6.   work with controls specific to Operating Systems (OS) platforms

PC7.   implement tiles, live tiles, secondary tiles, and badge notifications for the application

PC8.   add toast notifications for Windows platform and other iOS and android specific interface designs

PC9.   develop response to mouse, touch and other actions as per the requirements and specifications

Perform data and file handling and other database operations

To be competent, the user/individual on the job must be able to:

PC10.   design and implement a data access strategy for the application

PC11.   enable file and input streams handling for the application using various components

PC12.   implement reading and writing of data to the notes file through the application

PC13.   create and manage queries on Structured Query Language (SQL) lite for the application to interact with the database

Implement process lifetime management and VAS support for an applications

To be competent, the user/individual on the job must be able to:

PC14. evaluate different Product Lifecycle Management (PLM) states of the application

PC15. implement the appropriate state management of data for the application

PC16. implement semantic zoom and other functionalities for specific mobile platform/OS

PC17. identify the VAS elements that should be added to the application for using and implementing specific features of Android and iOS

PC18. implement network components and controls for the VAS components of the application

PC19. modify the application to support General Packet Radio services (GPRS)

PC20. integrate mails usage with the application

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. features and applications of various native application development tools/suite

KU2. types of user interfaces

KU3. elements and principles of UI

KU4. process of UI design

KU5. types of data access strategies

KU6. implementation procedure of data access strategies

KU7. applications of SQL

KU8. basics of Product Lifecycle Management (PLM)

KU9. methods of backing up and recovering databases

KU10. database security issues

KU11. ways and means of database design

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and interpret manual and other materials

GS2. analyse random requirements and create logics for the software

GS3. analyse and interpret problems and create codes

GS4. communicate with the superiors and colleagues

GS5. work systematically with required attention-to-detail

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Configure the native application platform suite/tools	**5**	**11**	**-**	**4**
PC1. identify the native application development tools/suite available from different vendor as per the requirement	1	3	-	1
PC2. perform installation of the native application suite/tools and the emulator	2	2	-	1
PC3. make the required configuration changes for application ready platform	1	2	-	1
PC4. design a theme for User Interface and navigation flow of the application (with the user and mobile device) as per the specifications of the selected development tool/suite	1	4	-	1
Execute principles and components of UI (User Interface) design, layouts and control	**8**	**14**	**-**	**5**
PC5. create layout controls and templates for UI design	2	2	-	1
PC6. work with controls specific to Operating Systems (OS) platforms	1	3	-	1
PC7. implement tiles, live tiles, secondary tiles, and badge notifications for the application	2	3	-	1
PC8. add toast notifications for Windows platform and other iOS and android specific interface designs	2	3	-	1
PC9. develop response to mouse, touch and other actions as per the requirements and specifications	1	3	-	1
Perform data and file handling and other database operations	**6**	**10**	**-**	**4**
PC10. design and implement a data access strategy for the application	2	3	-	1
PC11. enable file and input streams handling for the application using various components	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. implement reading and writing of data to the notes file through the application	1	2	-	1
PC13. create and manage queries on Structured Query Language (SQL) lite for the application to interact with the database	2	3	-	1
Implement process lifetime management and VAS support for an applications	**11**	**15**	**-**	**7**
PC14. evaluate different Product Lifecycle Management (PLM) states of the application	2	3	-	1
PC15. implement the appropriate state management of data for the application	1	1	-	1
PC16. implement semantic zoom and other functionalities for specific mobile platform/OS	1	3	-	1
PC17. identify the VAS elements that should be added to the application for using and implementing specific features of Android and iOS	2	1	-	1
PC18. implement network components and controls for the VAS components of the application	2	2	-	1
PC19. modify the application to support General Packet Radio services (GPRS)	2	3	-	1
PC20. integrate mails usage with the application	1	2	-	1
NOS Total	**30**	**50**	**-**	**20**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N2305
NOS Name	Configure Native Applications using HTML5 and JavaScript
Sector	Telecom
Sub-Sector	Handset
Occupation	Terminal Equipment Application Developer
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

TEL/N2306: Test and Publish Native Phone Applications

Description

This OS unit is about testing and publishing various platform specific phone applications.

Scope

The scope covers the following :

- Test and secure the phone applications
- Publish the phone applications

Elements and Performance Criteria

Test and secure the phone applications

To be competent, the user/individual on the job must be able to:

PC1. identify the testing methodology to be used for the application

PC2. create different test cases and scenarios for testing the application

PC3. perform functional, compatibility and performance testing of the application on different mobile phones/platforms/OS

PC4. carry out network testing to check connectivity parameters

PC5. perform User Interface/User Experience (UI/UX) testing based on various parameters

PC6. test the application for data/information security

PC7. resolve any issues/problems associated with the application, network and user interface after troubleshooting

Publish the phone applications

To be competent, the user/individual on the job must be able to:

PC8. configure the application's manifest file to prepare for publishing it on the app store(s)

PC9. obtain the application certification from authorised source

PC10. deploy and publish the application across various platforms

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. types of testing for applications

KU2. fundamentals and application of android application kit used in testing mobile applications

KU3. performance parameters used in application testing

KU4. security policies of android and organisation commissioning the application

KU5. techniques for troubleshooting application problems

KU6. procedure to publish an application on different platforms

KU7. fundamentals of services and background processing

KU8. fundamentals of networking

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and interpret manual and other materials
GS2. interpret testing requirements

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Test and secure the phone applications	**19**	**35**	**-**	**13**
PC1. identify the testing methodology to be used for the application	3	5	-	1
PC2. create different test cases and scenarios for testing the application	3	6	-	1
PC3. perform functional, compatibility and performance testing of the application on different mobile phones/platforms/OS	3	7	-	2
PC4. carry out network testing to check connectivity parameters	2	4	-	2
PC5. perform User Interface/User Experience (UI/UX) testing based on various parameters	3	5	-	2
PC6. test the application for data/information security	2	4	-	2
PC7. resolve any issues/problems associated with the application, network and user interface after troubleshooting	3	4	-	3
Publish the phone applications	**11**	**15**	**-**	**7**
PC8. configure the application's manifest file to prepare for publishing it on the app store(s)	4	5	-	3
PC9. obtain the application certification from authorised source	3	4	-	2
PC10. deploy and publish the application across various platforms	4	6	-	2
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N2306
NOS Name	Test and Publish Native Phone Applications
Sector	Telecom
Sub-Sector	Handset
Occupation	Terminal Equipment Application Developer
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

TEL/N9101: Organize Work and Resources as per Health and Safety Standards

Description

This OS unit is about planning work and following sustainable as well as healthy practices for safety and optimal use of resources.

Scope

The scope covers the following :

- Perform work as per quality standards
- Maintain safe, healthy and secure working environment
- Conserve material/energy/electricity
- Use effective waste management/recycling practices

Elements and Performance Criteria

Perform work as per quality standards

To be competent, the user/individual on the job must be able to:

PC1. keep workspace clean and tidy

PC2. perform individual role and responsibilities as per the job role while taking accountability for the work

PC3. record/document tasks completed as per the requirements within specific timelines

PC4. implement schedules to ensure timely completion of tasks

PC5. identify the cause of a problem related to own work and validate it

PC6. analyse problems accurately and communicate different possible solutions to the problem

Maintain safe, healthy and secure working environment

To be competent, the user/individual on the job must be able to:

PC7. comply with organisation's current health, safety, security policies and procedures

PC8. check for water spills in and around the work space and escalate these to the appropriate authority

PC9. report any identified breaches in health, safety, and security policies and procedures to the designated person

PC10. use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.

PC11. avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence

PC12. identify hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority

PC13. participate regularly in fire drills or other safety related workshops organised by the company

PC14. report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected

PC15. maintain appropriate posture while sitting/standing for long hours

PC16. handle heavy and hazardous materials with care, while maintaining appropriate posture

PC17. sanitize workstation and equipment regularly

PC18. clean hands with soap, alcohol-based sanitizer regularly

PC19. avoid contact with anyone suffering from communicable diseases and take necessary precautions

PC20. take safety precautions while travelling e.g. maintain 1m distance from others, sanitize hands regularly, wear masks, etc.

PC21. report hygiene and sanitation issues to appropriate authority

PC22. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.

Conserve material/energy/electricity

To be competent, the user/individual on the job must be able to:

PC23. optimize usage of material including water in various tasks/activities/processes

PC24. use resources such as water, electricity and others responsibly

PC25. carry out routine cleaning of tools, machine and equipment

PC26. optimize use of electricity/energy in various tasks/activities/processes

PC27. perform periodic checks of the functioning of the equipment/machine and rectify wherever required

PC28. report malfunctioning and lapses in maintenance of equipment

PC29. use electrical equipment and appliances properly

Use effective waste management/recycling practices

To be competent, the user/individual on the job must be able to:

PC30. identify recyclable, non-recyclable and hazardous waste

PC31. deposit recyclable and reusable material at identified location

PC32. dispose non-recyclable and hazardous waste as per recommended processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. strategies pertinent to their field (such as internet searches, asking peers and managers, enrolling for courses and certifications, etc.) that can be used to pursue an advancement in their skills

KU2. key performance indicators for the new tasks

KU3. feedback processes and formats

KU4. timelines and goals as well as their relevance to work allocated

KU5. importance of quality and timely delivery of the product/service

KU6. escalation matrix and its importance, especially in case of emergencies

KU7. ways of time and cost management

KU8. rules/regulation for maintaining health and safety at workplace

KU9. meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work

KU10. relevant signage, warnings, labels or descriptions on equipment, etc. while carrying out work activities

KU11. procedures to report breaches in health, safety and security

KU12. organisation's procedures for different emergency situations and the importance of following the same

KU13. different methods of cleaning, disinfection, sterilization, and sanitization

KU14. significance of personal hygiene practice including hand hygiene

KU15. path of disease transmission

KU16. correct method of donning and doffing of PPE

KU17. ways of managing resources and material efficiently

KU18. common electrical problems and common practices of conserving electricity

KU19. categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics and use of different colours of dustbins

KU20. organisation's procedures for minimizing waste

KU21. waste management and methods of waste disposal

KU22. common sources of pollution and ways to minimize it

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. improve and modify work practices

GS2. complete tasks efficiently and accurately within stipulated time

GS3. develop skills and mastery of the technologies prevalent in the industry

GS4. write in at least one language and complete written work with attention to detail

GS5. utilize time and manage workload efficiently

GS6. read and comprehend instructions and documents

GS7. accept feedback in a constructive way

GS8. seek clarifications from superior about the job requirement

GS9. read and comprehend statutory documents relevant to safety and hygiene

GS10. refer all anomalies to the concerned persons

GS11. analyze situations and make appropriate decisions

GS12. decide the most suitable course of action for completing the task within resources

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform work as per quality standards	**4**	**9**	**-**	**2**
PC1. keep workspace clean and tidy	-	1	-	-
PC2. perform individual role and responsibilities as per the job role while taking accountability for the work	1	1	-	1
PC3. record/document tasks completed as per the requirements within specific timelines	-	1	-	1
PC4. implement schedules to ensure timely completion of tasks	-	2	-	-
PC5. identify the cause of a problem related to own work and validate it	2	2	-	-
PC6. analyse problems accurately and communicate different possible solutions to the problem	1	2	-	-
Maintain safe, healthy and secure working environment	**16**	**27**	**-**	**4**
PC7. comply with organisation's current health, safety, security policies and procedures	1	1	-	-
PC8. check for water spills in and around the work space and escalate these to the appropriate authority	1	2	-	1
PC9. report any identified breaches in health, safety, and security policies and procedures to the designated person	1	2	-	1
PC10. use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.	1	2	-	1
PC11. avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence	2	3	-	1
PC12. identify hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority	2	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. participate regularly in fire drills or other safety related workshops organised by the company	1	3	-	-
PC14. report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected	1	3	-	-
PC15. maintain appropriate posture while sitting/standing for long hours	1	1	-	-
PC16. handle heavy and hazardous materials with care, while maintaining appropriate posture	1	1	-	-
PC17. sanitize workstation and equipment regularly	1	2	-	-
PC18. clean hands with soap, alcohol-based sanitizer regularly	-	1	-	-
PC19. avoid contact with anyone suffering from communicable diseases and take necessary precautions	-	1	-	-
PC20. take safety precautions while travelling e.g. maintain 1m distance from others, sanitize hands regularly, wear masks, etc.	1	2	-	-
PC21. report hygiene and sanitation issues to appropriate authority	1	1	-	-
PC22. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.	1	1	-	-
Conserve material/energy/electricity	**7**	**16**	**-**	**3**
PC23. optimize usage of material including water in various tasks/activities/processes	1	2	-	-
PC24. use resources such as water, electricity and others responsibly	1	2	-	1
PC25. carry out routine cleaning of tools, machine and equipment	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. optimize use of electricity/energy in various tasks/activities/processes	1	3	-	1
PC27. perform periodic checks of the functioning of the equipment/machine and rectify wherever required	1	3	-	1
PC28. report malfunctioning and lapses in maintenance of equipment	1	2	-	-
PC29. use electrical equipment and appliances properly	1	2	-	-
Use effective waste management/recycling practices	**3**	**8**	**-**	**1**
PC30. identify recyclable, non-recyclable and hazardous waste	1	2	-	1
PC31. deposit recyclable and reusable material at identified location	1	3	-	-
PC32. dispose non-recyclable and hazardous waste as per recommended processes	1	3	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9101
NOS Name	Organize Work and Resources as per Health and Safety Standards
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

TEL/N9102: Interact Effectively with Team Members and Customers

Description

This OS unit is about interacting with superiors and colleagues as well as customers and other stakeholders in own or other work groups within as well as outside the organisation.

Scope

The scope covers the following :

- Interact effectively with superiors
- Interact effectively with colleagues and customers
- Respect differences of gender and ability

Elements and Performance Criteria

Interact effectively with superiors

To be competent, the user/individual on the job must be able to:

PC1. receive work requirements from superiors and customers and interpret them correctly

PC2. inform the supervisor and/or concerned person about any unforeseen disruptions or delays

PC3. participate in decision making by providing facts and figures, giving/accepting constructive suggestions

PC4. rectify errors as per feedback and ensure the errors are not repeated

Interact effectively with colleagues and customers

To be competent, the user/individual on the job must be able to:

PC5. comply with organisation's policies and procedures for working with team members

PC6. communicate professionally using appropriate mode of communication such as face-to-face, telephonic and written

PC7. respond to queries and seek/provide clarifications if required

PC8. co-ordinate with team to integrate work as per requirements

PC9. resolve conflicts within the team/with customers to achieve smooth workflow

PC10. recognize emotions accurately in self and others to build good relationships

PC11. prioritize team and organization goals above personal goals

Respect differences of gender and ability

To be competent, the user/individual on the job must be able to:

PC12. maintain a conducive environment for all the genders at the workplace

PC13. encourage appropriate behavior and conduct with people across gender

PC14. assist team members with disability in overcoming any challenges faced in work

PC15. practice appropriate verbal and non-verbal communication while interacting with People with Disability (PwD)

PC16. ensure equal participation of the people across genders in discussions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.

KU2. organisation's hierarchy and escalation matrix

KU3. importance of establishing good working relationships with colleagues and superiors

KU4. importance of helping colleagues with problems, in order to meet quality and time standards as a team

KU5. different means and methods of communication

KU6. different types of information that colleagues might need and the importance of providing this information in an appropriate manner

KU7. organisation's policies and procedures for working with colleagues and superiors

KU8. importance of understanding consequences of gender biased behaviour

KU9. gender based concepts, issues and legislation

KU10. organisation standards and guidelines to be followed for PwD and knowledge about laws, acts and provisions defined for PwD by the statutory bodies and the right way to use them including various medical conditions associated with PwD

KU11. health and safety requirements at workplace for PwD

KU12. process of recruiting people for a particular job profile w.r.t PwD and gender

KU13. various government/private schemes and benefits available for PwD and information about various institutes working for PwD to enable in providing livelihood opportunities for PwD

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and comprehend forms, documents and records

GS2. read and write in English and/or local language

GS3. complete work with attention to detail

GS4. listen effectively and orally communicate information

GS5. work as per customer requirements

GS6. communicate with empathy across genders and PwD

GS7. improve and modify work practices

GS8. maintain positive and effective relationships with colleagues and customers

GS9. evaluate the possible solution(s) to the problem

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interact effectively with superiors	**7**	**15**	**-**	**2**
PC1. receive work requirements from superiors and customers and interpret them correctly	1	2	-	-
PC2. inform the supervisor and/or concerned person about any unforeseen disruptions or delays	2	4	-	1
PC3. participate in decision making by providing facts and figures, giving/accepting constructive suggestions	2	5	-	1
PC4. rectify errors as per feedback and ensure the errors are not repeated	2	4	-	-
Interact effectively with colleagues and customers	**7**	**26**	**-**	**4**
PC5. comply with organisation's policies and procedures for working with team members	1	2	-	-
PC6. communicate professionally using appropriate mode of communication such as face-to-face, telephonic and written	2	4	-	1
PC7. respond to queries and seek/provide clarifications if required	2	4	-	1
PC8. co-ordinate with team to integrate work as per requirements	-	3	-	-
PC9. resolve conflicts within the team/with customers to achieve smooth workflow	1	5	-	1
PC10. recognize emotions accurately in self and others to build good relationships	1	4	-	-
PC11. prioritize team and organization goals above personal goals	-	4	-	1
Respect differences of gender and ability	**11**	**24**	**-**	**4**
PC12. maintain a conducive environment for all the genders at the workplace	2	5	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. encourage appropriate behavior and conduct with people across gender	2	5	-	1
PC14. assist team members with disability in overcoming any challenges faced in work	3	4	-	1
PC15. practice appropriate verbal and non-verbal communication while interacting with People with Disability (PwD)	2	4	-	1
PC16. ensure equal participation of the people across genders in discussions	2	6	-	-
NOS Total	**25**	**65**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9102
NOS Name	Interact Effectively with Team Members and Customers
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1.   identify employability skills required for jobs in various industries

PC2.   identify and explore learning and employability portals

Constitutional values – Citizenship

To be competent, the user/individual on the job must be able to:

PC3.   recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4.   follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC5.   recognize the significance of 21st Century Skills for employment

PC6.   practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all

GS4. how to work in a virtual mode

GS5. perform calculations efficiently

GS6. solve problems effectively

GS7. pay attention to details

GS8. manage time efficiently

GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	1	1	-	-
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**2**	**3**	**-**	**-**
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	NA
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ 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 part for each candidate at each examination/training center (as per assessment criteria below).

5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
TEL/N2304.Develop Applications in HTML5 with JavaScript and Cascading Style Sheets (CSS3)	35	50	-	15	100	19
TEL/N2305.Configure Native Applications using HTML5 and JavaScript	30	50	-	20	100	18
TEL/N2306.Test and Publish Native Phone Applications	30	50	-	20	100	18
TEL/N9101.Organize Work and Resources as per Health and Safety Standards	30	60	-	10	100	18
TEL/N9102.Interact Effectively with Team Members and Customers	25	65	-	10	100	18
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	9
Total	**170**	**305**	**-**	**75**	**550**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
VS	Visual Studio
IDE	Integrated Development Environment
SDK	Standard Development Kit
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
DOM	Document Object Model
JSON	Java Script Object Notation
API	Application Programming Interface
SQL	Standard Query Language

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.