

QUALIFICATION PACK – OCCUPATIONAL STANDARD FOR INFRASTRUCTURE EQUIPMENT INDUSTRY

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

Contact Us:

Infrastructure
Equipment Skill Council

E-mail:

standards@iescindia.com

Ph no: +91 80 4212 6666



Contents

1. Introduction and Contacts..... Page no. 1
2. Qualifications Pack.....Page no.2
3. OS Units.....Page no.2
4. Glossary of Key TermsPage no.3
5. Annexure- Nomenclature for QP & NOS.....
Page no. 25
6. Assessment Criteria.....Page no. 27

Introduction

Qualification Pack - Batching Plant Operator

SECTOR:	INFRASTRUCTURE EQUIPMENT
SUB SECTOR:	Equipment Operations
OCCUPATION:	Operator
REFERENCE ID:	IES/Q0116
ALIGNED TO:	NCO-2004/8212.20

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.

Qualifications Pack Code	IES/Q0116		
Job Role	Batching Plant Operator		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	14/04/16
Sub-sector	Equipment Operations	Last reviewed on	26/04/16
Occupation	Operator	Next review date	30/04/18
NSQC Clearance on	NA		

Job Role	Batching Plant Operator
Role 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.
NSQF level	4
Minimum Educational Qualifications	Class VIII preferably.
Maximum Educational Qualifications	NA
Training (Suggested but not mandatory)	Certification Training in concrete batching plant operations preferred
Minimum Job Entry Age	18 years
Experience	Preferably 2 years of experience as junior concrete batching plant operator
Applicable National Occupational Standards (NOS)	<p>Compulsory</p> <ol style="list-style-type: none"> IES/N0146Carry out Pre-operation checks on a batching plant IES/N0147Carry out batching plant operations IES/N0148Carry out maintenance and troubleshooting of the batching plant IES/N7601Comply with worksite health and safety guidelines <p>Optional: N.A.</p>
Performance Criteria	As described in the relevant OS units

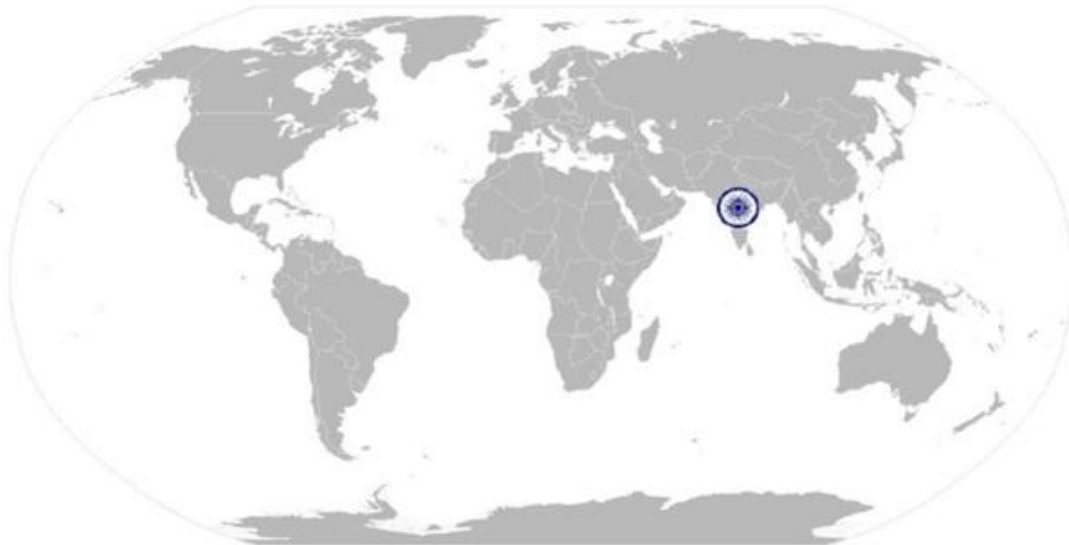
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-functions	Sub-functions are sub-activities essential to fulfill achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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; he/she needs to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria 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 Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack(QP)	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification 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 find the required one.
Scope	Scope is the 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 the quality of required performance.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform up to the required standard.

Acronyms	Keywords /Terms	Description
	OS	Occupational Standard(s)
	NOS	National Occupational Standard(s)
	QP	Qualifications Pack
	NSQF	National Skill Qualifications Framework
	ITI	Industrial Training Institute
	HCV	Heavy Commercial Vehicle
	SHE	Safety Health and Environment
	SOP	Standard Operating Procedure
	TBD	To Be Determined

IES/N0146

Carry out Pre-operation checks on a batching plant

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out pre-operational checks to prepare the batching plant for a shift.

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

Unit Code	IES/N0146
Unit Title (Task)	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: <ul style="list-style-type: none"> • Pre-operation checks • Reporting and documentation
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Pre-operation Checks	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> 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 PC23. Maintain power generator, monitor voltage and frequency at

IES/N0146

Carry out Pre-operation checks on a batching plant

	<p>appropriate levels</p> <p>PC24. Check and ensure that all cabin controls including electronic display, sensors, etc. are functioning properly</p> <p>PC25. Ensure that before work, the machine should have an empty running</p>
Reporting and documentation	<p>PC26. Maintain a checking/maintenance logbook to record all activities performed before starting the batching plant</p> <p>PC27. Report defects precisely to the supervisor if beyond scope of his role</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization's procedures and guidelines related to breakdown & maintenance services</p> <p>KA2. The performance standards & procedures followed in the company</p> <p>KA3. Reporting structure in the company</p> <p>KA4. Timeframe in which the complaint/problem should be resolved</p> <p>KA5. Location of tools</p> <p>KA6. Contact person in case of queries on procedure or products</p> <p>KA7. Location and process for storage and disposal of waste material</p> <p>KA8. Safety Policy of the company</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of batching plant and their use and function</p> <p>KB2. Introduction to weighing systems storage systems, water systems conveying systems admix systems, their use and function</p> <p>KB3. Different equipment in batching plant such as conveyors, dust collector storage bins, weigh hoppers, water storage tanks, admix system, pumps, mixers, components, and functions.</p> <p>KB4. Equipment operating systems such as hydraulic systems, electrical system lubricating systems, pneumatic systems, mechanical systems and fuel systems</p> <p>KB5. Synthetic, non-synthetic oils and admixtures</p> <p>KB6. Materials tolerance as per IS</p> <p>KB7. Significance of lubricating different parts of the concrete batching plant</p> <p>KB8. Instrument panel / cabin controls, their location and operation</p> <p>KB9. Earthing of plants to protect load cells</p> <p>KB10. Visual checks to identify damage, defects, cracks or leaks beforehand</p> <p>KB11. Basics of computer</p>
Skills (S)	
A. Core Skills / Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Record any deviations/ incidents as per prescribed norms
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA2. Read and comprehend basic English and regional language as applicable to read manuals of operations, guidelines, etc.
	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to:

IES/N0146

Carry out Pre-operation checks on a batching plant

	SA3. Give clear instructions to co-workers, subordinates and other personnel SA4. Use correct technical terms while interacting with supervisor
B. Professional Skills	Decision Making The user/ individual on the job needs to know and understand how to: SB1. Decide when to conduct maintenance checks
	Plan and Organize The user/ individual on the job needs to know and understand how to: SB2. Work with supervisors/ team mates to carry out work related tasks SB3. Plan work according to the required schedule and location
	Customer Centricity The user/ individual on the job needs to know and understand how to: SB4. Provide service of the highest order to ensure customer satisfaction
	Problem Solving The user/ individual on the job needs to know and understand how to: SB5. Identify immediate or temporary solutions to resolve mechanical issues SB6. Judge when to seek assistance from supervisor
	Analytical Thinking The user/ individual on the job needs to know and understand how to: SB7. Identify cause and effect relations in his area of work
	Critical Thinking The user/ individual on the job needs to know and understand how to: SB8. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

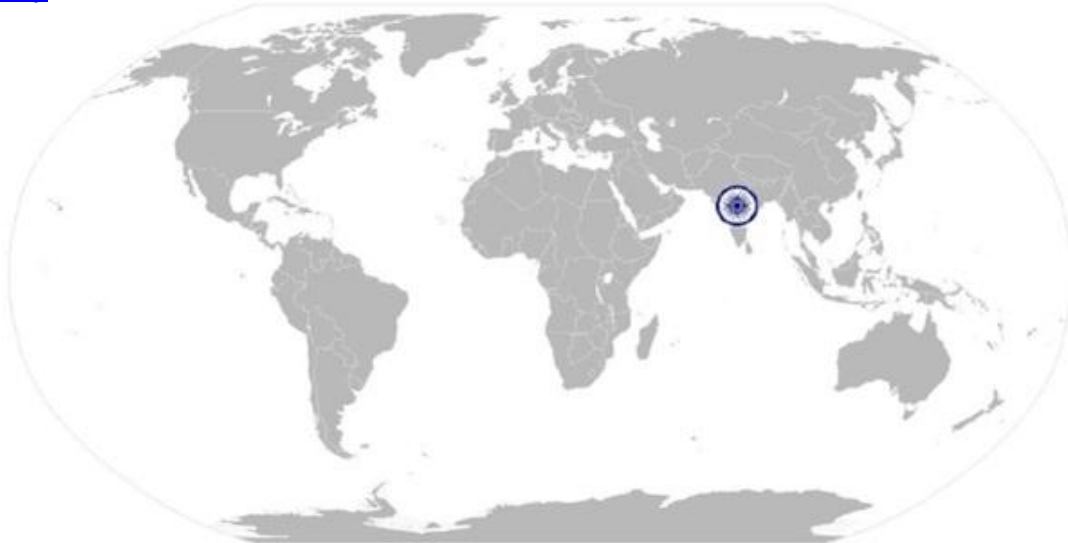
IES/N0146

Carry out Pre-operation checks on a batching plant

NOS Version Control

NOS Code	IES/N0146		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	14/04/16
Industry Sub-sector	Equipment Operations	Last reviewed on	26/04/16
Occupation	Operator	Next review date	30/04/16

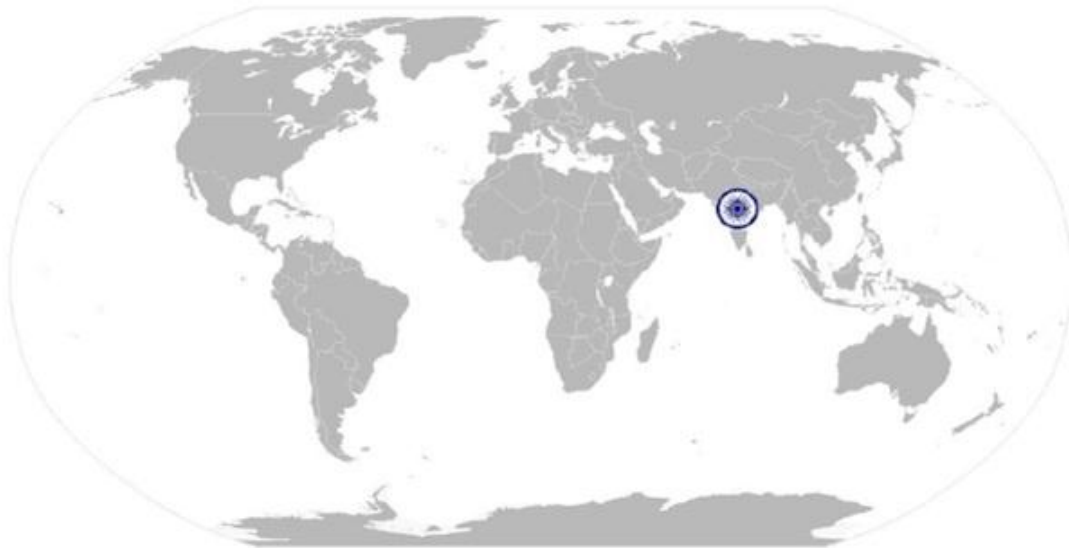
[Back To Top](#)



IES/N0147

Carry out batching plant operations

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for operating a concrete batching plant.

IES/N0147

Carry out batching plant operations

National Occupational Standard

Unit Code	IES/N0147
Unit Title (Task)	Carry out batching plant operations
Description	This unit provides insight into activities that are required for operating a concrete batching plant.
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Batching plant operations • Post-operation service of batching plant • Safety during operations • Reporting and documentation
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Batching plant operations	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Plan and organize the job as per the organizational procedures</p> <p>PC2. Start genset and activate cross-over switch</p> <p>PC3. Check panel to ensure that controls are in correct position for starting</p> <p>PC4. Turn on control panel power as per the operational manual</p> <p>PC5. Enter and adjust values in computer system as per the mix design</p> <p>PC6. Start components in correct order through computer controls</p> <p>PC7. Ensure the production process and product complies with the appropriate quality procedures</p> <p>PC8. Monitor and regulate materials such as proportions of aggregates, cement, water, and admixtures</p> <p>PC9. Use the emergency stop button to disable all power to the batching plant in case of a crisis, as per operator manual</p> <p>PC10. Coordinate with ground personnel, loader operators and truck drivers</p> <p>PC11. Ensure that truck is properly positioned under sock to ensure correct direction of the drum</p> <p>PC12. Discharge batched concrete into delivery trucks/mixers using appropriate controls</p> <p>PC13. Ensure batches are produced on time and as per the specifications</p>
Post-operation service of batching plant	<p>PC14. Ensure that sequential procedures for shut down</p> <p>PC15. Ensure that feed is stopped using appropriate controls as per the operational manual</p> <p>PC16. Clean drum mixer internally as per the operational manual</p> <p>PC17. Wash the batching plant externally with water to remove all built-up deposits</p> <p>PC18. Conduct visual inspection of the equipment</p> <p>PC19. Ensure that the equipment is lubricated properly</p> <p>PC20. Ensure defective components are replaced immediately</p> <p>PC21. Clean the rubber chute that discharges the cement into the mixer</p>
Safety during operations	<p>PC22. Wear dust masks when working around the plant</p> <p>PC23. Make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment</p> <p>PC24. Wear all PPE while sampling concrete and for all operations</p>

IES/N0147

Carry out batching plant operations

Reporting and documentation	PC25. Record input and output flow as per the desired formats of the organization
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization’s procedures and guidelines related to breakdown & maintenance services</p> <p>KA2. The performance standards & procedures followed in the company</p> <p>KA3. Reporting structure in the company</p> <p>KA4. Timeframe in which the complaint/problem should be resolved</p> <p>KA5. Location of tools</p> <p>KA6. Contact person in case of queries on procedure or products</p> <p>KA7. Location and process for storage and disposal of waste material</p> <p>KA8. Safety Policy of the company</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of mixers such as</p> <ul style="list-style-type: none"> - Non-tilting reversible drum concrete mixer - Double conical tilting mixer - Pan mixer - Turbo pan mixer - Single shaft/twin shaft compulsory mixer/pug mill <p>KB2. Different types of batching equipment such as manual, semi-automatic and automatic</p> <p>KB3. Feeding methods of cement, flash into silos</p> <p>KB4. Minimum mixing time for each batch as per IS standards</p> <p>KB5. Types of cements materials used</p> <p>KB6. Number and size of silos</p> <p>KB7. Different methods of feeding cement using bucket elevator, screw conveyor and pneumatic system</p> <p>KB8. Different admixtures that are added to concrete mixes, such as aerators, retarders super plasticizers, accelerators, colours water reducers fiber mesh etc.</p> <p>KB9. Types of control systems – calibration/scada/automatic operations</p> <p>KB10. Basic tools such as screw driver, hammer, assorted wrenches, grease gun, hand scraper, tape measure, sledge hammer, multi-meter, shovel, etc.</p> <p>KB11. The location and procedure of using the emergency stop button</p> <p>KB12. Basic procedures for operating a batching plant</p> <p>KB13. Response to emergencies e.g. correct way to use fire extinguisher</p> <p>KB14. Basic Computer and MS office applications and print settings</p>
Skills (S)	
A. Core Skills / Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Record any deviations/ incidents as per prescribed norms</p> <p>Reading Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA2. Read and comprehend basic English and regional language as</p>

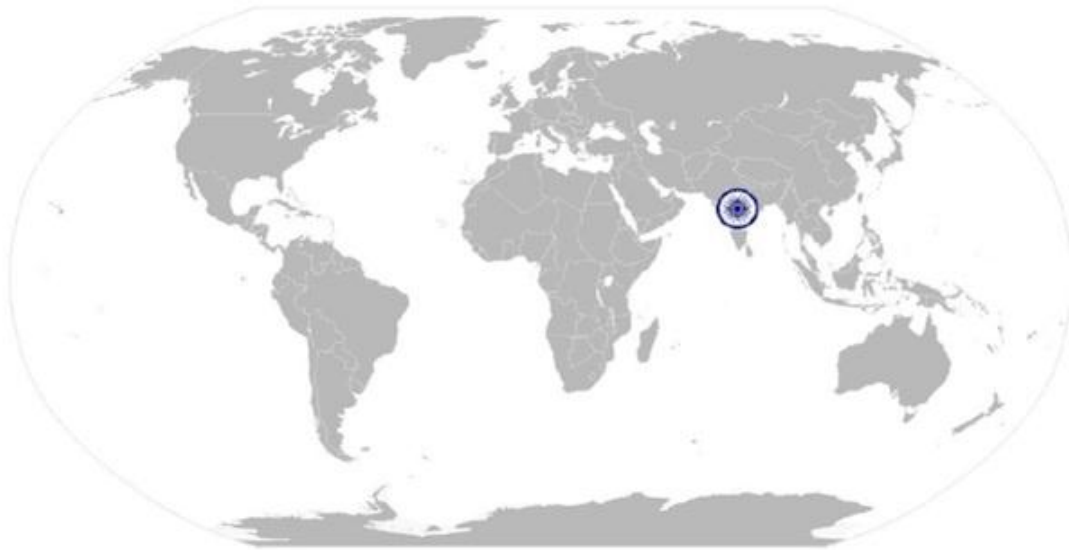
IES/N0147

Carry out batching plant operations

	<p>applicable to read manuals of operations, guidelines, etc.</p> <p>SA3. Interpret stakes and signage on the worksite</p>
	<p>Oral Communication (Listening and Speaking Skills)</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA4. Give clear instructions to co-workers, subordinates and other personnel</p> <p>SA5. Use correct technical terms while interacting with supervisor</p>
B. Professional Skills	<p>Decision Making</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB1. Assess for any damage/faulty component in the batching plant and take action accordingly</p> <p>SB2. Decide on when to start and stop the operations based on the machine functioning</p>
	<p>Plan and Organize</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB3. Work with supervisors/ team mates to carry out work related tasks</p> <p>SB4. Plan work according to the required schedule and location</p>
	<p>Customer Centricity</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB5. Provide service of the highest order to ensure customer satisfaction</p>
	<p>Problem Solving</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB6. Identify immediate or temporary solutions to resolve mechanical issues</p> <p>SB7. Judge when to seek assistance from supervisor</p>
	<p>Analytical Thinking</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB8. Identify cause and effect relations in his area of work</p>
	<p>Critical Thinking</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB9. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</p>

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

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for performing routine maintenance and troubleshooting on the batching plant.

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

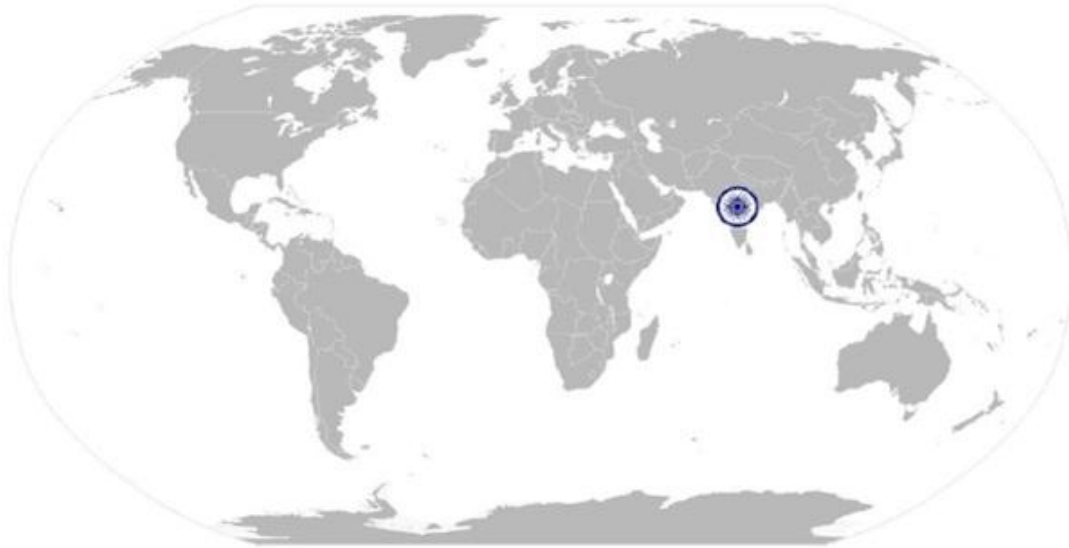
Unit Code	IES/N0148
Unit Title (Task)	Carry out maintenance and troubleshooting of the batching plant
Description	This unit provides insight into activities that are required for performing routine maintenance and troubleshooting on the batching plant.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Routine maintenance • Basic diagnostics and troubleshooting • Documentation and Reporting
Performance Criteria(PC) w.r.t. the Scope	
Element	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	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	PC17. Follow reporting procedures as laid down by the employer PC18. Complete all documentation in the prescribed standards in a timely manner PC19. Report and escalate problems/ incidents as required in a timely manner
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company /	The user/individual on the job needs to know and understand: KA1. The organization's procedures and guidelines related to breakdown & maintenance services KA2. The performance standards & procedures followed in the company

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

organization and its processes)	KA3. Reporting structure in the company KA4. Timeframe in which the complaint/problem should be resolved KA5. Location of tools KA6. Contact person in case of queries on procedure or products KA7. Location and process for storage and disposal of waste material KA8. Safety policy of the company
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The organization's procedures and guidelines related to Breakdown & Maintenance services KB2. Use of basic tools e.g.- screw driver, hammer, wrenches, self-locking pliers, grease gun, thermometer, multi-meter etc. KB3. Basics of pneumatics and hydraulic systems KB4. Different lubricants and their application KB5. Instrument panel, communication devices, their location and operation KB6. Conveyor systems, components such as belts, rollers, reducer gear box, electrical drive system, their location and function KB7. Types of load cell KB8. Admix system components such as pumps, tanks, flow meter, their location and function KB9. Basic electrical functioning and repairs KB10. Contact person in case of queries on procedure or products KB11. Location and process for storage and disposal of waste material KB12. Safety Policy of the company
Skills (S)	
A. Core Skills / Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Record any deviations/ incidents as per prescribed norms</p> <p>Reading Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA2. Read and comprehend basic English and regional language as applicable to read manuals of operations, guidelines, etc.</p> <p>Oral Communication (Listening and Speaking Skills)</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA3. Give clear instructions to co-workers, subordinates and other personnel</p> <p>SA4. Use correct technical terms while interacting with supervisor</p>
B. Professional Skills	<p>Decision Making</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB1. Decide when to conduct maintenance checks</p> <p>SB2. Evaluate the decision and conduct basic trouble shooting</p> <p>Plan and Organize</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB3. Work with supervisors/ team mates to carry out work related tasks</p> <p>SB4. Plan work according to the required schedule and location</p> <p>SB5. Plan for regular maintenance on a daily basis before machine</p>

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

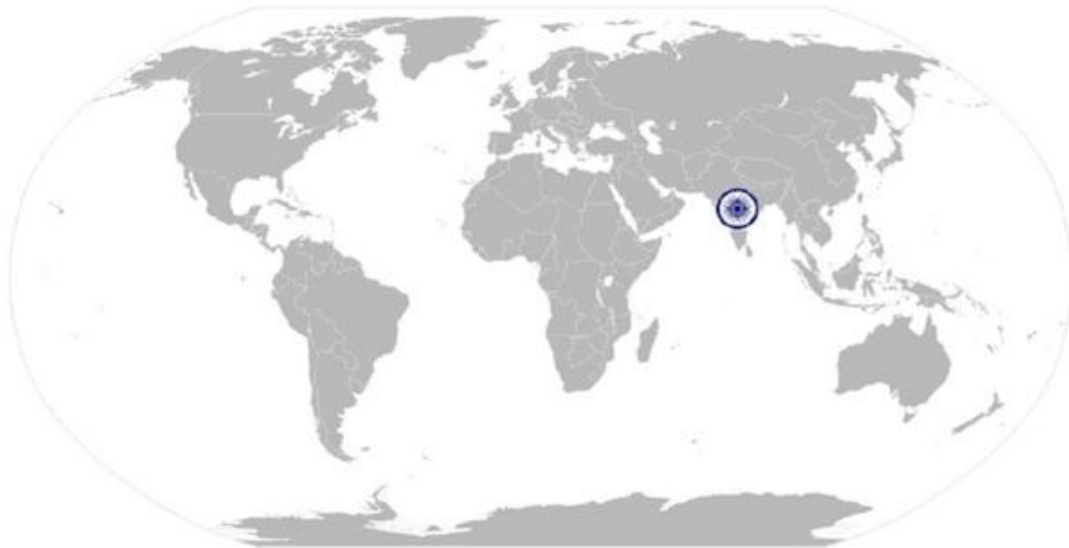
	operations
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB6. Provide service of the highest order to ensure customer satisfaction
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB7. Identify immediate or temporary solutions to resolve mechanical issues SB8. Judge when to seek assistance from supervisor
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB9. Identify cause and effect relations in his area of work
	Critical Thinking
The user/ individual on the job needs to know and understand how to: SB10. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently	



IES/N0148 Carry out maintenance and troubleshooting of the batching plant NOS Version Control

NOS Code	IES/N0148		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	14/04/16
Industry Sub-sector	Equipment Operations	Last reviewed on	26/04/16
Occupation	Operator	Next review date	30/04/16

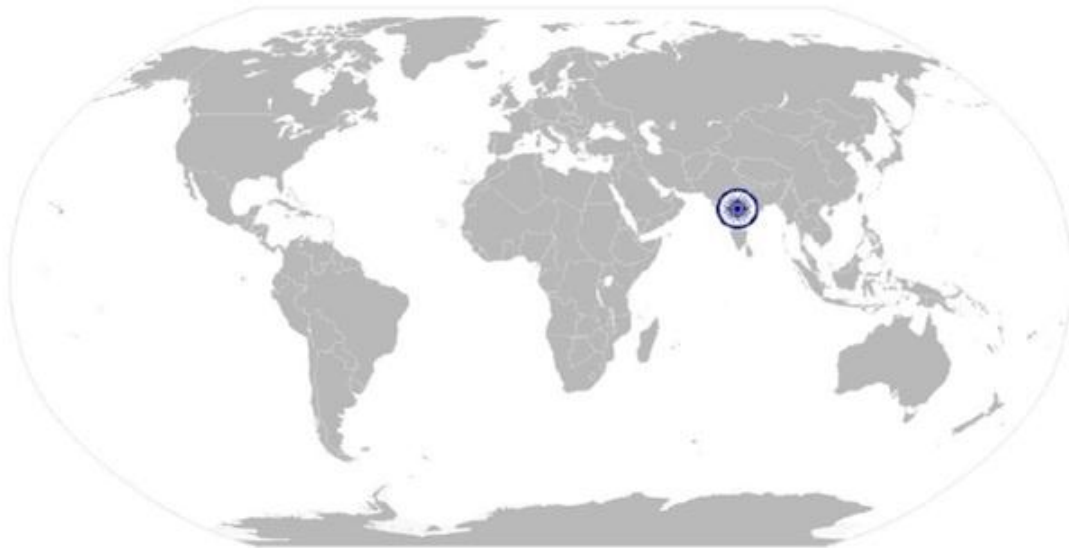
[Back To Top](#)



IES/N7601

Comply with worksite health and safety guidelines

National Occupational Standard



Overview

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

IES/N7601

Comply with worksite health and safety guidelines

National Occupational Standard

Unit Code	IES/N7601
Unit Title (Task)	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: <ul style="list-style-type: none"> • Worksite health and safety
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Worksite health and safety	To be competent, the user/individual on the job must be able to: <p>PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site</p> <p>PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite</p> <p>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</p> <p>PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines</p> <p>PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines</p> <p>PC6. Operate various grades of fire extinguishers, as applicable</p> <p>PC7. Support in administering basic first aid and report to concerned team members, as required, in case of an accident</p> <p>PC8. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility</p> <p>PC9. Record and report details related to operations, incidents or accidents, as applicable</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <p>KA1. Health, safety, environmental(HSE) and security related policies/ guidelines of the organization and the worksite and its importance</p> <p>KA2. Personnel responsible for Health, Safety and environment (HSE) related matters and their contact details</p> <p>KA3. Location of worksite storage, HSE team and safe assembly points</p> <p>KA4. Reporting and documentation procedures for HSE and security matters</p>
B. Technical Knowledge	The user/individual on the job needs to know and understand: <p>KB1. Manufacturer's guidelines related to health and safety requirements</p> <p>KB2. Common types of health, safety, environment and security risks related to the worksite and operations</p> <p>KB3. Types, use and importance of Personal Protective Equipment (PPE) and other safety gear</p> <p>KB4. Safe working practices to avoid common hazards and risks</p> <p>KB5. Guidelines for transport, storage and disposal of hazardous materials</p>

IES/N7601

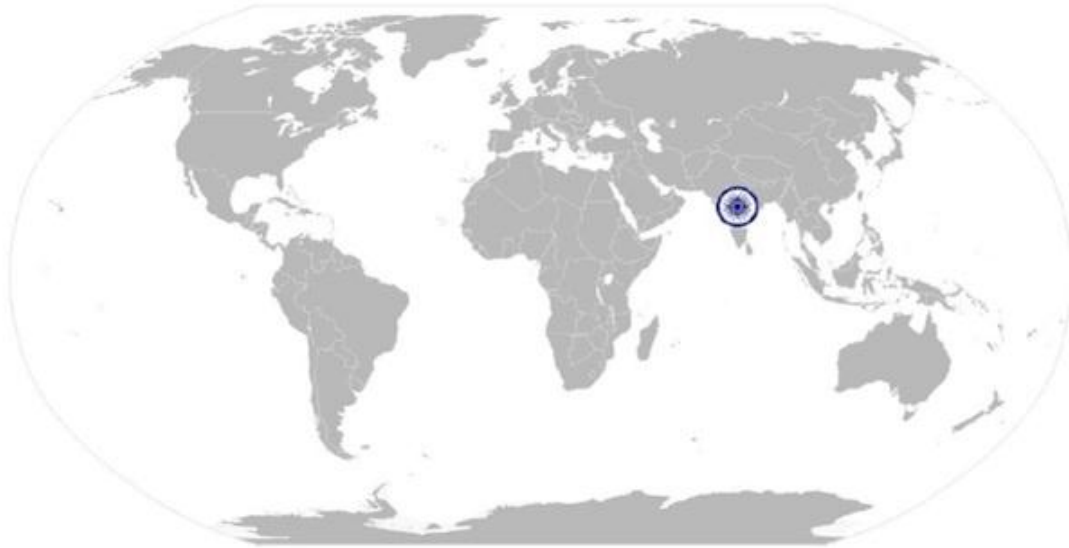
Comply with worksite health and safety guidelines

	<p>and waste</p> <p>KB6. Types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown</p> <p>KB7. Knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents</p> <p>KB8. Types of fire extinguishers and their use</p> <p>KB9. Common injuries and appropriate basic first aid treatment e.g. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries</p>
Skills (S)	
<p>A. Core Skills / Generic Skills</p>	<p>Writing Skills</p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Document and report any health and safety related incidents/ accidents</p>
	<p>Reading Skills</p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA2. The user/ individual on the job needs to know and understand how to:</p> <p>SA3. Read and comprehend basic symbols and signage related health and safety</p> <p>SA4. Read organizational and equipment related health and safety manuals and documents</p> <p>SA5. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations</p>
	<p>Oral Communication (Listening and Speaking Skills)</p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA6. Give clear instructions to co-workers, subordinates and other personnel</p> <p>SA7. Use correct technical terms while interacting with supervisor</p>
	<p>B. Professional Skills</p>
<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB1. Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines</p> <p>SB2. Use correct PPE and other safety gear while at the worksite</p>	
<p>Plan and Organize</p>	
<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB3. Work with supervisors/ team mates to carry out work related tasks</p> <p>SB4. Plan work according to the required schedule and location</p>	
<p>Customer Centricity</p>	
<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB5. Build and maintain positive and effective relationships with colleagues and customers</p>	
<p>Problem Solving</p>	
<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB6. Seek appropriate assistance from other sources to resolve problems</p>	
<p>Analytical Thinking</p>	
<p>The user/ individual on the job needs to know and understand how to:</p>	

IES/N7601

Comply with worksite health and safety guidelines

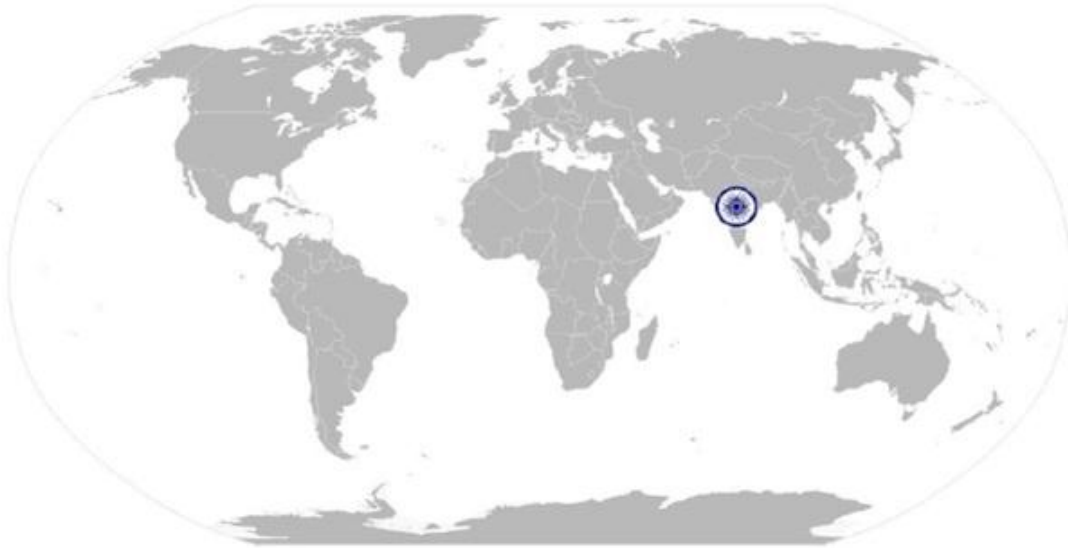
	SB7. Assess the intensity of the fire accident and operate fire extinguishers
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB8. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently



IES/N7601 **Comply with worksite health and safety guidelines**
NOS Version Control

NOS Code	IES/N7601		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	14/04/16
Industry Sub-sector	Equipment Operations	Last reviewed on	26/04/16
Occupation	Operator	Next review date	30/04/18

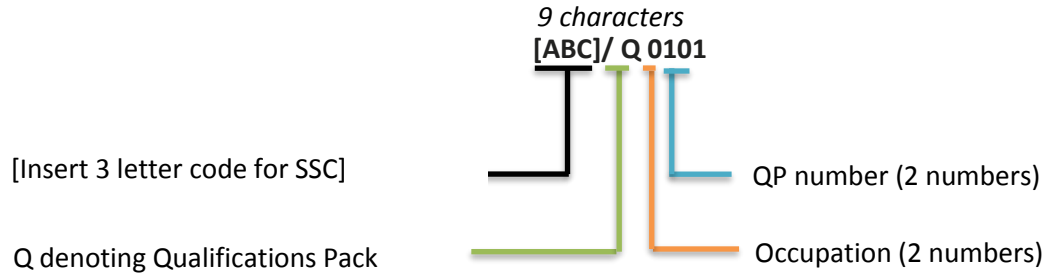
[Back To Top](#)



Annexure

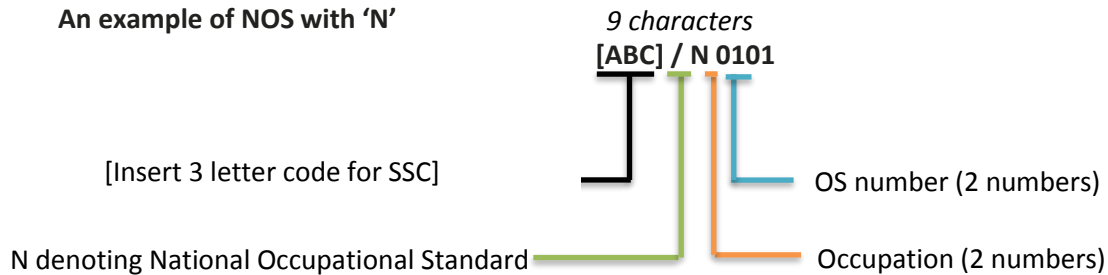
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Equipment Operations	1 to 10
Equipment Service and spares	11 to 20
Equipment Production	21 to 40
Equipment Sales	41 to 50
Equipment Financing	51 to 55
Core Enablers	56 to 65
Other Enablers	66 to 75
Common Occupations	76 to 85

Sequence	Description	Example
Three letters	Industry name	IES
Slash	/	/
Next letter	Whether QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Batching Plant Operator

Qualification Pack IES/Q0116

Sector Skill Council IESC

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 40% in each NOS and 60% aggregate.
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification pack.

Total Marks: 100				Marks Allocation	
Assessment Outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
1. IES/N0146 Carry out pre-operation checks on a batching plant	PC1. Inspect oil and filter on air compressor, drain tank manifolds and all water traps as per the procedures set by the manufacturer	30	2	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		2	1	1
	PC3. Ensure that the cement bin aeration system is operating properly		1.5	0.5	1

	PC4. Ensure that all bins and silos are full as per the production requirement		1.5	0.5	1
	PC5. Inspect tension on all V-drive belts and other belts for wear and tear		1.5	0.5	1
	PC6. Ensure that liquid admixtures are stored as per the organizational standards to avoid contamination		1	0.5	0.5
	PC7. Check that admixture dispensers are in good working condition		0.5	0	0.5
	PC8. Ensure that safety equipment is present and securely mounted as per the organizational standards		2	1	1
	PC9. Check for wiring damage and loose electrical fitting for the electric drive motors		1	0.5	0.5
	PC10. Ensure mixer motor is turned off before carrying out mixer cleaning or chipping		1	0.5	0.5
	PC11. Ensure weigh hoppers are emptied from the previous day's operation		0.5	0	0.5
	PC12. Check the area under plant for spillage and trace source		0.5	0	0.5
	PC13. Ensure visual inspections are carried out for broken load cells, leaks, dust build-up in bag house, worn gates,		1.5	0.5	1
	PC14. Check conveyors, boom scrapers and bucket elevators for free running and wear, and adjust as necessary		1	0	1
	PC15. Check all hoppers and doors are in clean and efficient working order		1	0	1
	PC16. Check central mixer blades, strippers or arms for wear and tightness and adjust as necessary		1	0	1

	PC17. Check tightness of all hydraulic connections and the condition of flexible tubes		0.5	0	0.5
	PC18. Check and remove any cement or concrete build up in the mixer		1	0.5	0.5
	PC19. Check dust seals on cement hoppers for wear		0.5	0	0.5
	PC20. Ensure that bearings and gears are properly greased		1	0.5	0.5
	PC21. Check mixer drum for structural cracks or damage		0.5	0	0.5
	PC22. Inspect and tighten all bolts and bearing set screws		1	0	1
	PC23. Maintain power generator, monitor voltage and frequency at appropriate levels		1	0	1
	PC24. Check and ensure that all cabin controls including electronic display, sensors, etc. are functioning properly		1	0	1
	PC25. Ensure that before work, the machine should have an empty running		1	0.5	0.5
	PC26. Maintain a checking/maintenance logbook to record all activities performed before starting the batching plant		1.5	1	0.5
	PC27. Report defects precisely to the supervisor if beyond scope of his role		1.5	1	0.5
		Total	30	10	20
2. IES/N0147 Carry out batching plant operations	PC1. Plan and organize the job as per the organizational procedures	35	1	0.5	0.5
	PC2. Start genset and activate cross-over switch		0.5	0	0.5

	PC3. Check panel to ensure that controls are in correct position for starting		1.5	0.5	1
	PC4. Turn on control panel power as per the operational manual		0.5	0	0.5
	PC5. Enter and adjust values in computer system as per the mix design		1	0	1
	PC6. Start components in correct order through computer controls		1	0	1
	PC7. Ensure the production process and product complies with the appropriate quality procedures		1.5	0.5	1
	PC8. Monitor and regulate materials such as proportions of aggregates, cement, water, and admixtures		2.5	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		1.5	1	0.5
	PC10. Coordinate with ground personnel, loader operators and truck drivers		1	0.5	0.5
	PC11. Ensure that truck is properly positioned under sock to ensure correct direction of the drum		1.5	0.5	1
	PC12. Discharge batched concrete into delivery trucks/mixers using appropriate controls		1	0	1
	PC13. Ensure batches are produced on time and as per the specifications		2	1	1
	PC14. Ensure that sequential procedures for shut down		2	1	1
	PC15. Ensure that feed is stopped using appropriate controls as per the operational manual		1	0	1

	PC16. Clean drum mixer internally as per the operational manual		1.5	0.5	1
	PC17. Wash the batching plant externally with water to remove all built-up deposits		1.5	0.5	1
	PC18. Conduct visual inspection of the equipment		1.5	0.5	1
	PC19. Ensure that the equipment is lubricated properly		1.5	0.5	1
	PC20. Ensure defective components are replaced immediately		1	0	1
	PC21. Clean the rubber chute that discharges the cement into the mixer		1	0	1
	PC22. Wear dust masks when working around the plant		2	1	1
	PC23. Make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment		1.5	1	0.5
	PC24. Wear all PPE while sampling concrete and for all operations		2	1	1
	PC25. Record input and output flow as per the desired formats of the organization		2	1	1
		Total	35	12	23
3. IES/N0148 Carry out maintenance and troubleshooting of the batching plant	PC1. Assess the right service schedule by tracking plant operating hours as per organizational procedures	20	1.5	1	0.5
	PC2. Perform basic housekeeping activities in the control room		2	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		3	1	2
	PC4. Inspect and /or adjust all belt wipers		1	0	1
	PC5. Blow clean all air filters on air compressor and aeration blowers		0.5	0	0.5
	PC6. Adjust tension of the chain and scoops unit		0.5	0	0.5
	PC7. Turn off the mains power from panel completely before carrying out maintenance work		0.5	0	0.5
	PC8. Keep all panels under shelter, water should not enter the panels		1	0.5	0.5
	PC9. Ensure that the mixer is stopped before making any adjustments		1	0.5	0.5
	PC10. Complete timely and legibly daily/ weekly maintenance sheets as provided by the company		1	0.5	0.5
	PC11. Ensure that defective parts are replaced immediately		1	0.5	0.5
	PC12. Clean magnetic oil plugs during each oil change		1	0.5	0.5
	PC13. Ensure that appropriate tools are used while troubleshooting		0.5	0	0.5
	PC14. Diagnose the problem		0.5	0	0.5
	PC15. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel		0.5	0	0.5

	PC16. Handle and dispose waste based on environmental guidelines at the work place		2	0.5	1.5
	PC17. Follow reporting procedures as laid down by the employer		0.5	0	0.5
	PC 18. Complete all documentation in the prescribed standards in a timely manner		1	0	1
	PC 19. Report and escalate problems/ incidents as required in a timely manner		1	1	0
		Total	20	7	13
4. IES/N7601 Comply with worksite health and safety guidelines	PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site	15	1.5	0.5	1
	PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite		1.5	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		1.5	0.5	1
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		1.5	0.5	1
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		2	1	1
	PC6. Operate various grades of fire extinguishers, as applicable		2.5	0.5	2
	PC7. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		1.5	0.5	1

	PC8. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		1.5	0.5	1
	PC9. Record and report details related to operations, incidents or accidents, as applicable		1.5	0.5	1
		Total	15	5	10
Grand Total			100	34	66