



- BATCHING PLANT

Batching Plant Operator

QP Code: IES/Q0116

NSQF Level: 4

Infrastructure Equipment Skill Council || Infrastructure Equipment Skill Council, Avik Royale-First Floor
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Qualification Pack

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IES/Q0116: Batching Plant Operator

Brief Job Description

A batching plant operator is responsible for making the concrete as per mix design supplied by the authorized concerned person. In addition to operating the plant, he will maintain adequate levels of all supplies and products.

Personal Attributes

This job requires the individual to be extremely careful and diligent and have high level of concentration. Hard work and strong work ethics courteous behavior with co-workers are equally desirable. He should also be physically agile, strong, have good eye sight and not suffer from colour-blindness.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [IES/N0146: Carry out Pre-operation checks on a batching plant](#)
2. [IES/N0147: Carry out batching plant operations](#)
3. [IES/N0148: Carry out maintenance and troubleshooting of the batching plant](#)
4. [IES/N7601: Comply with worksite health and safety guidelines](#)

Qualification Pack (QP) Parameters

Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2004/8212.20
Minimum Educational Qualification & Experience	8th Class with 2-3 Years of experience Preferably 2 years of experience as junior concrete batching plant operator
Minimum Level of Education for Training in School	

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Pre-Requisite License or Training	Certification Training in concrete batching plant operations preferred
Minimum Job Entry Age	18 Years
Last Reviewed On	26/04/2016
Next Review Date	30/06/2020
NSQC Approval Date	09/10/2017
Version	1.0

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IES/N0146: Carry out Pre-operation checks on a batching plant

Description

This unit insight into activities that need to be carried out Pre-operational checks to prepare the batching plant for a shift

Scope

This unit/task covers the following: Pre-operation checks Reporting and documentation

Elements and Performance Criteria

Pre-operation Checks

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

- PC1.** inspect oil and filter on air compressor, drain tank manifolds and all water traps as per the procedures set by the manufacturer
- PC2.** check the oil level in all gear boxes, hydraulic unit, drum motor oil and auto-roll as per the procedures set by the manufacturer
- PC3.** ensure that the cement bin aeration system is operating properly
- PC4.** ensure that all bins and silos are full as per the production requirement
- PC5.** inspect tension on all v-drive belts and other belts for wear and tear
- PC6.** ensure that liquid admixtures are stored as per the organizational standards to avoid contamination
- PC7.** check that admixture dispensers are in good working condition
- PC8.** ensure that safety equipment is present and securely mounted as per the organizational standards
- PC9.** check for wiring damage and loose electrical fitting for the electric drive motors
- PC10.** ensure mixer motor is turned off before carrying out mixer cleaning or chipping
- PC11.** ensure weigh hoppers are emptied from the previous day's operation
- PC12.** check the area under plant for spillage and trace source
- PC13.** ensure visual inspections are carried out for broken load cells, leaks, dust build-up in bag house, worn gates,
- PC14.** check conveyors, boom scrapers and bucket elevators for free running and wear, and adjust as necessary
- PC15.** check all hoppers and doors are in clean and efficient working order
- PC16.** check central mixer blades, strippers or arms for wear and tightness and adjust as necessary
- PC17.** check tightness of all hydraulic connections and the condition of flexible tubes
- PC18.** check and remove any cement or concrete build up in the mixer
- PC19.** check dust seals on cement hoppers for wear
- PC20.** ensure that bearings and gears are properly greased
- PC21.** check mixer drum for structural cracks or damage
- PC22.** inspect and tighten all bolts and bearing set screws

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- PC23.** maintain power generator, monitor voltage and frequency at appropriate levels
- PC24.** check and ensure that all cabin controls including electronic display, sensors, etc. are functioning properly
- PC25.** ensure that before work, the machine should have an empty running

Reporting and documentation

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

- PC26.** maintain a checking/maintenance logbook to record all activities performed before starting the batching plant
- PC27.** report defects precisely to the supervisor if beyond scope of his role

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 performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** timeframe in which the complaint/problem should be resolved
- 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.** introduction to weighing systems storage systems, water systems conveying systems admix systems, their use and function
- KU11.** different equipment in batching plant such as conveyors, dust collector storage bins, weigh hoppers, water storage tanks, admix system, pumps, mixers, components, and functions.
- KU12.** equipment operating systems such as hydraulic systems, electrical system lubricating systems, pneumatic systems, mechanical systems and fuel systems
- KU13.** synthetic, non-synthetic oils and admixtures
- KU14.** materials tolerance as per is
- KU15.** significance of lubricating different parts of the concrete batching plant
- KU16.** instrument panel / cabin controls, their location and operation
- KU17.** earthing of plants to protect load cells
- KU18.** visual checks to identify damage, defects, cracks or leaks beforehand
- KU19.** basics of computer

Generic Skills (GS)

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

- GS1.** record any deviations/ incidents as per prescribed norms

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- GS2.** read and comprehend basic english and regional language as applicable to read manuals of operations, guidelines, etc
- GS3.** give clear instructions to co-workers, subordinates and other personnel
- GS4.** use correct technical terms while interacting with supervisor
- 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.** provide service of the highest order to ensure customer satisfaction
- GS9.** identify immediate or temporary solutions to resolve mechanical issues
- GS10.** judge when to seek assistance from supervisor
- GS11.** identify cause and effect relations in his area of work
- GS12.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Pre-operation Checks</i>	8	19	-	-
PC1. inspect oil and filter on air compressor, drain tank manifolds and all water traps as per the procedures set by the manufacturer	1	1	-	-
PC2. check the oil level in all gear boxes, hydraulic unit, drum motor oil and auto-roll as per the procedures set by the manufacturer	1	1	-	-
PC3. ensure that the cement bin aeration system is operating properly	0.5	1	-	-
PC4. ensure that all bins and silos are full as per the production requirement	0.5	1	-	-
PC5. inspect tension on all v-drive belts and other belts for wear and tear	0.5	1	-	-
PC6. ensure that liquid admixtures are stored as per the organizational standards to avoid contamination	0.5	0.5	-	-
PC7. check that admixture dispensers are in good working condition	-	0.5	-	-
PC8. ensure that safety equipment is present and securely mounted as per the organizational standards	1	1	-	-
PC9. check for wiring damage and loose electrical fitting for the electric drive motors	0.5	0.5	-	-
PC10. ensure mixer motor is turned off before carrying out mixer cleaning or chipping	0.5	0.5	-	-
PC11. ensure weigh hoppers are emptied from the previous day's operation	-	0.5	-	-
PC12. check the area under plant for spillage and trace source	-	0.5	-	-
PC13. ensure visual inspections are carried out for broken load cells, leaks, dust build-up in bag house, worn gates,	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check conveyors, boom scrapers and bucket elevators for free running and wear, and adjust as necessary	-	1	-	-
PC15. check all hoppers and doors are in clean and efficient working order	-	1	-	-
PC16. check central mixer blades, strippers or arms for wear and tightness and adjust as necessary	-	1	-	-
PC17. check tightness of all hydraulic connections and the condition of flexible tubes	-	0.5	-	-
PC18. check and remove any cement or concrete build up in the mixer	0.5	0.5	-	-
PC19. check dust seals on cement hoppers for wear	-	0.5	-	-
PC20. ensure that bearings and gears are properly greased	0.5	0.5	-	-
PC21. check mixer drum for structural cracks or damage	-	0.5	-	-
PC22. inspect and tighten all bolts and bearing set screws	-	1	-	-
PC23. maintain power generator, monitor voltage and frequency at appropriate levels	-	1	-	-
PC24. check and ensure that all cabin controls including electronic display, sensors, etc. are functioning properly	-	1	-	-
PC25. ensure that before work, the machine should have an empty running	0.5	0.5	-	-
<i>Reporting and documentation</i>	2	1	-	-
PC26. maintain a checking/maintenance logbook to record all activities performed before starting the batching plant	1	0.5	-	-
PC27. report defects precisely to the supervisor if beyond scope of his role	1	0.5	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	10	20	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0146
NOS Name	Carry out Pre-operation checks on a batching plant
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

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IES/N0147: Carry out batching plant operations

Description

This unit provides insight into activities that are required for operating a concrete batching plant

Scope

This unit/task covers the following: Batching plant operations Post-operation service of batching plant Safety during operations Reporting and documentation

Elements and Performance Criteria

Batching plant operations

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

- PC1.** plan and organize the job as per the organizational procedures
- PC2.** start genset and activate cross-over switch
- PC3.** check panel to ensure that controls are in correct position for starting
- PC4.** turn on control panel power as per the operational manual
- PC5.** enter and adjust values in computer system as per the mix design
- PC6.** start components in correct order through computer controls
- PC7.** ensure the production process and product complies with the appropriate quality procedures
- PC8.** monitor and regulate materials such as proportions of aggregates, cement, water, and admixtures
- PC9.** use the emergency stop button to disable all power to the batching plant in case of a crisis, as per operator manual
- PC10.** coordinate with ground personnel, loader operators and truck drivers
- PC11.** ensure that truck is properly positioned under sock to ensure correct direction of the drum
- PC12.** discharge batched concrete into delivery trucks/mixers using appropriate controls

Post-operation service of batching plant

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

- PC13.** ensure batches are produced on time and as per the specifications
- PC14.** ensure that sequential procedures for shut down
- PC15.** ensure that feed is stopped using appropriate controls as per the operational manual
- PC16.** clean drum mixer internally as per the operational manual
- PC17.** wash the batching plant externally with water to remove all built-up deposits
- PC18.** conduct visual inspection of the equipment
- PC19.** ensure that the equipment is lubricated properly
- PC20.** ensure defective components are replaced immediately
- PC21.** clean the rubber chute that discharges the cement into the mixer

Safety during operations

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

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- PC22.** wear dust masks when working around the plant
- PC23.** make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment
- PC24.** wear all PPE while sampling concrete and for all operations

Reporting and documentation

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

- PC25.** record input and output flow as per the desired formats of the organization

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 performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** timeframe in which the complaint/problem should be resolved
- 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 mixers such as - non-tilting reversible drum concrete mixer - double conical tilting mixer - pan mixer - turbo pan mixer - single shaft/twin shaft compulsory mixer/pug mill
- KU10.** different types of batching equipment such as manual, semi-automatic and automatic
- KU11.** feeding methods of cement, flash into silos
- KU12.** minimum mixing time for each batch as per is standards
- KU13.** types of cements materials used
- KU14.** number and size of silos
- KU15.** different methods of feeding cement using bucket elevator, screw conveyor and pneumatic system
- KU16.** different admixtures that are added to concrete mixes, such as aerators, retarders super plasticizers, accelerators, colours water reducers fiber mesh etc.
- KU17.** types of control systems calibration/scada/automatic operations
- KU18.** basic tools such as screw driver, hammer, assorted wrenches, grease gun, hand scraper, tape measure, sledge hammer, multi-meter, shovel, etc.
- KU19.** the location and procedure of using the emergency stop button
- KU20.** basic procedures for operating a batching plant
- KU21.** response to emergencies e.g. correct way to use fire extinguisher
- KU22.** basic computer and ms office applications and print settings

Generic Skills (GS)

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

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- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** read and comprehend basic english and regional language as applicable to read manuals of operations, guidelines, etc.
- GS3.** interpret stakes and signage on the worksite
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** use correct technical terms while interacting with supervisor
- GS6.** assess for any damage/faulty component in the batching plant and take action accordingly
- GS7.** decide on when to start and stop the operations based on the machine functioning
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** provide service of the highest order to ensure customer satisfaction
- GS11.** identify immediate or temporary solutions to resolve mechanical issues
- GS12.** judge when to seek assistance from supervisor
- GS13.** identify cause and effect relations in his area of work
- GS14.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Batching plant operations</i>	4	10.5	-	-
PC1. plan and organize the job as per the organizational procedures	0.5	0.5	-	-
PC2. start genset and activate cross-over switch	-	0.5	-	-
PC3. check panel to ensure that controls are in correct position for starting	0.5	1	-	-
PC4. turn on control panel power as per the operational manual	-	0.5	-	-
PC5. enter and adjust values in computer system as per the mix design	-	1	-	-
PC6. start components in correct order through computer controls	-	1	-	-
PC7. ensure the production process and product complies with the appropriate quality procedures	0.5	1	-	-
PC8. monitor and regulate materials such as proportions of aggregates, cement, water, and admixtures	0.5	2	-	-
PC9. use the emergency stop button to disable all power to the batching plant in case of a crisis, as per operator manual	1	0.5	-	-
PC10. coordinate with ground personnel, loader operators and truck drivers	0.5	0.5	-	-
PC11. ensure that truck is properly positioned under sock to ensure correct direction of the drum	0.5	1	-	-
PC12. discharge batched concrete into delivery trucks/mixers using appropriate controls	-	1	-	-
<i>Post-operation service of batching plant</i>	4	9	-	-
PC13. ensure batches are produced on time and as per the specifications	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure that sequential procedures for shut down	1	1	-	-
PC15. ensure that feed is stopped using appropriate controls as per the operational manual	-	1	-	-
PC16. clean drum mixer internally as per the operational manual	0.5	1	-	-
PC17. wash the batching plant externally with water to remove all built-up deposits	0.5	1	-	-
PC18. conduct visual inspection of the equipment	0.5	1	-	-
PC19. ensure that the equipment is lubricated properly	0.5	1	-	-
PC20. ensure defective components are replaced immediately	-	1	-	-
PC21. clean the rubber chute that discharges the cement into the mixer	-	1	-	-
<i>Safety during operations</i>	3	2.5	-	-
PC22. wear dust masks when working around the plant	1	1	-	-
PC23. make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment	1	0.5	-	-
PC24. wear all PPE while sampling concrete and for all operations	1	1	-	-
<i>Reporting and documentation</i>	1	1	-	-
PC25. record input and output flow as per the desired formats of the organization	1	1	-	-
NOS Total	12	23	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0147
NOS Name	Carry out batching plant operations
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

Qualification Pack

IES/N0148: Carry out maintenance and troubleshooting of the batching plant

Description

This unit provides insight into activities that are required for performing routine maintenance and troubleshooting on the batching plant.

Scope

This unit/task covers the following: Routine maintenance Basic diagnostics and troubleshooting Documentation and Reporting

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 plant operating hours as per organizational procedures
- PC2.** perform basic housekeeping activities in the control room
- PC3.** lubricate all bearings including head and tail pulleys on all conveyors, head and tail bearing on cement feeder screws wheel bearing supports on turn head, aggregate gate pivot points etc
- PC4.** inspect and /or adjust all belt wipers
- PC5.** blow clean all air filters on air compressor and aeration blowers
- PC6.** adjust tension of the chain and scoops unit

Basic diagnostics and troubleshooting

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

- PC7.** turn off the mains power from panel completely before carrying out maintenance work
- PC8.** keep all panels under shelter, water should not enter the panels
- PC9.** ensure that the mixer is stopped before making any adjustments
- PC10.** complete timely and legibly daily/ weekly maintenance sheets as provided by the company
- PC11.** ensure that defective parts are replaced immediately
- PC12.** clean magnetic oil plugs during each oil change
- PC13.** ensure that appropriate tools are used while troubleshooting
- PC14.** diagnose the problem
- PC15.** assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel
- PC16.** handle and dispose waste based on environmental guidelines at the work place

Documentation and reporting

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

- PC17.** follow reporting procedures as laid down by the employer
- PC18.** complete all documentation in the prescribed standards in a timely manner

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PC19. report and escalate problems/ incidents as required in a timely manner

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 performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** timeframe in which the complaint/problem should be resolved
- 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.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU10.** use of basic tools e.g.- screw driver, hammer, wrenches, self-locking pliers, grease gun, thermometer, multi-meter etc.
- KU11.** basics of pneumatics and hydraulic systems
- KU12.** different lubricants and their application
- KU13.** instrument panel, communication devices, their location and operation
- KU14.** conveyor systems, components such as belts, rollers, reducer gear box, electrical drive system, their location and function
- KU15.** types of load cell
- KU16.** admix system components such as pumps, tanks, flow meter, their location and function
- KU17.** basic electrical functioning and repairs
- KU18.** contact person in case of queries on procedure or products
- KU19.** location and process for storage and disposal of waste material
- KU20.** safety policy of the company

Generic Skills (GS)

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

- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** read and comprehend basic english and regional language as applicable to read manuals of operations, guidelines, etc.
- GS3.** give clear instructions to co-workers, subordinates and other personnel
- GS4.** use correct technical terms while interacting with supervisor
- GS5.** decide when to conduct maintenance checks
- GS6.** evaluate the decision and conduct basic trouble shooting
- GS7.** work with supervisors/ team mates to carry out work related tasks
- GS8.** plan work according to the required schedule and location

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- GS9.** plan for regular maintenance on a daily basis before machine operations
- GS10.** provide service of the highest order to ensure customer satisfaction
- GS11.** identify immediate or temporary solutions to resolve mechanical issues
- GS12.** judge when to seek assistance from supervisor
- GS13.** identify cause and effect relations in his area of work
- GS14.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance</i>	3	5.5	-	-
PC1. assess the right service schedule by tracking plant operating hours as per organizational procedures	1	0.5	-	-
PC2. perform basic housekeeping activities in the control room	1	1	-	-
PC3. lubricate all bearings including head and tail pulleys on all conveyors, head and tail bearing on cement feeder screws wheel bearing supports on turn head, aggregate gate pivot points etc	1	2	-	-
PC4. inspect and /or adjust all belt wipers	-	1	-	-
PC5. blow clean all air filters on air compressor and aeration blowers	-	0.5	-	-
PC6. adjust tension of the chain and scoops unit	-	0.5	-	-
<i>Basic diagnostics and troubleshooting</i>	3	6	-	-
PC7. turn off the mains power from panel completely before carrying out maintenance work	-	0.5	-	-
PC8. keep all panels under shelter, water should not enter the panels	0.5	0.5	-	-
PC9. ensure that the mixer is stopped before making any adjustments	0.5	0.5	-	-
PC10. complete timely and legibly daily/ weekly maintenance sheets as provided by the company	0.5	0.5	-	-
PC11. ensure that defective parts are replaced immediately	0.5	0.5	-	-
PC12. clean magnetic oil plugs during each oil change	0.5	0.5	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. ensure that appropriate tools are used while troubleshooting	-	0.5	-	-
PC14. diagnose the problem	-	0.5	-	-
PC15. assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel	-	0.5	-	-
PC16. handle and dispose waste based on environmental guidelines at the work place	0.5	1.5	-	-
<i>Documentation and reporting</i>	1	1.5	-	-
PC17. follow reporting procedures as laid down by the employer	-	0.5	-	-
PC18. complete all documentation in the prescribed standards in a timely manner	-	1	-	-
PC19. report and escalate problems/ incidents as required in a timely manner	1	-	-	-
NOS Total	7	13	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0148
NOS Name	Carry out maintenance and troubleshooting of the batching plant
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

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IES/N7601: Comply with worksite health and safety guidelines

Description

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

Scope

This unit/task 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 such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection
- 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 manufacturers 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.** follow safety regulations and procedures with regard to worksite hazards and risks
- PC7.** operate various grades of fire extinguishers, as applicable
- PC8.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC9.** respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility

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
- KU2.** the importance of complying with health, safety, environmental and security guidelines at the worksite and during operations
- KU3.** contact details of personnel responsible for health, safety and environment (hse) related matters
- KU4.** location of worksite storage, site team and safe assembly points
- KU5.** concerned personnel to reach out in case of emergencies and accidents/ incidents
- KU6.** reporting and documentation procedures for hse and security matters
- KU7.** manufacturers guidelines related to health and safety requirements

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- KU8.** common types of health, safety, environment and security risks related to the worksite and operations
- KU9.** types, use and importance of personal protective equipment (ppe) and other safety gear
- KU10.** safe working practices to avoid common hazards and risks
- KU11.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU12.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU13.** knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents
- KU14.** types of fire extinguishers and their use
- KU15.** common injuries and appropriate basic first aid treatment eg. 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
- GS15.** document and report any health and safety related incidents/ accidents
- GS16.** read and comprehend basic english to read manuals of operations
- GS17.** read all organizational and equipment related health and safety manuals and documents
- GS18.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS19.** give clear instructions to co-workers, subordinates and other personnel
- GS20.** use correct technical terms while interacting with supervisor
- GS21.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines

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- GS22.** use correct ppe and other safety gear while at the worksite
- GS23.** work with supervisors/ team mates to carry out work related tasks
- GS24.** plan work according to the required schedule and location
- GS25.** build and maintain positive and effective relationships with colleagues and customers
- GS26.** seek appropriate assistance from other sources to resolve problems
- GS27.** assess the intensity of the fire accident and operate fire extinguishers
- GS28.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	6	24	-	-
PC1. comply with safety, health, security and environment related regulations/ guidelines at the work site	-	2	-	-
PC2. use personal protective equipment (ppe) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection	1	3	-	-
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	1	3	-	-
PC4. carry out operations as per the manufacturers and worksite related health and safety guidelines	1	2	-	-
PC5. handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	3	-	-
PC6. follow safety regulations and procedures with regard to worksite hazards and risks	1	2	-	-
PC7. operate various grades of fire extinguishers, as applicable	-	3	-	-
PC8. support in administering basic first aid and report to concerned team members, as required, in case of an accident	1	3	-	-
PC9. respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility	-	3	-	-
NOS Total	6	24	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N7601
NOS Name	Comply with worksite health and safety guidelines
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	18/06/2015

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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.

Recommended Pass % : 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N0146.Carry out Pre-operation checks on a batching plant	10	20	-	-	30	26
IES/N0147.Carry out batching plant operations	12	23	-	-	35	31
IES/N0148.Carry out maintenance and troubleshooting of the batching plant	7	13	-	-	20	17

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National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N7601. Comply with worksite health and safety guidelines	6	24	-	-	30	26
Total	35	80	-	-	115	100

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.

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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.