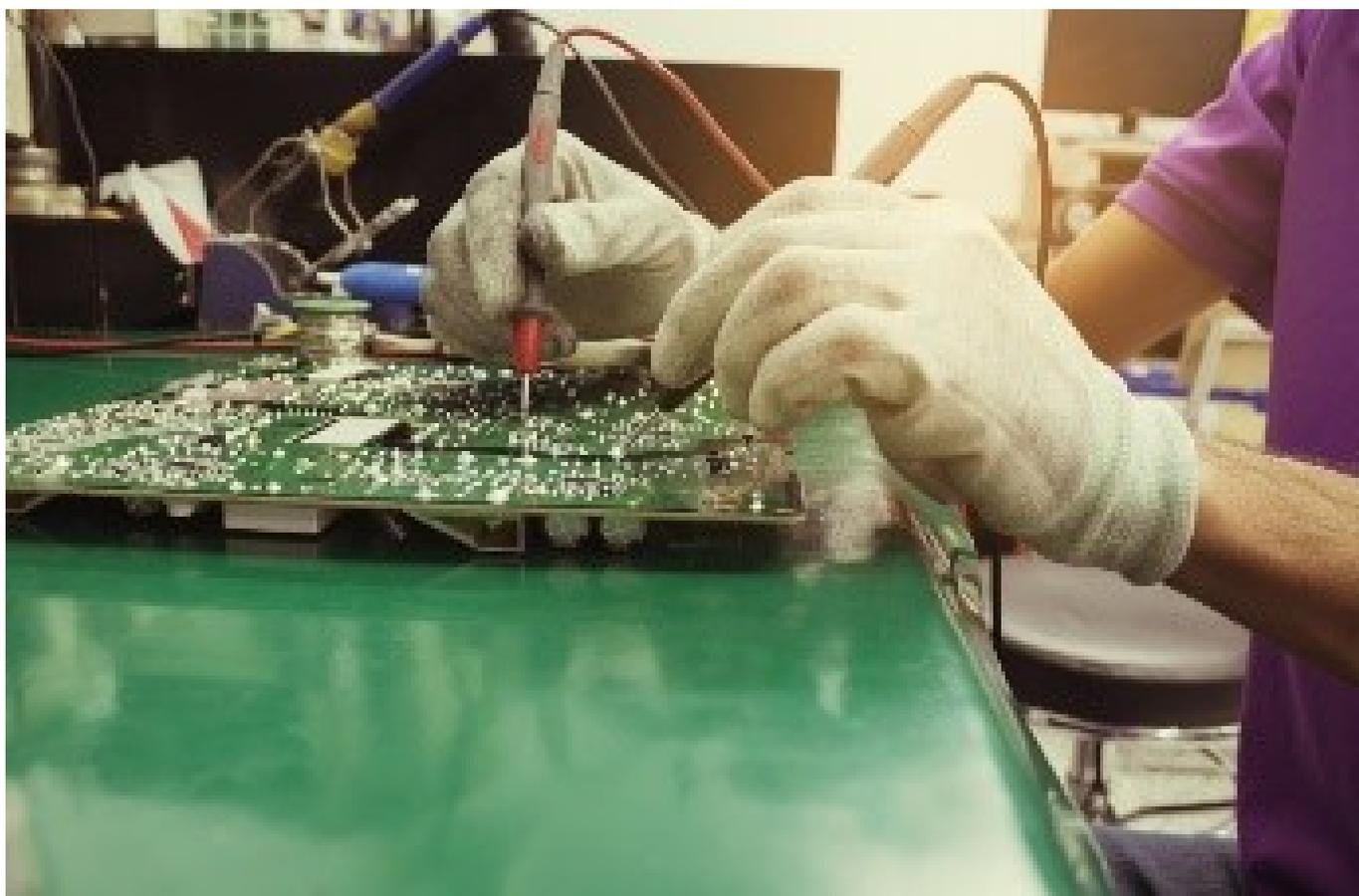


Qualification Pack



Fitter- Electrical and Electronic Assembly

QP Code: CSC/Q0305

Version: 3.0

NSQF Level: 3

Capital Goods Skill Council || 1st Floor, L-29, Outer Circle, Connaught Place
New Delhi - 110001 || email:coo@cgsc.in



Qualification Pack

Contents

CSC/Q0305: Fitter- Electrical and Electronic Assembly	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
CSC/N1335: Follow the health and safety practices at the work	5
CSC/N1336: Coordinate with co-workers to achieve work efficiency	13
CSC/N0305: Assemble and wire electrical components and systems to mechanical equipment	19
CSC/N0306: Assemble and wire electronic equipment and systems to mechanical equipment	26
DGT/VSQ/N0101: Employability Skills (30 Hours)	34
Assessment Guidelines and Weightage	39
<i>Assessment Guidelines</i>	39
<i>Assessment Weightage</i>	40
Acronyms	41
Glossary	42



Qualification Pack

CSC/Q0305: Fitter- Electrical and Electronic Assembly

Brief Job Description

A Fitter- Electrical and electronic assembly is responsible for assembling electrical and electronic panels, equipment/systems, components, sub-assemblies, etc. The individual is responsible for ensuring compliance with the applicable health, safety and quality standards along with the applicable regulations.

Personal Attributes

The individual must be physically fit to work for long durations. The person must have attention to detail, and problem-solving skills along with numerical ability. The individual must have basic communication skills and the ability to work in coordination with others.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- [1. CSC/N1335: Follow the health and safety practices at the work](#)
- [2. CSC/N1336: Coordinate with co-workers to achieve work efficiency](#)
- [3. CSC/N0305: Assemble and wire electrical components and systems to mechanical equipment](#)
- [4. CSC/N0306: Assemble and wire electronic equipment and systems to mechanical equipment](#)
- [5. DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Machine Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery
Occupation	Fabrication, Fitting and Assembly
Country	India
NSQF Level	3
Credits	12

Qualification Pack

Aligned to NCO/ISCO/ISIC Code	NCO-2015/7241.10, 7241.20, 7242.90, 7242.10
Minimum Educational Qualification & Experience	Ability to read and write (with 5 years relevant experience) with 5 Years of experience OR 5th Class (with 4 years relevant experience) with 4 Years of experience OR 8th Class (with 1year relevant experience) with 1 Year of experience OR 8th Class (one year of NTC (Electrical)) with NA of experience OR 9th Class with NA of experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	31/03/2025
NSQC Approval Date	31/03/2022
Version	3.0
Reference code on NQR	2022/CCM/CGSC/06607
NQR Version	1



Qualification Pack

CSC/N1335: Follow the health and safety practices at the work

Description

This OS unit is about following the appropriate health and safety practices at work. It covers responsibilities towards self and others to ensure a safe work environment.

Scope

The scope covers the following :

- Maintain personal health and safety
- Assist in hazard management
- Check the first aid box, firefighting and safety equipment
- Assist in waste management
- Follow the fire safety guidelines
- Follow the emergency and first-aid procedures
- Carry out relevant documentation and review

Elements and Performance Criteria

Maintain personal health and safety

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

- PC1.** follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask
- PC2.** check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them
- PC3.** select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions
- PC4.** follow the recommended techniques while lifting and moving heavy objects to avoid injury
- PC5.** follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment

Assist in hazard management

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

- PC6.** identify existing and potential hazards at work
- PC7.** assess the potential risks and injuries associated with the identified hazards
- PC8.** coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards
- PC9.** handle hazardous materials safely and store them in the designated storage

Check the first aid box, firefighting and safety equipment

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

- PC10.** check the first aid box to ensure it is updated with the relevant first aid supplies
- PC11.** check and test the firefighting and various safety equipment to ensure they are in usable condition



Qualification Pack

PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment

Assist in waste management

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

PC13. segregate waste into appropriate categories

PC14. recycle the recyclable waste appropriately

PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations

Follow the fire safety guidelines

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

PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely

PC17. follow the recommended practices for a safe rescue during a fire emergency

PC18. coordinate with the fire department to request assistance to extinguish a serious fire

Follow the emergency and first-aid procedures

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

PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety

PC20. follow the recommended practices to minimise loss to organisational property during an emergency

PC21. follow the recommended procedure to free a person from electrocution

PC22. administer appropriate first aid to the injured personnel

PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest

PC24. coordinate with the emergency services to request medical assistance for seriously injured/ill personnel requiring professional medical attention or hospitalisation

Carry out relevant documentation and review

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

PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information

PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident

PC27. assist in implementing appropriate changes to improve the health and safety conditions at work

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the recommended practices to be followed to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask

KU2. the importance and process of checking the work conditions, assessing the potential health and safety risks, and take appropriate measures to mitigate them

KU3. the importance and process of selecting and using the appropriate PPE relevant to the task and work conditions



Qualification Pack

- KU4.** the recommended techniques to be followed while lifting and moving heavy objects to avoid injury
- KU5.** the importance of following the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment
- KU6.** the importance and process of identifying existing and potential hazards at work
- KU7.** the process of assessing the potential risks and injuries associated with the various hazards
- KU8.** how to prevent or minimise different types of hazards
- KU9.** how to handle and store hazardous materials safely
- KU10.** the importance of ensuring the first aid box is updated with the relevant first aid supplies
- KU11.** the process of checking and testing the firefighting and various safety equipment to ensure they are in a usable condition
- KU12.** the criteria for segregating waste into appropriate categories
- KU13.** the appropriate methods for recycling the recyclable waste
- KU14.** the process of disposing of the non-recyclable waste safely and the applicable regulations
- KU15.** Use of different types of fire extinguishers to extinguish different types of fires
- KU16.** the recommended practices to be followed for a safe rescue during a fire emergency
- KU17.** how to request assistance from the fire department to extinguish a serious fire
- KU18.** the appropriate practices to be followed during workplace emergencies to ensure safety and minimise loss to organisational property
- KU19.** common health and safety hazards present in a work environment, associated risks, and how to mitigate them
- KU20.** safe working practices to be followed while working at various hazardous sites and using electrical equipment
- KU21.** the importance of ensuring easy access to firefighting and safety equipment
- KU22.** the appropriate preventative and remedial actions to be taken in the case of exposure to toxic materials, such as poisonous chemicals and gases
- KU23.** various causes of fire in different work environments and the recommended precautions to be taken to prevent fire accidents
- KU24.** different methods of extinguishing fire
- KU25.** different materials used for extinguishing fire, such as sand, water, foam, CO₂, dry powder, etc.
- KU26.** the applicable rescue techniques to be followed during a fire emergency
- KU27.** the importance of placing safety signs and instructions at strategic locations in a workplace and following them
- KU28.** different types of first aid treatment to be provided for different types of injuries
- KU29.** potential injuries associated with incorrect manual handling
- KU30.** how to move an injured person safely
- KU31.** various hazards associated with the use of various machinery, tools, implements, equipment and materials
- KU32.** the importance of ensuring no obstruction and free access to fire exits
- KU33.** how to free a person from electrocution safely
- KU34.** how to administer appropriate first aid to an injured person



Qualification Pack

- KU35.** how to perform Cardiopulmonary Resuscitation (CPR)
- KU36.** the importance of coordinating with the emergency services to request urgent medical assistance for persons requiring professional medical attention or hospitalisation
- KU37.** the appropriate documentation to be carried out following a health and safety incident at work, and the relevant information to be included
- KU38.** the importance and process of reviewing the health and safety conditions at work regularly or following an incident
- KU39.** the importance and process of implementing appropriate changes to improve the health and safety conditions at work

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** communicate clearly and politely with co-workers and clients
- GS3.** read the relevant literature to get the latest updates about the field of work
- GS4.** listen attentively to understand the information being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** take quick decisions to deal with workplace emergencies and accidents
- GS7.** identify possible disruptions to work and take appropriate preventive measures
- GS8.** coordinate with the co-workers to achieve the work objectives
- GS9.** evaluate all possible solutions to a problem to select the best one

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain personal health and safety</i>	7	12	-	-
PC1. follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask	2	3	-	-
PC2. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	1	2	-	-
PC3. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	1	2	-	-
PC4. follow the recommended techniques while lifting and moving heavy objects to avoid injury	1	3	-	-
PC5. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	2	2	-	-
<i>Assist in hazard management</i>	4	10	-	-
PC6. identify existing and potential hazards at work	1	1	-	-
PC7. assess the potential risks and injuries associated with the identified hazards	1	3	-	-
PC8. coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards	1	3	-	-
PC9. handle hazardous materials safely and store them in the designated storage	1	3	-	-
<i>Check the first aid box, firefighting and safety equipment</i>	3	7	-	-
PC10. check the first aid box to ensure it is updated with the relevant first aid supplies	1	2	-	-
PC11. check and test the firefighting and various safety equipment to ensure they are in usable condition	1	3	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	1	2	-	-
<i>Assist in waste management</i>	3	8	-	-
PC13. segregate waste into appropriate categories	1	3	-	-
PC14. recycle the recyclable waste appropriately	1	3	-	-
PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations	1	2	-	-
<i>Follow the fire safety guidelines</i>	3	12	-	-
PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely	1	4	-	-
PC17. follow the recommended practices for a safe rescue during a fire emergency	1	4	-	-
PC18. coordinate with the fire department to request assistance to extinguish a serious fire	1	4	-	-
<i>Follow the emergency and first-aid procedures</i>	7	12	-	-
PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety	1	2	-	-
PC20. follow the recommended practices to minimise loss to organisational property during an emergency	1	3	-	-
PC21. follow the recommended procedure to free a person from electrocution	1	2	-	-
PC22. administer appropriate first aid to the injured personnel	1	2	-	-
PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest	1	2	-	-
PC24. coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation	2	1	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out relevant documentation and review</i>	3	9	-	-
PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information	1	3	-	-
PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident	1	3	-	-
PC27. assist in implementing appropriate changes to improve the health and safety conditions at work	1	3	-	-
NOS Total	30	70	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N1335
NOS Name	Follow the health and safety practices at the work
Sector	Capital Goods
Sub-Sector	Machine Tools, Process Plant Machinery, Dies, Moulds and Press Tools, Electrical and Power Machinery, Plastics Manufacturing Machinery, Light Engineering Goods, Textile Manufacturing Machinery
Occupation	Machining
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	26/05/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022



Qualification Pack

CSC/N1336: Coordinate with co-workers to achieve work efficiency

Description

This OS unit is about working in coordination with co-workers to achieve the work objectives efficiently. It also covers practising inclusion at work.

Scope

The scope covers the following :

- Work effectively with co-workers
- Communicate effectively with co-workers
- Practice inclusion at work

Elements and Performance Criteria

Work effectively with co-workers

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

- PC1.** plan daily tasks at work to ensure their timely completion and efficient use of time
- PC2.** carry out work responsibilities adhering to the limits of authority
- PC3.** follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales
- PC4.** coordinate with the co-workers to achieve the work objectives efficiently
- PC5.** prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically
- PC6.** coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns
- PC7.** mentor and assist subordinates in the execution of their work responsibilities
- PC8.** identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures
- PC9.** use various resources efficiently to ensure maximum utilisation and minimum wastage
- PC10.** follow the recommended practices to avoid and resolve conflicts at work
- PC11.** follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work

Communicate effectively with co-workers

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

- PC12.** follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel
- PC13.** communicate clearly and politely to ensure effective communication with co-workers
- PC14.** follow the appropriate techniques for active listening during interactions

Practice inclusion at work

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

- PC15.** empathise with Persons with Disabilities (PwD)



Qualification Pack

PC16. adopt gender-neutral behaviour at work

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance and process of effective communication in the workplace
- KU2.** the barriers to effective communication and how to overcome them
- KU3.** the importance of teamwork in an organisation's and individual's success
- KU4.** the importance of active listening in the work environment
- KU5.** the appropriate techniques to be followed for active listening
- KU6.** importance of avoiding casual expletives and unpleasant terms while communicating professional circles
- KU7.** the importance of maintaining discipline and ethical behaviour at work
- KU8.** the common reasons for interpersonal conflict and how to resolve them
- KU9.** the importance of developing effective work relationships for professional success
- KU10.** how expressing and addressing grievances appropriately and effectively
- KU11.** the importance and process of planning daily tasks to ensure their timely completion and efficient use of time
- KU12.** the importance of adhering to the limits of authority at work
- KU13.** the importance of following the applicable quality standards and timescales at work
- KU14.** the importance of coordinating with the co-workers to achieve the work objectives efficiently
- KU15.** the relevant documentation requirements
- KU16.** the importance of providing appropriate information clearly and systematically in work documents
- KU17.** the escalation matrix to be followed to deal with out of authority tasks and concerns
- KU18.** the importance and process of mentoring and assisting subordinates in the execution of their work responsibilities
- KU19.** how to identify possible disruptions to work prevent them
- KU20.** how to use various resources efficiently to ensure maximum utilisation and minimum wastage
- KU21.** the recommended practices to be followed at work to avoid and resolve conflicts at work
- KU22.** the importance and process of efficient and timely dissemination of information to the authorised personnel
- KU23.** how to communicate clearly and politely to ensure effective communication
- KU24.** the importance of following the recommended practices to ensure an inclusive environment for PwD and all genders at work

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records



Qualification Pack

- GS2.** read work-related and other relevant literature
- GS3.** communicate politely and -professionally
- GS4.** listen attentively to understand the information or instructions being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** take prompt decisions to deal with workplace emergencies and accidents
- GS7.** evaluate all possible solutions to a problem to select the best one

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Work effectively with co-workers</i>	20	43	-	-
PC1. plan daily tasks at work to ensure their timely completion and efficient use of time	2	4	-	-
PC2. carry out work responsibilities adhering to the limits of authority	2	4	-	-
PC3. follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales	2	4	-	-
PC4. coordinate with the co-workers to achieve the work objectives efficiently	2	4	-	-
PC5. prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically	2	4	-	-
PC6. coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns	2	4	-	-
PC7. mentor and assist subordinates in the execution of their work responsibilities	2	4	-	-
PC8. identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures	2	4	-	-
PC9. use various resources efficiently to ensure maximum utilisation and minimum wastage	2	4	-	-
PC10. follow the recommended practices to avoid and resolve conflicts at work	1	4	-	-
PC11. follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work	1	3	-	-
<i>Communicate effectively with co-workers</i>	6	15	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel	2	5	-	-
PC13. communicate clearly and politely to ensure effective communication with co-workers	2	5	-	-
PC14. follow the appropriate techniques for active listening during interactions	2	5	-	-
<i>Practice inclusion at work</i>	4	12	-	-
PC15. empathise with Persons with Disabilities (PwD)	2	6	-	-
PC16. adopt gender-neutral behaviour at work	2	6	-	-
NOS Total	30	70	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N1336
NOS Name	Coordinate with co-workers to achieve work efficiency
Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
Occupation	Machining
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	26/05/2022
Next Review Date	31/03/2025
NSQF Clearance Date	31/03/2022



Qualification Pack

CSC/N0305: Assemble and wire electrical components and systems to mechanical equipment

Description

This OS unit is about assembling and wiring electrical components, systems, and panels to mechanical equipment following the applicable procedures.

Scope

The scope covers the following :

- Assemble and wire electrical components and systems
- Use resources optimally

Elements and Performance Criteria

Assemble and wire electrical components and systems

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

- PC1.** perform electrical calculations using a range of variables
- PC2.** select the appropriate tools and equipment for the assembly and testing operations
- PC3.** check the tools and equipment are calibrated, tested and in a safe and usable condition
- PC4.** prepare the electrical components and panels/enclosures for the assembly operations
- PC5.** use the recommended techniques to mount the electrical components on panels or in enclosures safely
- PC6.** assemble electrical components on panels or in enclosures, following the applicable standards, procedures and wiring regulations
- PC7.** use the appropriate methods and techniques to assemble the components in their correct positions
- PC8.** secure the components using the recommended connectors and securing devices
- PC9.** wire and terminate cables to the appropriate connections on the components
- PC10.** check the completed assembly to ensure that all the operations have been completed
- PC11.** follow the relevant assembly drawings and other applicable specifications
- PC12.** use the relevant Personal Protective Equipment (PPE) to ensure protection from Electrostatic Discharge (ESD)
- PC13.** ensure the finished assembly is secure and meets the required specifications
- PC14.** use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis
- PC15.** coordinate with the relevant personnel to resolve any complex problems that may arise with the electrical assembly and wiring operations
- PC16.** carry out minor repair and maintenance of the relevant tools and equipment and store them safely after use
- PC17.** collect and dispose of the industrial waste appropriately in compliance with the applicable regulations and organisational procedures



Qualification Pack

Use resources optimally

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

PC18. use electricity and other resources optimally in various tasks and processes

PC19. connect the electrical tools and equipment safely and disconnect them when they are not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** applicable documentation requirements and related procedures in the job role
- KU2.** the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
- KU3.** the relevant safety practices and procedures to be followed while assembling and wiring electrical components mounted on panels or in enclosures
- KU4.** applicable regulations and codes of practice for the activities, equipment or materials)
- KU5.** various items used with panels and enclosures such as drives and PLC enclosure partitions bases for plug-in devices limit switches component mounting plates push and toggle switches sensors etc.
- KU6.** various hazards associated with assembling and wiring electrical panels, such as the use of sharp instruments for stripping cable insulation, and soldering equipment, and how to minimise them
- KU7.** the importance and process of using appropriate PPE such as anti-static earthed wrist straps and mats
- KU8.** the importance of maintaining cleanliness in the work area
- KU9.** how to deal with hazardous voltage
- KU10.** how to free a victim from electrocution and the appropriate first-aid to be administered to them
- KU11.** the use of insulated tools, rubber matting and isolating transformers to reduce the risks of a phase to earth shock
- KU12.** the relevant precautions to be taken to prevent Electrostatic Discharge (ESD) damage to circuits and sensitive components
- KU13.** how to interpret drawings, circuit and physical layouts, charts, specification, graphical electrical symbols, etc.
- KU14.** applicable national and international wiring regulations
- KU15.** the functions of different types of components and sub-assemblies used in the assembly activities such as contactors relays/ Switch Mode Power Supply (SMPS) circuit breakers/fuses solenoids switches transformers ballast chokes terminal blocks etc.
- KU16.** the appropriate preparations to be undertaken on the components and enclosure before the mounting activities
- KU17.** how the components must be aligned and positioned before securing, and the use of relevant tools and equipment
- KU18.** how to identify any orientation requirements, values or polarity for the components used in the electrical assembly and wiring activities



Qualification Pack

- KU19.** types of cabling to be used in the assembly and wiring of the panels or enclosures, such as single-core, screened, twisted pair/ribbon, multicore, fibre-optic, data/communication, laminated copper, braided copper, etc.
- KU20.** the importance of electrical bonding/earthing, and the process of ensuring it is mechanically and electrically secure
- KU21.** the process of selecting wires and cables according to the requirement and applicable safety procedures
- KU22.** the applicable assembly methods and techniques to be used when wiring electrical panels or components mounted in enclosures
- KU23.** the process of cable stripping, soldering, crimping, securing wires and cables using cable ties/ lacing/strapping/ harnessing of wires, insulation stripping cable routing cable forming/bending adding cable protection such as sleeves or grommets, etc.
- KU24.** different types, applications, and methods of attaching identification markers/labels during the electrical wiring activities
- KU25.** the process of conducting necessary checks to ensure the accuracy and quality of assembly
- KU26.** how to check the positional accuracy of all components termination of all wires to components orientation security of terminations alignment completeness component security freedom from damage and of debris etc.
- KU27.** the process of checking cable offcuts/insulation, enclosure/trunking breakouts continuity of cable/wiring connections e.g. battery and lamp checks
- KU28.** the importance of checking that tools and equipment are free from damage or defects, and in a safe and usable condition with appropriate testing and calibration
- KU29.** the functions and application of various electrical components
- KU30.** the current and voltage distribution in series and parallel circuits
- KU31.** how to make screwed/clamped connections install and terminate pre-formed looms make crimped and soldered connections, etc.
- KU32.** different types of cable and wires such as single-core, screened, twisted pair/ribbon, multicore, fibre-optic, data/communication, laminated copper, braided copper, etc.
- KU33.** the importance of conducting visual checks for the completeness of conductors or components mechanical checks to be conducted for the security of components and connections
- KU34.** checks to be conducted to ensure electrical continuity and earth continuity
- KU35.** the benefits and methods of resource optimisation

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** undertake work-related numerical computations
- GS3.** use the appropriate units of measurement and measuring techniques
- GS4.** read the relevant literature to learn about the latest developments in the field of work
- GS5.** listen attentively to understand the information or instructions being shared
- GS6.** communicate politely and professionally



Qualification Pack

- GS7.** plan and prioritise tasks to ensure timely completion
- GS8.** coordinate with co-workers to achieve the work objectives
- GS9.** evaluate all possible solutions to a problem to select the best one
- GS10.** take prompt decisions to deal with workplace emergencies and accidents

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assemble and wire electrical components and systems</i>	26	64	-	-
PC1. perform electrical calculations using a range of variables	2	4	-	-
PC2. select the appropriate tools and equipment for the assembly and testing operations	1	4	-	-
PC3. check the tools and equipment are calibrated, tested and in a safe and usable condition	1	4	-	-
PC4. prepare the electrical components and panels/enclosures for the assembly operations	1	4	-	-
PC5. use the recommended techniques to mount the electrical components on panels or in enclosures safely	1	4	-	-
PC6. assemble electrical components on panels or in enclosures, following the applicable standards, procedures and wiring regulations	1	4	-	-
PC7. use the appropriate methods and techniques to assemble the components in their correct positions	1	4	-	-
PC8. secure the components using the recommended connectors and securing devices	2	4	-	-
PC9. wire and terminate cables to the appropriate connections on the components	2	4	-	-
PC10. check the completed assembly to ensure that all the operations have been completed	2	4	-	-
PC11. follow the relevant assembly drawings and other applicable specifications	2	4	-	-
PC12. use the relevant Personal Protective Equipment (PPE) to ensure protection from Electrostatic Discharge (ESD)	2	4	-	-
PC13. ensure the finished assembly is secure and meets the required specifications	1	3	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	1	-	-
PC15. coordinate with the relevant personnel to resolve any complex problems that may arise with the electrical assembly and wiring operations	2	4	-	-
PC16. carry out minor repair and maintenance of the relevant tools and equipment and store them safely after use	2	4	-	-
PC17. collect and dispose of the industrial waste appropriately in compliance with the applicable regulations and organisational procedures	2	4	-	-
<i>Use resources optimally</i>	4	6	-	-
PC18. use electricity and other resources optimally in various tasks and processes	2	3	-	-
PC19. connect the electrical tools and equipment safely and disconnect them when they are not in use	2	3	-	-
NOS Total	30	70	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0305
NOS Name	Assemble and wire electrical components and systems to mechanical equipment
Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
Occupation	Fabrication, Fitting and Assembly
NSQF Level	3
Credits	4
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQ Clearance Date	31/03/2022



Qualification Pack

CSC/N0306: Assemble and wire electronic equipment and systems to mechanical equipment

Description

This OS unit is about assembling and wiring electronic equipment and sub-assemblies to mechanical equipment following the applicable procedures.

Scope

The scope covers the following :

- Assemble and wire electronic equipment and systems
- Follow safety guidelines

Elements and Performance Criteria

Assemble and wire electronic equipment and systems

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

- PC1.** analyse the assembly drawings and charts; interconnection net diagrams; schedules of specified components; wiring specifications; wire running lists to determine the job specifications
- PC2.** check the availability of the required components and examine them to ensure they are in a usable condition
- PC3.** check the availability of the appropriate type of solder and associated fluxes in the required quantity, ensuring they have the appropriate shelf life
- PC4.** follow the applicable risk assessment procedures and regulations
- PC5.** examine the wire strippers and cutters to ensure they have the appropriate size and are in a usable condition
- PC6.** check crimp tooling and attachments for the recommended sizes and calibration
- PC7.** ensure cables and individual wiring/fibre optic links are available in the required types and sizes and are in usable condition
- PC8.** prepare cable strapping for use by cutting them to nominal length in appropriate sizes, ensuring their availability in the required quantities
- PC9.** check and prepare consumables and specialized tools to be used for the wiring and interconnections
- PC10.** use the appropriate methods and techniques to assemble the components in their correct positions
- PC11.** set up, program and use automated wiring termination equipment, as appropriate
- PC12.** attach wire terminations following an appropriate method such as soldering, crimping, etc.
- PC13.** set the interconnection wiring as per the requirement, and bundle/strap/tie wiring looms and cables
- PC14.** cut wires appropriately to the required length, and strip insulation from wire ends
- PC15.** set out and terminate any fibre optic links



Qualification Pack

- PC16.** check and prepare components, and complete the preparatory assembly
- PC17.** use the relevant manual/ automatic tools to secure all fastenings;
- PC18.** assemble sub-units to support housings/brackets, along with connectors and allied devices
- PC19.** secure the components using the appropriate connectors and securing devices
- PC20.** check the completed assembly to ensure it has the required specifications and all the necessary operations have been completed
- PC21.** check the security of all the assembled and interconnected items
- PC22.** examine the insulation resistance between housing assembly and interconnection wiring
- PC23.** check for the continuity of all interconnections,
- PC24.** identify and remove unwanted short circuits between wires
- PC25.** select the appropriate software as specified for use, and load it on electronic components following the SOP
- PC26.** check the output of software and functionality of the completed electronic assembly
- PC27.** ensure compliance with the applicable national and international wiring regulations and procedures in the assembly and wiring activities
- PC28.** maintain the relevant records as per the applicable organisational procedures

Follow safety guidelines

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

- PC29.** comply with the applicable health, safety, environmental and other relevant regulations
- PC30.** select and use the appropriate Personal Protective Equipment (PPE) during machining operations
- PC31.** follow the organisational policy to deal with any hazards encountered during operations
- PC32.** use the relevant power and manual tools, equipment, and accessories as per the manufacturer's instructions to avoid injury and achieve work efficiency

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of leaving the work area in a safe and clean condition on completion of the electronic assembly and wiring activities
- KU2.** the importance of storing the tools and equipment safely at the designated storage
- KU3.** the process of dealing with and disposing of industrial waste
- KU4.** the relevant safety precautions to be taken while working with soldering and crimping equipment/tools and wiring aids within an electronics assembly and wiring environments, such as avoiding hot solder splashes and flying ends from cut wires
- KU5.** how to use the relevant PPE while carrying out the electronic wiring activities, such as overall or apron, hearing protection, anti-static devices, face shield, eyeglasses, etc.
- KU6.** regulations and standards relevant to electronic wiring and assembly operations
- KU7.** how to interpret and use single line diagram
- KU8.** how mechanical assembly instructions are represented and how to interpret them
- KU9.** how to set up, program and use automated wiring termination equipment



Qualification Pack

- KU10.** the process of attaching wire terminations following the appropriate methods such as soldering, crimping, etc.
- KU11.** how to set/position interconnection wiring and bundle/strap/tie wiring looms and cables
- KU12.** the process of setting and terminating fibre optic links
- KU13.** how to strip insulation from wires ends
- KU14.** the process of termination identification such as ferruling, transfer printing tin/lead soldering lead-free soldering systems no-wash fluxing crimping, etc.
- KU15.** how different types of electronic wiring and insulation are coded and specified
- KU16.** how information on wiring interconnections is specified concerning the role of wiring schedules, wire-running lists and backplane net interconnect lists
- KU17.** various accessories and aids used for securing electronic wiring such as heat shrink sleeves, strapping, cable ties, P-Clips, etc.
- KU18.** various tools and aids used in wiring and assembly work, such as soldering tools and equipment, crimp tools, joint/crimp, etc.
- KU19.** the process of testing and checking equipment for continuity, and short circuit testing
- KU20.** how to recognise wiring types and sizes, their identification, coding and range of termination methods
- KU21.** how to identify the types and read the values of electronic components such as resistors, capacitors, diodes, and integrated circuits with reference to their polarity, orientation, colour coding, value, tolerance, and working voltage/current
- KU22.** how to take anti-static precautions concerning component handling during the wiring and assembly of electronic products
- KU23.** the handling requirements and termination methods used for Switch-Mode Power Supply (SMPS), high-level protective devices and fibre-optic links
- KU24.** various checks and tests carried out within wiring and assembly work such as insulation resistance, flashover testing, continuity, short circuit testing, etc.
- KU25.** the calibration requirements for tools and equipment used in wiring
- KU26.** the importance of maintaining a dust-free environment for electronic assembly
- KU27.** how to handle multilayered populated Printed Circuit Boards (PCBs)
- KU28.** the relevant documentation requirements in the job role
- KU29.** various problems encountered with wiring and assembly work and how to resolve them
- KU30.** the basic units used in electro-technology
- KU31.** function and applications of various electrical components
- KU32.** process of current and voltage distribution in series and parallel circuits
- KU33.** magnetic fields for bar magnets in various configurations
- KU34.** the polarity of a solenoid
- KU35.** the construction of a capacitor
- KU36.** sine wave displayed on an oscilloscope
- KU37.** the process of determining input and output voltage of double wound transformers
- KU38.** how to construct a simple bridge rectifier circuit, its functions and termination identification, such as ferruling and transfer printing tin/lead soldering lead-free soldering no-wash fluxing crimping, etc.



Qualification Pack

Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to learn about the latest developments in the field of work
- GS3.** listen attentively to understand the information or instructions being shared
- GS4.** undertake work-related numerical computations
- GS5.** use the appropriate units of measurement and measuring techniques
- GS6.** communicate politely and professionally
- GS7.** organise and analyse work-related information
- GS8.** plan and prioritise tasks to ensure timely completion
- GS9.** take prompt decisions to deal with workplace emergencies and accidents
- GS10.** identify possible disruptions to work and take appropriate preventive measures
- GS11.** evaluate all possible solutions to a problem to select the best one
- GS12.** coordinate with co-workers to achieve the work objectives

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assemble and wire electronic equipment and systems</i>	28	58	-	-
PC1. analyse the assembly drawings and charts; interconnection net diagrams; schedules of specified components; wiring specifications; wire running lists to determine the job specifications	1	2	-	-
PC2. check the availability of the required components and examine them to ensure they are in a usable condition	1	2	-	-
PC3. check the availability of the appropriate type of solder and associated fluxes in the required quantity, ensuring they have the appropriate shelf life	1	2	-	-
PC4. follow the applicable risk assessment procedures and regulations	1	2	-	-
PC5. examine the wire strippers and cutters to ensure they have the appropriate size and are in a usable condition	1	2	-	-
PC6. check crimp tooling and attachments for the recommended sizes and calibration	1	2	-	-
PC7. ensure cables and individual wiring/fibre optic links are available in the required types and sizes and are in usable condition	1	2	-	-
PC8. prepare cable strapping for use by cutting them to nominal length in appropriate sizes, ensuring their availability in the required quantities	1	2	-	-
PC9. check and prepare consumables and specialized tools to be used for the wiring and interconnections	1	2	-	-
PC10. use the appropriate methods and techniques to assemble the components in their correct positions	1	2	-	-
PC11. set up, program and use automated wiring termination equipment, as appropriate	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. attach wire terminations following an appropriate method such as soldering, crimping, etc.	1	2	-	-
PC13. set the interconnection wiring as per the requirement, and bundle/strap/tie wiring looms and cables	1	2	-	-
PC14. cut wires appropriately to the required length, and strip insulation from wire ends	1	2	-	-
PC15. set out and terminate any fibre optic links	1	2	-	-
PC16. check and prepare components, and complete the preparatory assembly	1	2	-	-
PC17. use the relevant manual/ automatic tools to secure all fastenings;	1	2	-	-
PC18. assemble sub-units to support housings/brackets, along with connectors and allied devices	1	2	-	-
PC19. secure the components using the appropriate connectors and securing devices	1	2	-	-
PC20. check the completed assembly to ensure it has the required specifications and all the necessary operations have been completed	1	2	-	-
PC21. check the security of all the assembled and interconnected items	1	2	-	-
PC22. examine the insulation resistance between housing assembly and interconnection wiring	1	2	-	-
PC23. check for the continuity of all interconnections,	1	2	-	-
PC24. identify and remove unwanted short circuits between wires	1	2	-	-
PC25. select the appropriate software as specified for use, and load it on electronic components following the SOP	1	2	-	-
PC26. check the output of software and functionality of the completed electronic assembly	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. ensure compliance with the applicable national and international wiring regulations and procedures in the assembly and wiring activities	1	3	-	-
PC28. maintain the relevant records as per the applicable organisational procedures	1	3	-	-
<i>Follow safety guidelines</i>	2	12	-	-
PC29. comply with the applicable health, safety, environmental and other relevant regulations	1	3	-	-
PC30. select and use the appropriate Personal Protective Equipment (PPE) during machining operations	-	3	-	-
PC31. follow the organisational policy to deal with any hazards encountered during operations	1	3	-	-
PC32. use the relevant power and manual tools, equipment, and accessories as per the manufacturer's instructions to avoid injury and achieve work efficiency	-	3	-	-
NOS Total	30	70	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0306
NOS Name	Assemble and wire electronic equipment and systems to mechanical equipment
Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
Occupation	Fabrication, Fitting and Assembly
NSQF Level	3
Credits	4
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQ Clearance Date	31/03/2022



Qualification Pack

DGT/VSQ/N0101: Employability Skills (30 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
- 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. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team



Qualification Pack

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

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 basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services



Qualification Pack

- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	27/05/2024
NSQC Clearance Date	27/05/2021

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for the Qualification Pack will be created by CGSC.
2. Performance Criteria (PC) have been assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
3. The assessment for the theory part will/may be based on knowledge bank of questions approved CGSC.
4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
5. Assessment Agencies will create Assessor Guides comprising of Theory and Practical Assessment Set and Guidelines for each examination/training centre (as per assessment criteria below). The same will be approved by CGSC for adequacy.
6. To successfully attain Certification on the Qualification Pack, the trainee must score a minimum of 50% in each Core NOS and minimum of 70% in all non-core NOS. In addition, a candidate needs to attain a minimum overall pass percentage of 50% for certification.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



Qualification Pack

Minimum Aggregate Passing % at QP Level : 50

(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
CSC/N1335.Follow the health and safety practices at the work	30	70	-	-	100	15
CSC/N1336.Coordinate with co-workers to achieve work efficiency	30	70	-	-	100	10
CSC/N0305.Assemble and wire electrical components and systems to mechanical equipment	30	70	-	-	100	35
CSC/N0306.Assemble and wire electronic equipment and systems to mechanical equipment	30	70	-	-	100	35
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	0	0	50	5
Total	140	310	0	0	450	100



Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
CO2	Carbon Dioxide
CPR	Cardiac Pulmonary Resuscitation
PPE	Personal Protective Equipment
ESD	Electrostatic Discharge
PCB	Printed Circuit Board

Qualification Pack

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.

Qualification Pack

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.