

Qualification Pack



Hot Mix Plant Operator

QP Code: IES/Q0114

Version: 3.0

NSQF Level: 4

Infrastructure Equipment Skill Council || Jubilee Building – 2nd Floor, No.45, Museum Road
Bengaluru - 560025

Qualification Pack

Contents

IES/Q0114: Hot Mix Plant Operator	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
IES/N0140: Carry out pre-operation checks on a hot mix plant	5
IES/N0141: Carry out hot mix plant operations	11
IES/N0142: Carry out routine maintenance and troubleshooting of the hot mix plant	18
IES/N7601: Comply with worksite health and safety	24
DGT/VSQ/N0101: Employability Skills (30 Hours)	28
Assessment Guidelines and Weightage	33
<i>Assessment Guidelines</i>	33
<i>Assessment Weightage</i>	34
Acronyms	35
Glossary	36

Qualification Pack

IES/Q0114: Hot Mix Plant Operator

Brief Job Description

The operator is required to operate asphalt plant for the production of hot mix asphalt based on the mix designs used in the construction, roadways and maintenance of roadways.

Personal Attributes

The job requires an individual to be physically agile, strong and should have good eye sight. He should maintain constant alertness to the multiple concurrent activities of the asphalt/plant construction site, including the activities of other employees, contractors, the operation of stationary equipment etc. He should possess basic math skills and is required to be mentally alert at all times.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [IES/N0140: Carry out pre-operation checks on a hot mix plant](#)
2. [IES/N0141: Carry out hot mix plant operations](#)
3. [IES/N0142: Carry out routine maintenance and troubleshooting of the hot mix plant](#)
4. [IES/N7601: Comply with worksite health and safety](#)
5. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
Country	India
NSQF Level	4
Credits	14
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8342.1800 Hot Mix Plant Operator

Qualification Pack

Minimum Educational Qualification & Experience	8th grade pass plus 2-year NTC plus 1 Year NAC OR 10th grade pass plus 1-year NTC/ NAC OR 10th Class with 2 Years of experience Relevant OR 10th grade pass and pursuing continuous schooling OR 11th grade pass
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	17/11/2025
NSQC Approval Date	17/11/2022
Version	3.0
Reference code on NQR	2022/IS/IESC/06805
NQR Version	3.0

Qualification Pack

IES/N0140: Carry out pre-operation checks on a hot mix plant

Description

This unit provides insight into activities that need to be carried out to carry out pre-operational checks on the hot mix plant.

Scope

The scope covers the following :

- Hot Mix Plant Checks
- Material Checks
- Reporting and Documentation

Elements and Performance Criteria

Hot Mix Plant Checks

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

- PC1.** visually check the machine for any damaged, missing or malfunctioning parts
- PC2.** examine the various electrical connections, including the plant's motors
- PC3.** ensure that the conveyor belts are in proper operating order according to the manufacturer's specifications
- PC4.** examine the roller filters for contaminants
- PC5.** check whether the bolts and other valves are appropriately fixed
- PC6.** ensure that the power generator has enough amount of diesel as per the plant requirement
- PC7.** inspect all incoming electrical connections and the motors in the plant
- PC8.** check the panel to confirm that the controls are in the proper position for starting
- PC9.** check to see if the fuel and lubricant levels in the burners are adequate
- PC10.** examine the cabin visually for any obstructions
- PC11.** check monitoring and warning systems as per the operational manual

Material Checks

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

- PC12.** ensure that the required amount and size of course aggregate and gravels are present in the hoppers
- PC13.** check if the quantity of the bitumen in the plant is as per the requirement of the mix design
- PC14.** ensure all the hoppers are clear and free from the obstructions
- PC15.** maintain a inspection/maintenance logbook to record all activities performed before starting the compactor

Reporting and Documentation

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

- PC16.** notify the supervisor immediately if a defect is discovered that is outside the scope of the position

Qualification Pack

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to Hot mix plant operations
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- KU5.** location of tools
- KU6.** contact person in case of queries on procedure or products
- KU7.** location and process for storage and disposal of waste material
- KU8.** safety policy of the company
- KU9.** different types of hot mix plants, its uses and functions- drum mix and batch mix plant
- KU10.** components of a hot mix plant and their operation - a cold bin feeder - an automated weighing system - screeners - a mixing drum - an exhaust control system - a bitumen unit - a pollution control device - belt conveyors - aggregate, gravel, hot mix - surge silo for hot mix - filler systems
- KU11.** basics of engine and motor functions
- KU12.** types of aggregates and its physical qualities
- KU13.** different types of motor and their respective capacities used in hot mix plant- drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc
- KU14.** a series of actions that must be completed before the operation may begin
- KU15.** the position and functionality of instrument panel / cabin controls
- KU16.** basic electrical functions and repairs
- KU17.** basic of hot mix plant installation procedures

Generic Skills (GS)

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

- GS1.** keep a note of any deviations or occurrences that do not conform to the established criteria
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** give clear instructions to co-workers, subordinates and other personnel
- GS4.** when talking with your supervisor, utilize the right technical words
- GS5.** decide when to conduct maintenance checks
- GS6.** work with supervisors/ team mates to carry out work related tasks
- GS7.** plan work according to the required schedule and location
- GS8.** plan for cleaning and lubricating the appropriate equipment every day
- GS9.** deliver first-rate class service to ensure client satisfaction
- GS10.** identify immediate or temporary solutions to resolve mechanical issues
- GS11.** judge when to seek assistance from supervisor
- GS12.** determine cause and effect relationships in his field of employment



Qualification Pack

GS13. examine, evaluate and apply knowledge acquired from observation, experience, logic or communication in order to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Hot Mix Plant Checks</i>	7	14	-	-
PC1. visually check the machine for any damaged, missing or malfunctioning parts	1	1	-	-
PC2. examine the various electrical connections, including the plant's motors	-	2	-	-
PC3. ensure that the conveyor belts are in proper operating order according to the manufacturer's specifications	1	1	-	-
PC4. examine the roller filters for contaminants	-	2	-	-
PC5. check whether the bolts and other valves are appropriately fixed	1	1	-	-
PC6. ensure that the power generator has enough amount of diesel as per the plant requirement	-	1	-	-
PC7. inspect all incoming electrical connections and the motors in the plant	1	1	-	-
PC8. check the panel to confirm that the controls are in the proper position for starting	1	2	-	-
PC9. check to see if the fuel and lubricant levels in the burners are adequate	1	1	-	-
PC10. examine the cabin visually for any obstructions	-	1	-	-
PC11. check monitoring and warning systems as per the operational manual	1	1	-	-
<i>Material Checks</i>	2	5	-	-
PC12. ensure that the required amount and size of course aggregate and gravels are present in the hoppers	1	1	-	-
PC13. check if the quantity of the bitumen in the plant is as per the requirement of the mix design	-	1	-	-
PC14. ensure all the hoppers are clear and free from the obstructions	-	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. maintain a inspection/maintenance logbook to record all activities performed before starting the compactor	1	1	-	-
<i>Reporting and Documentation</i>	1	1	-	-
PC16. notify the supervisor immediately if a defect is discovered that is outside the scope of the position	1	1	-	-
NOS Total	10	20	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0140
NOS Name	Carry out pre-operation checks on a hot mix plant
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

Qualification Pack

IES/N0141: Carry out hot mix plant operations

Description

This unit provides insight into activities that are required for starting and running the hot mix plant.

Scope

The scope covers the following :

- Preparatory activities
- Hot Mix plant Operation
- Safety during operations
- Reporting and Documentation

Elements and Performance Criteria

Preparatory activities

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

- PC1.** heat the pipeline of the bitumen before starting the operation to clear the residual from previous operations
- PC2.** heat the bitumen for 12 hours before mixing at 150-160 degrees Celsius or according to the manufacturer's recommendations
- PC3.** as per the instructions, start the exhaust motor to remove the dust from the filler elevators
- PC4.** turn on the exhaust motor to clear the dust from the filler elevators as per the set procedures
- PC5.** turn on the hot mix plant by pressing on the appropriate switches
- PC6.** test run the hot mix plant for checking the normal functioning
- PC7.** check the control panel to ensure that there is enough hot bitumen in the tank

Hot Mix Plant Operation

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

- PC8.** input numeric and operational data into a computer system for asphalt plant production activities in accordance with the mix design
- PC9.** turn on the hot mix plant as per the manufacturer's instructions
- PC10.** start components in correct order manually or through computer controls
- PC11.** ensure proper flow of materials into the mixing drum visually and by monitoring the indicators on the control panel
- PC12.** regulate the speed and flow of various materials in the drum based on the desired output
- PC13.** inspects gauges, dials and machinery operation to ensure compliance to processing standards
- PC14.** monitor the temperature of the bitumen regularly by checking the indicators on the control panel
- PC15.** coordinate with the co- workers to ensure regular supply of raw materials in the appropriate hoppers

Qualification Pack

- PC16.** ensure removal of obstructions if any during the operations
- PC17.** ensure water supply in the mixing drum and pollution bank as per the manufacturers instructions
- PC18.** check that the output is in accordance with the mix design/customer requirements
- PC19.** keep an eye on the weigh hopper to ensure that the output is flowing properly
- PC20.** maintain appropriate hot mix flow in hot mix surge silo as required
- PC21.** coordinate with the vehicle operators for collecting the output
- PC22.** monitor for proper functioning of the hot mix plant as per the requirement
- PC23.** turn off the plant operation during emergencies by pressing the emergency switch button
- PC24.** inform supervisor of any problems while operating the hot mix plant

Safety during operations

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

- PC25.** when working near the facility, use dust mask
- PC26.** before walking in front of or behind the equipment, make positive eye contact with other equipment operators on the site
- PC27.** wear all PPE while sampling asphalt binder and for all operations

Reporting and Documentation

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

- PC28.** capture input and output flow in accordance with the organization's preferred formats

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- KU5.** contact person in case of queries on procedure or products
- KU6.** location and process for storage and disposal of waste material
- KU7.** safety policy of the company
- KU8.** different types of hot mix plants, its uses and functions: drum mix plant and batch type plant
- KU9.** components of a hot mix plant and their operation - a cold bin feeder - an automated weighing system - screeners - a mixing drum - an exhaust control system - a bitumen unit - a pollution control device - belt conveyors - aggregate, gravel, hot mix - surge silo for hot mix - filler systems
- KU10.** basics of engine and motor functions
- KU11.** categories of raw materials and their physical properties- gravel, aggregate, limestone, bitumen, etc
- KU12.** different types of motor used in hot mix plant - drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc
- KU13.** a series of actions that must be completed before the operation may begin

Qualification Pack

- KU14.** the position and functionality of instrument panel / cabin controls
- KU15.** basic electrical functions and repairs
- KU16.** microsoft Office fundamentals and print settings
- KU17.** SCADA or other systems fundamentals, if applicable

Generic Skills (GS)

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

- GS1.** keep a note of any deviations or occurrences that do not conform to the established criteria
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** when talking with your supervisor, utilize the right technical words
- GS6.** examine the hot mix plant for any damage or defective components and take appropriate measures
- GS7.** depending on the machine's operation, decide when to start and stop the operations
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** deliver first-class service to ensure client satisfaction
- GS11.** identify immediate or temporary solutions to resolve mechanical issues
- GS12.** judge when to seek assistance from supervisor
- GS13.** determine cause and effect relationships in his field of employment
- GS14.** examine, evaluate and apply knowledge acquired from observation, experience, logic or communication in order to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Preparatory activities</i>	2	6.5	-	-
PC1. heat the pipeline of the bitumen before starting the operation to clear the residual from previous operations	-	1	-	-
PC2. heat the bitumen for 12 hours before mixing at 150-160 degrees Celsius or according to the manufacturer's recommendations	-	1	-	-
PC3. as per the instructions, start the exhaust motor to remove the dust from the filler elevators	1	1	-	-
PC4. turn on the exhaust motor to clear the dust from the filler elevators as per the set procedures	-	0.5	-	-
PC5. turn on the hot mix plant by pressing on the appropriate switches	1	1	-	-
PC6. test run the hot mix plant for checking the normal functioning	-	1	-	-
PC7. check the control panel to ensure that there is enough hot bitumen in the tank	-	1	-	-
<i>Hot Mix Plant Operation</i>	7	14.5	-	-
PC8. input numeric and operational data into a computer system for asphalt plant production activities in accordance with the mix design	-	0.5	-	-
PC9. turn on the hot mix plant as per the manufacturer's instructions	1	1	-	-
PC10. start components in correct order manually or through computer controls	-	1	-	-
PC11. ensure proper flow of materials into the mixing drum visually and by monitoring the indicators on the control panel	-	1	-	-
PC12. regulate the speed and flow of various materials in the drum based on the desired output	1	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. inspects gauges, dials and machinery operation to ensure compliance to processing standards	1	1	-	-
PC14. monitor the temperature of the bitumen regularly by checking the indicators on the control panel	-	0.5	-	-
PC15. coordinate with the co- workers to ensure regular supply of raw materials in the appropriate hoppers	1	1	-	-
PC16. ensure removal of obstructions if any during the operations	-	1	-	-
PC17. ensure water supply in the mixing drum and pollution bank as per the manufacturers instructions	-	1	-	-
PC18. check that the output is in accordance with the mix design/customer requirements	1	0.5	-	-
PC19. keep an eye on the weigh hopper to ensure that the output is flowing properly	-	1	-	-
PC20. maintain appropriate hot mix flow in hot mix surge silo as required	1	1	-	-
PC21. coordinate with the vehicle operators for collecting the output	-	1	-	-
PC22. monitor for proper functioning of the hot mix plant as per the requirement	-	0.5	-	-
PC23. turn off the plant operation during emergencies by pressing the emergency switch button	-	1	-	-
PC24. inform supervisor of any problems while operating the hot mix plant	1	1	-	-
<i>Safety during operations</i>	-	3	-	-
PC25. when working near the facility, use dust mask	-	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. before walking in front of or behind the equipment, make positive eye contact with other equipment operators on the site	-	1	-	-
PC27. wear all PPE while sampling asphalt binder and for all operations	-	1	-	-
<i>Reporting and Documentation</i>	1	1	-	-
PC28. capture input and output flow in accordance with the organization's preferred formats	1	1	-	-
NOS Total	10	25	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0141
NOS Name	Carry out hot mix plant operations
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

Qualification Pack

IES/N0142: Carry out routine maintenance and troubleshooting of the hot mix plant

Description

This unit provides insight into activities that are required for performing routine maintenance and troubleshooting hot mix plant.

Scope

The scope covers the following :

- Routine maintenance
- Repair and troubleshooting
- Reporting and documentation

Elements and Performance Criteria

Routine maintenance

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

- PC1.** assess the right service schedule by tracking machine operating hours
- PC2.** plan and carry out planned maintenance, such as replacing worn parts such as belts, roller bearings, and so on
- PC3.** conduct basic maintenance such as spark plug replacement, grease control and conveyor belt cleaning
- PC4.** refill coolants, lubricants, and fluids on a regular basis as directed by the manufacturer
- PC5.** replenish coolants, lubricants and fluids regularly as per the manufacturers instructions
- PC6.** change filter, clean and change flameeye regularly as per the operating hours/ manufacturers instructions
- PC7.** regularly examine silos and fuel tanks for leaks or concrete or limestone dispersion
- PC8.** lubricate all pins and pivot points regularly as per the machine manuals/manufacturer's instructions
- PC9.** check battery levels and condition of the terminals and carry out minor adjustments if required

Repair and troubleshooting

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

- PC10.** visual inspection is used to discover service requirements, flaws and dangerous circumstances
- PC11.** arrange for and assist repair or replacement of defective components, such as motor, burner, temperature control
- PC12.** read indicators that signal need for replacement, such as air filter on compressor
- PC13.** identify missing or defective components or controls as per the equipment drawings
- PC14.** comply with safety requirements, such as confined space, lock-out procedures

Reporting and documentation

Qualification Pack

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

- PC15.** maintain service-related records and documentation, such as log books, repair lists and so on
- PC16.** adhere to the reporting procedures established by the employer

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- KU5.** location of tools
- KU6.** contact person in case of queries on procedure or equipments
- KU7.** location and process for storage and disposal of waste material
- KU8.** safety policy of the company
- KU9.** different types of hot mix plants, its uses and functions- drum type and batch type
- KU10.** components of hot mix plant and its functioning - cold bin feeder - automatic weighing system - screeners - mixing drum - exhaust control system - bitumen unit - pollution control device - conveyor belts- hot mix, aggregate, gravel - hot mix surge silo - filler systems
- KU11.** basics of engine and motor functions
- KU12.** different types of motor used in hot mix plant- drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc
- KU13.** the significance and ways of lubricating various elements of a hot mix plants
- KU14.** basic electrical functions and repairs
- KU15.** basic plant maintenance procedures
- KU16.** basic of hot mix plant installation procedures

Generic Skills (GS)

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

- GS1.** keep a note of any deviations or occurrences that do not conform to the established criteria
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** give clear instructions to co-workers, subordinates and other personnel
- GS4.** when talking with your supervisor, utilize the right technical words
- GS5.** decide when to conduct maintenance checks
- GS6.** work with supervisors/ team mates to carry out work related tasks
- GS7.** plan work according to the required schedule and location
- GS8.** plan for cleaning and lubricating the appropriate equipment everyday
- GS9.** deliver first-class service to ensure client satisfaction
- GS10.** identify immediate or temporary solutions to resolve mechanical issues



Qualification Pack

- GS11.** judge when to seek assistance from supervisor
- GS12.** determine cause and effect relationships in his field of employment
- GS13.** examine, evaluate and apply knowledge acquired from observation, experience, logic or communication in order to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance</i>	3.5	8	-	-
PC1. assess the right service schedule by tracking machine operating hours	1	1	-	-
PC2. plan and carry out planned maintenance, such as replacing worn parts such as belts, roller bearings, and so on	-	1	-	-
PC3. conduct basic maintenance such as spark plug replacement, grease control and conveyor belt cleaning	-	1	-	-
PC4. refill coolants, lubricants, and fluids on a regular basis as directed by the manufacturer	0.5	0.5	-	-
PC5. replenish coolants, lubricants and fluids regularly as per the manufacturers instructions	1	1	-	-
PC6. change filter, clean and change flameeye regularly as per the operating hours/ manufacturers instructions	-	1	-	-
PC7. regularly examine silos and fuel tanks for leaks or concrete or limestone dispersion	-	0.5	-	-
PC8. lubricate all pins and pivot points regularly as per the machine manuals/manufacturer's instructions	1	1	-	-
PC9. check battery levels and condition of the terminals and carry out minor adjustments if required	-	1	-	-
<i>Repair and troubleshooting</i>	2	4.5	-	-
PC10. visual inspection is used to discover service requirements, flaws and dangerous circumstances	-	1	-	-
PC11. arrange for and assist repair or replacement of defective components, such as motor, burner, temperature control	1	1	-	-
PC12. read indicators that signal need for replacement, such as air filter on compressor	0.5	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. identify missing or defective components or controls as per the equipment drawings	-	0.5	-	-
PC14. comply with safety requirements, such as confined space, lock-out procedures	0.5	1	-	-
<i>Reporting and documentation</i>	0.5	1.5	-	-
PC15. maintain service-related records and documentation, such as log books, repair lists and so on	-	1	-	-
PC16. adhere to the reporting procedures established by the employer	0.5	0.5	-	-
NOS Total	6	14	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0142
NOS Name	Carry out routine maintenance and troubleshooting of the hot mix plant
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQF Clearance Date	17/11/2022

Qualification Pack

IES/N7601: Comply with worksite health and safety

Description

This unit is about adhering to health and safety requirements at the worksite during equipment operations.

Scope

The scope covers the following :

- Worksite health and safety

Elements and Performance Criteria

Worksite health and safety

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

- PC1.** Comply with safety, health, security and environment related regulations/guidelines at the work site
- PC2.** use personal protective equipment (ppe) and other safety gear as applicable to the equipment and the worksite
- PC3.** Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk
- PC4.** Carry out operations as per the manufacturer's and worksite related health and safety guidelines
- PC5.** Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines
- PC6.** operate various grades of fire extinguishers, as applicable
- PC7.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC8.** respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility
- PC9.** record and report details related to operations, incidents or accidents, as applicable

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** health, safety, environmental (HSE) and security related policies/guidelines of the organization and the worksite and its importance
- KU2.** personnel responsible for health, safety and environment (HSE) related matters and their contact details
- KU3.** location of worksite storage, she team and safe assembly points
- KU4.** reporting and documentation procedures for HSE and security matters
- KU5.** manufacturers guidelines related to health and safety requirements

Qualification Pack

- KU6.** common types of health, safety, environment and security risks related to the worksite and operations
- KU7.** types, use and importance of personal protective equipment (PPE) and other safety gear
- KU8.** safe working practices to avoid common hazards and risks
- KU9.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU10.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU11.** knowledge of safe lockdown/stop of machinery use in case of emergencies and incidents/accidents
- KU12.** types of fire extinguishers and their use
- KU13.** common injuries and appropriate basic first aid treatment e.g. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries

Generic Skills (GS)

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

- GS1.** document and report any health and safety related incidents/accidents
- GS2.** read and comprehend basic English to read manuals of operations
- GS3.** read all organizational and equipment related health and safety manuals and documents
- GS4.** read instructions, guidelines / procedures /rules related to the worksite and equipment operations
- GS5.** Give clear instructions to co-workers, subordinates and other personnel
- GS6.** Use correct technical terms while interacting with supervisor
- GS7.** Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/worksite guidelines
- GS8.** Use correct PPE and other safety gear while at the worksite
- GS9.** Work with supervisors/ team mates to carry out work related tasks
- GS10.** Plan work according to the required schedule and location
- GS11.** Build and maintain positive and effective relationships with colleagues and customers
- GS12.** Seek appropriate assistance from other sources to resolve problems
- GS13.** Assess the intensity of the fire accident and operate fire extinguishers
- GS14.** Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	5	10	-	-
PC1. Comply with safety, health, security and environment related regulations/guidelines at the work site	0.5	1	-	-
PC2. use personal protective equipment (ppe) and other safety gear as applicable to the equipment and the worksite	0.5	1	-	-
PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk	0.5	1	-	-
PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines	0.5	1	-	-
PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	1	-	-
PC6. operate various grades of fire extinguishers, as applicable	0.5	2	-	-
PC7. support in administering basic first aid and report to concerned team members, as required, in case of an accident	0.5	1	-	-
PC8. respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility	0.5	1	-	-
PC9. record and report details related to operations, incidents or accidents, as applicable	0.5	1	-	-
NOS Total	5	10	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N7601
NOS Name	Comply with worksite health and safety
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	1
Version	3.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQF Clearance Date	17/11/2022

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 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.

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
IES/N0140.Carry out pre-operation checks on a hot mix plant	10	20	-	-	30	20
IES/N0141.Carry out hot mix plant operations	10	25	-	-	35	30
IES/N0142.Carry out routine maintenance and troubleshooting of the hot mix plant	6	14	-	-	20	20
IES/N7601.Comply with worksite health and safety	5	10	-	-	15	15
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	15
Total	51	99	-	-	150	100



Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

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.