

## 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](mailto:standards@iescindia.com)

Ph no: +91 80 4212 6666



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### Introduction

## Qualification Pack - Junior Hot Mix Plant Operator

<b>SECTOR:</b>	INFRASTRUCTURE EQUIPMENT
<b>SUB SECTOR:</b>	Equipment Operations
<b>OCCUPATION:</b>	Operator
<b>REFERENCE ID:</b>	IES/Q0115
<b>ALIGNED TO:</b>	NCO-2004/NIL

**Brief Job Description:** The junior hot mix plant operator is required to assist the operator in operating 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.

<b>Qualifications Pack Code</b>	<b>IES/Q0115</b>		
<b>Job Role</b>	<b>Junior Hot Mix Plant Operator</b>		
<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	<b>Infrastructure equipment</b>	<b>Drafted on</b>	<b>14/04/16</b>
<b>Sub-sector</b>	<b>Equipment Operations</b>	<b>Last reviewed on</b>	<b>26/04/16</b>
<b>Occupation</b>	<b>Operator</b>	<b>Next review date</b>	<b>30/04/18</b>
<b>NSQC Clearance on</b>	<b>NA</b>		

<b>Job Role</b>	<b>Junior Hot Mix Plant Operator</b>
<b>Role Description</b>	The junior hot mix plant operator is required to assist the operator in operating asphalt plant for the production of hot mix asphalt based on the mix designs used in the construction, roadways and maintenance of roadways.
<b>NSQF level</b>	3
<b>Minimum Educational Qualifications</b>	Class VIII preferably.
<b>Maximum Educational Qualifications</b>	NA
<b>Training</b> (Suggested but not mandatory)	Certification Training in Hot Mix Plant Operations preferred
<b>Minimum Job Entry Age</b>	18 years
<b>Experience</b>	Preferably 2 year of experience assisting in operations of hot mix plant.
<b>Applicable National Occupational Standards (NOS)</b>	<p><b>Compulsory</b></p> <ol style="list-style-type: none"> <li><a href="#">IES/N0143 Assist in carrying out Pre-operation checks on hot mix plant</a></li> <li><a href="#">IES/N0144 Assist in carrying out hot mix plant operations</a></li> <li><a href="#">IES/N0145 Assist in regular maintenance of hot mix plant</a></li> <li><a href="#">IES/N7601 Comply with worksite health and safety guidelines</a></li> </ol> <p><b>Optional:</b> N.A.</p>
<b>Performance Criteria</b>	As described in the relevant OS units

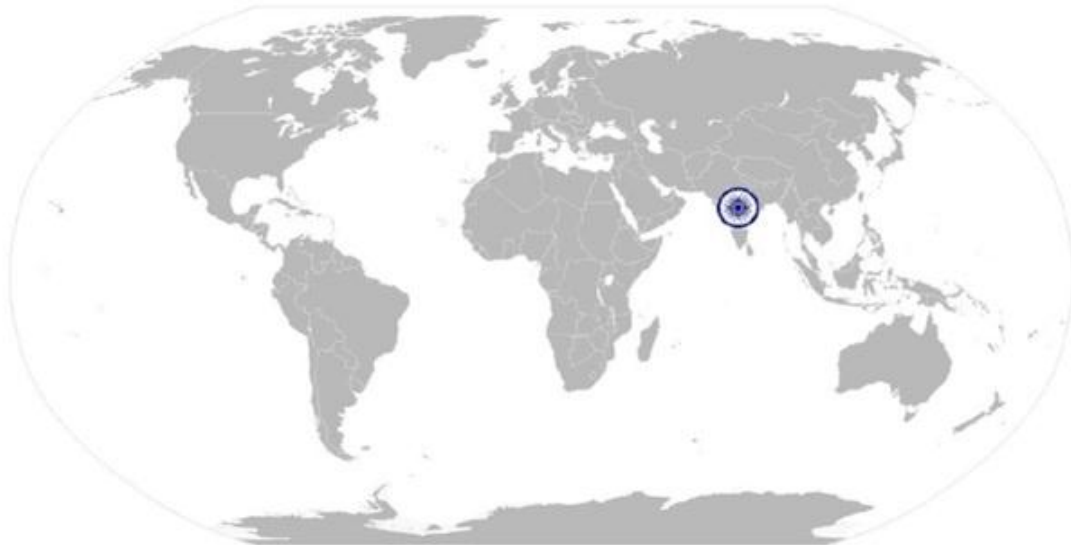
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further 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/N0143 Assist in carrying out Pre-operation checks on hot mix plant

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# National Occupational Standard



## Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out to carry out pre-operational checks on the hot mix plant.

**IES/N0143 Assist in carrying out Pre-operation checks on hot mix plant**

National Occupational Standard

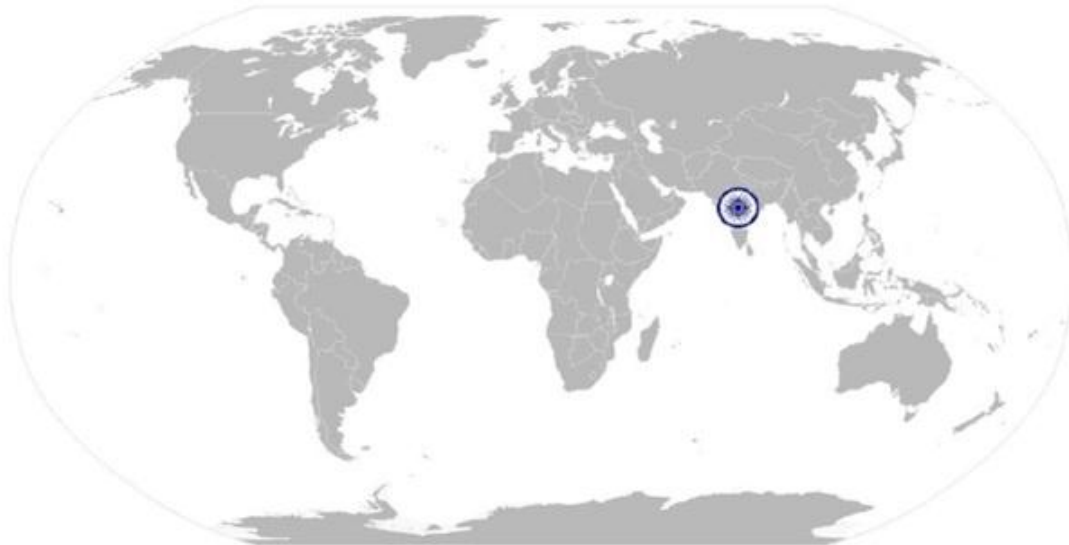
<b>Unit Code</b>	<b>IES/N0143</b>
<b>Unit Title (Task)</b>	<b>Assist in carrying out Pre-operation checks on hot mix plant</b>
<b>Description</b>	This unit provides insight into activities that need to be carried out to carry out pre-operational checks on the hot mix plant.
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Hot Mix Plant Checks</li> <li>• Material Checks</li> <li>• Reporting and Documentation</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Hot Mix Plant Checks</b>	To be competent, the user/individual on the job must be able to: <p>PC1. Assist in conducting visual inspection around the hot mix plant with the senior operator for oil leaks in different parts of the plant</p> <p>PC2. Assist in checking electrical connection including the motors used in the hot mix plant</p> <p>PC3. Check if the roller filters are free of impurities</p> <p>PC4. Check whether the bolts and other valves are appropriately fixed</p> <p>PC5. Fill diesel in the power generator as per operator's / supervisor's instructions</p> <p>PC6. Check all incoming electrical connections and the motors in the plant</p> <p>PC7. Check if the fuel and lubricant levels in the burners is as per the requirement</p> <p>PC8. Visually check the cabin for any obstructions</p>
<b>Material Checks</b>	<p>PC9. Check the amount and size of course aggregate and gravels are present in the hoppers</p> <p>PC10. Check if the quantity of the bitumen in the plant is as per the requirement of the mix design/ instructions from the operator</p> <p>PC11. Clear all the hoppers are clear and free from the obstructions if any</p> <p>PC12. Check for water levels in the drum and the pollution control bank as per the operator's instructions</p>
<b>Reporting and Documentation</b>	<p>PC13. Assist in maintaining a checking/maintenance logbook to record all activities performed before starting the operation</p> <p>PC14. Report defects precisely to the operator/supervisor</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <p>KA1. The organization's procedures and guidelines related to breakdown &amp; maintenance services</p> <p>KA2. The performance standards and 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 equipments</p> <p>KA7. Location and process for storage and disposal of waste material</p>

**IES/N0143 Assist in carrying out Pre-operation checks on hot mix plant**

	KA8. Safety policy of the company
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of hot mix plants, its uses and functions- drum mix and batch mix plant</p> <p>KB2. Components of hot mix plant and its functioning-</p> <ul style="list-style-type: none"> <li>- Cold bin feeder</li> <li>- Automatic weighing system</li> <li>- Mixing drums</li> <li>- Screeners</li> <li>- Exhaust control system</li> <li>- Bitumen unit</li> <li>- Pollution control device</li> <li>- Conveyor belts- hot mix, aggregate, gravel, gathering, charging, etc.</li> <li>- Hot mix surge silo</li> <li>- Filler systems</li> </ul> <p>KB3. Basics of engine and motor functions</p> <p>KB4. Types of aggregates and its physical qualities</p> <p>KB5. Different types of motor and their respective capacities used in hot mix plant- drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc.</p> <p>KB6. Significance and methods of lubricating different parts of hot mix plant</p> <p>KB7. Basic electrical functioning and repairs</p>
<b>Skills (S)</b>	
<b>A. Core Skills / Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:
	SA1. Record any deviations/ incidents as per prescribed norms
	<b>Reading Skills</b>
	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.	
SA3. Comprehend basic signs and symbols used on the site	
<b>Oral Communication (Listening and Speaking Skills)</b>	
The user/ individual on the job needs to know and understand how to:	
SA4. Use correct technical terms while interacting with operator/supervisor	
<b>B. Professional Skills</b>	<b>Decision Making</b>
	The user/ individual on the job needs to know and understand how to:
	SB1. Decide when to take assistance from the operator/supervisor
	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to:
	SB2. Work with operators/ supervisors/ team mates to carry out work
<b>Customer Centricity</b>	
The user/ individual on the job needs to know and understand how to:	
SB3. Provide service of the highest order to ensure customer satisfaction	
<b>Problem Solving</b>	

**IES/N0143 Assist in carrying out Pre-operation checks on hot mix plant**

	The user/ individual on the job needs to know and understand how to: SB4. Identify immediate or temporary solutions to resolve mechanical issues
	<b>Analytical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB5. Identify cause and effect relations in his area of work
	<b>Critical Thinking</b>
	The user/ individual on the job needs to know and understand how to: SB6. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently



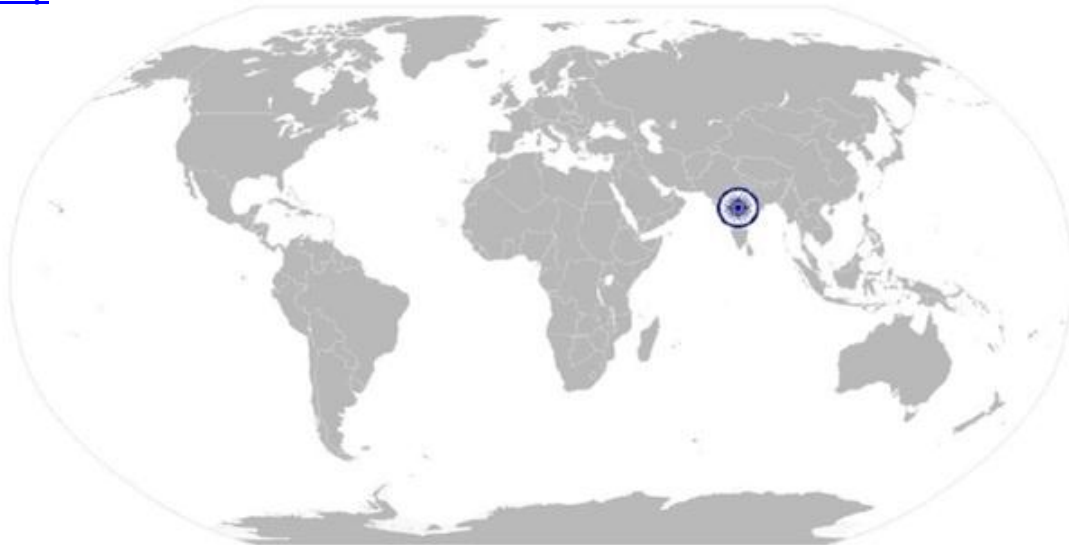


**IES/N0143 Assist in carrying out Pre-operation checks on hot mix plant**

**NOS Version Control**

<b>NOS Code</b>	<b>IES/N0143</b>		
<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	<b>Infrastructure equipment</b>	<b>Drafted on</b>	<b>14/04/16</b>
<b>Industry Sub-sector</b>	<b>Equipment Operations</b>	<b>Last reviewed on</b>	<b>26/04/16</b>
<b>Occupation</b>	<b>Operator</b>	<b>Next review date</b>	<b>30/04/18</b>

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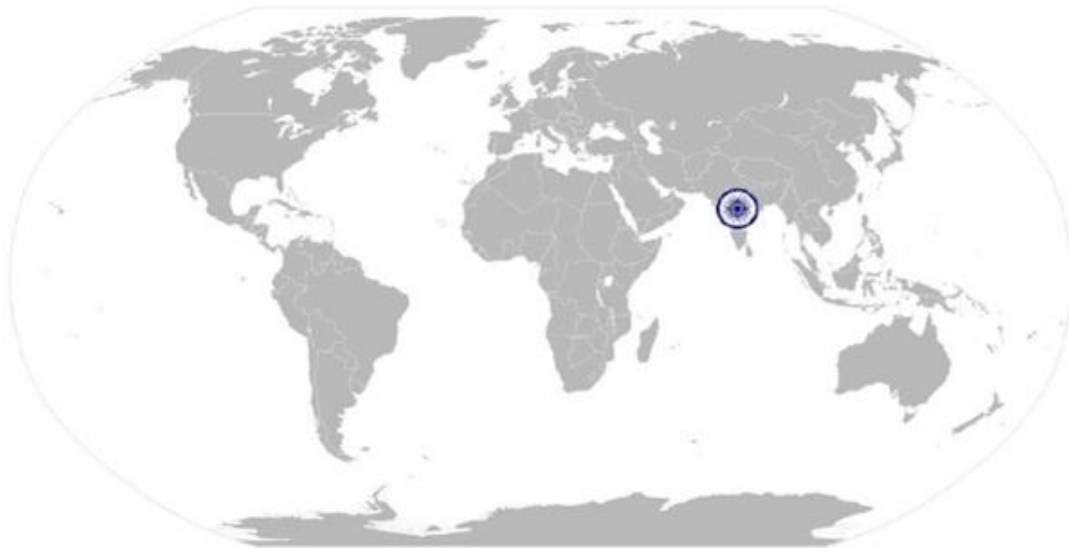


IES/N0144

Assist in carrying out hot mix plant operations

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# National Occupational Standard



## Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for starting and running the hot mix plant.

**IES/N0144**
**Assist in carrying out hot mix plant operations**

<b>Unit Code</b>	<b>IES/N0144</b>
<b>Unit Title (Task)</b>	<b>Assist in carrying out hot mix plant operations</b>
<b>Description</b>	This unit provides insight into activities that are required for starting and running the hot mix plant.
<b>Scope</b>	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Preparatory activities</li> <li>• Hot Mix plant Operation</li> <li>• Safety during operations</li> <li>• Reporting and Documentation</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Preparatory activities</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Check if the pipeline of the bitumen is clear the residual from previous operations as per instructions of the operator/ supervisor</p> <p>PC2. Check the temperature of the bitumen and keep it ready 12 hours before mixing as per instructions from the operator/supervisor</p> <p>PC3. Turn on the exhaust motor to clear the dust from the filler elevators as per operator/ supervisor's instructions</p> <p>PC4. Assist in test run of the hot mix plant to check the normal functioning of the plant</p>
<b>Hot Mix Plant Operation</b>	<p>PC5. Assist in starting components in correct order manually or through computer controls</p> <p>PC6. Assist in checking flow of materials into the mixing drum based on the instructions from the operator/ supervisor</p> <p>PC7. Provide indications to the operator to control the speed and flow of different materials</p> <p>PC8. Assist the operator in monitoring the temperature of the bitumen regularly</p> <p>PC9. Coordinate with the co-workers to ensure regular supply of raw materials in the appropriate hoppers</p> <p>PC10. Remove obstructions if any during the operations based on instructions from the operator/ supervisor</p> <p>PC11. Check water supply in the mixing drum and pollution bank as per the instructions from the operator/ supervisor</p> <p>PC12. Check the output is as per the mix design/ customer requirements</p> <p>PC13. Check the weigh hopper for appropriate flow of output</p> <p>PC14. Check proper flow of hot mix in hot mix surge silo as per the requirement</p> <p>PC15. Coordinate with the vehicle operators for collecting the output</p> <p>PC16. Inform operator/ supervisor of any problems during hot mix plant operations</p>
<b>Safety during operations</b>	<p>PC17. Wear dust masks when working around the plant</p> <p>PC18. Make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment</p>

**IES/N0144**

**Assist in carrying out hot mix plant operations**

	PC19. Wear all PPE while sampling asphalt binder and for all operations
<b>Reporting and Documentation</b>	PC20. Assist the operator in recording input and output flow as per the desired formats of the organization
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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 &amp; maintenance services</p> <p>KA2. The performance standards &amp; 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. Contact person in case of queries on procedure or equipments</p> <p>KA6. Location and process for storage and disposal of waste material</p> <p>KA7. Safety policy of the company</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of hot mix plants, its uses and functions: Drum mix plant and batch type plant</p> <p>KB2. Components of hot mix plant and its functioning-</p> <ul style="list-style-type: none"> <li>- Cold bin feeder</li> <li>- Automatic weighing system</li> <li>- Mixing drums</li> <li>- Screeners</li> <li>- Exhaust control system</li> <li>- Bitumen unit</li> <li>- Pollution control device</li> <li>- Conveyor belts- hot mix, aggregate, gravel, gathering, charging, etc.</li> <li>- Hot mix surge silo</li> <li>- Filler systems</li> </ul> <p>KB3. Basics of engine and motor functions</p> <p>KB4. Types of raw materials and its physical qualities- gravel, aggregate, limestone, bitumen, etc.</p> <p>KB5. Different types of motor used in hot mix plant- drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc.</p> <p>KB6. Sequence of activities for starting the operation</p> <p>KB7. Instrument panel / cabin controls, their location and operation</p> <p>KB8. Basic electrical functioning and repairs</p>
<b>Skills (S)</b>	
<b>A. Core Skills / Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:
	SA1. Record any deviations/ incidents as per prescribed norms
<b>A. Core Skills / Generic Skills</b>	<b>Reading Skills</b>
	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.
	SA3. Comprehend basic sign and symbols at the worksite

**IES/N0144**

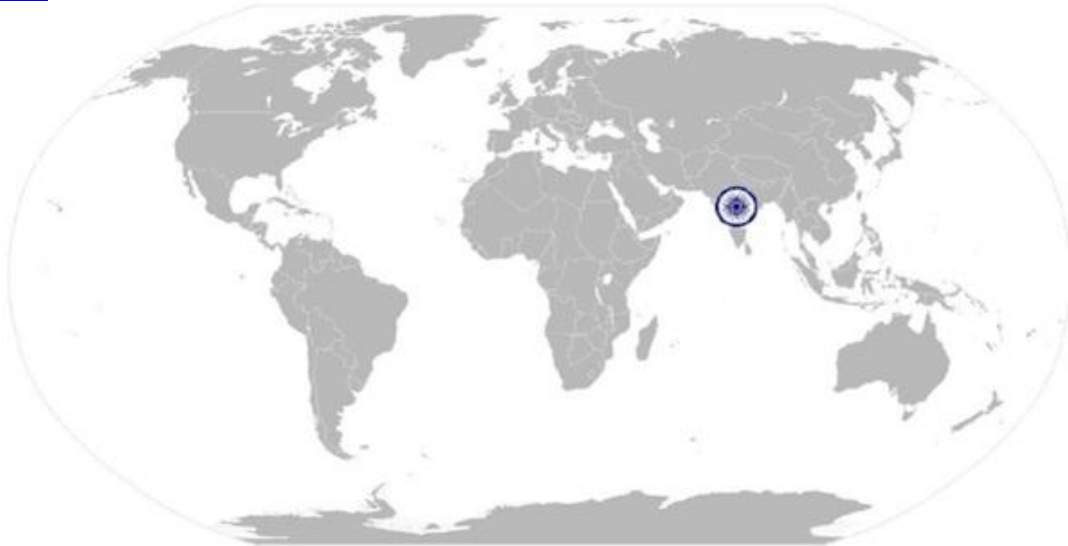
**Assist in carrying out hot mix plant operations**

<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking Skills)</b>
	The user/ individual on the job needs to know and understand how to: SA4. Use correct technical terms while interacting with the operators/ supervisor
	<b>Decision Making</b>
	The user/ individual on the job needs to know and understand how to: SB1. Assess for any damage/faulty component in the hot mix plant and inform the operator/supervisor
	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to: SB2. Work with operator/supervisors/ team mates to carry out work related tasks
	<b>Customer Centricity</b>
	The user/ individual on the job needs to know and understand how to: SB3. Provide service of the highest order to ensure customer satisfaction
	<b>Problem Solving</b>
	The user/ individual on the job needs to know and understand how to: SB4. Identify immediate or temporary solutions to resolve mechanical issues SB5. Judge when to seek assistance from operator/ supervisor
<b>Analytical Thinking</b>	
The user/ individual on the job needs to know and understand how to: SB6. Identify cause and effect relations in his area of work	
<b>Critical Thinking</b>	
The user/ individual on the job needs to know and understand how to: SB7. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently	

## IES/N0144 Assist in carrying out hot mix plant operations NOS Version Control

<b>NOS Code</b>	<b>IES/N0144</b>		
<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	<b>Infrastructure equipment</b>	<b>Drafted on</b>	<b>14/04/16</b>
<b>Industry Sub-sector</b>	<b>Equipment Operations</b>	<b>Last reviewed on</b>	<b>26/04/16</b>
<b>Occupation</b>	<b>Operator</b>	<b>Next review date</b>	<b>30/04/18</b>

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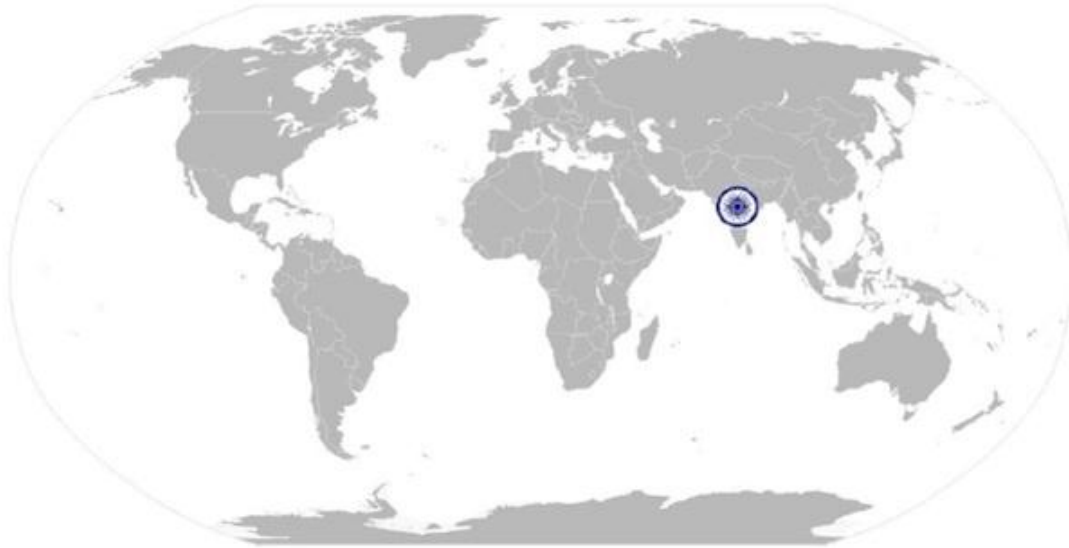


IES/N0145

Assist in regular maintenance of hot mix plant

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# 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 hot mix plant.

**IES/N0145**
**Assist in regular maintenance of hot mix plant**

<b>Unit Code</b>	<b>IES/N0145</b>
<b>Unit Title (Task)</b>	<b>Assist in regular maintenance of hot mix plant</b>
<b>Description</b>	This unit provides insight into activities that are required for performing routine maintenance and troubleshooting hot mix plant.
<b>Scope</b>	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Routine maintenance</li> <li>• Repair and troubleshooting</li> <li>• Reporting and documentation</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Routine maintenance</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Assist in performing scheduled maintenance, such as replace worn parts such as belts, roller bearings, etc.</p> <p>PC2. Assist in basic maintenance, such as change spark plug, grease controls, cleaning of conveyor belts as per instructions from the operator/supervisor</p> <p>PC3. Check bearings at the burner end of the slinger conveyor for excessive heating</p> <p>PC4. Replenish coolants, lubricants and fluids regularly as per the instructions from the operator/ supervisor</p> <p>PC5. Change filter, clean and change flame-eye regularly as per instructions from the operator/supervisor</p> <p>PC6. Inspect silos, fuel tanks for leaks or scattering of concrete or limestone regularly</p> <p>PC7. Lubricate all pins and pivot points regularly as per instructions from the operator/ supervisor</p> <p>PC8. Check battery levels and condition of the terminals and carry out minor adjustments if required</p>
<b>Repair and troubleshooting</b>	<p>PC9. Assist in repair or replacement of defective components, such as motor, burner, temperature control</p> <p>PC10. Identify missing or defective components or controls as per the equipment drawings</p> <p>PC11. Comply with safety requirements, such as confined space, lock-out procedures</p>
<b>Reporting and documentation</b>	<p>PC12. Assist in maintaining records and documentation relating to service, such as log books, repair lists, etc.</p> <p>PC13. Follow reporting procedures as laid down by the employer</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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 &amp; maintenance services</p> <p>KA2. The performance standards &amp; 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>



**IES/N0145**

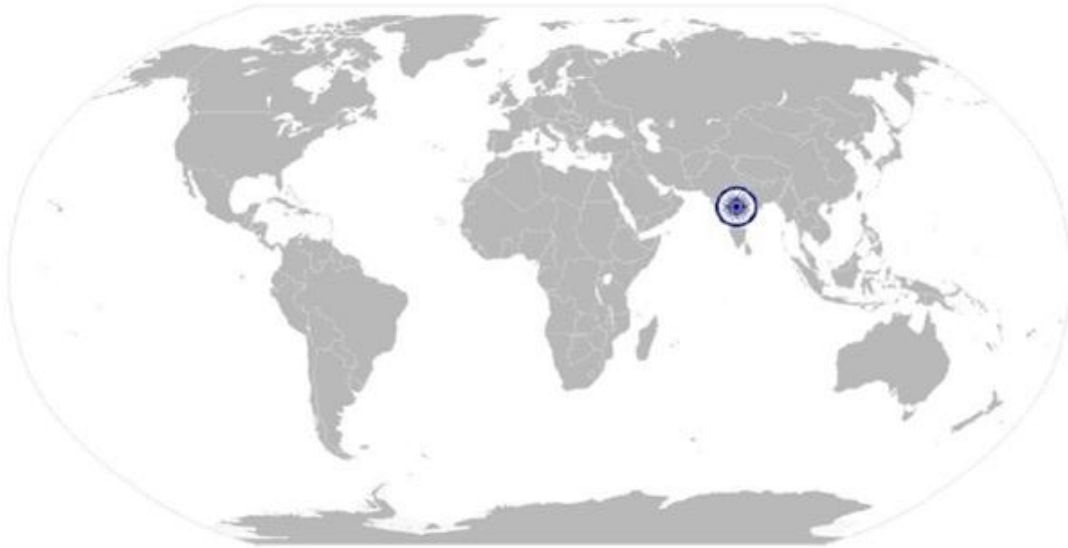
**Assist in regular maintenance of hot mix plant**

	<p>KA5. Location of tools</p> <p>KA6. Contact person in case of queries on procedure or equipments</p> <p>KA7. Location and process for storage and disposal of waste material</p> <p>KA8. Safety policy of the company</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of hot mix plants, its uses and functions- drum type and batch type</p> <p>KB2. Basics of engine and motor functions</p> <p>KB3. Different types of motor used in hot mix plant- drum, exhaust, conveyor, gathering conveyor, drum hydraulic, slinger, pollution bank, etc.</p> <p>KB4. Significance and methods of lubricating different parts of hot mix plant</p> <p>KB5. Basic electrical functioning and repairs</p> <p>KB6. Basic plant maintenance procedures</p>
<b>Skills (S)</b>	
<b>A. Core Skills / Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:
	SA1. Record any deviations/ incidents as per prescribed norms
	<b>Reading Skills</b>
	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.
<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking Skills)</b>
	The user/ individual on the job needs to know and understand how to:
	SA3. Use correct technical terms while interacting with supervisor
	<b>Decision Making</b>
	The user/ individual on the job needs to know and understand how to:
	SB1. Assess for any damage/faulty component in the hot mix plant and take actions accordingly
	<b>Plan and Organize</b>
	The user/ individual on the job needs to know and understand how to:
	SB2. Work with operator/ supervisors/ team mates to carry out work related tasks
	<b>Customer Centricity</b>
	The user/ individual on the job needs to know and understand how to:
SB3. Provide service of the highest order to ensure customer satisfaction	
<b>Problem Solving</b>	
The user/ individual on the job needs to know and understand how to:	
SB4. Identify immediate or temporary solutions to resolve mechanical issues	
SB5. Judge when to seek assistance from operator/supervisor	
<b>Analytical Thinking</b>	
The user/ individual on the job needs to know and understand how to:	
SB6. Identify cause and effect relations in his area of work	
<b>Critical Thinking</b>	
The user/ individual on the job needs to know and understand how to:	
SB7. Analyse, evaluate and apply the information gathered from	

**IES/N0145**

**Assist in regular maintenance of hot mix plant**

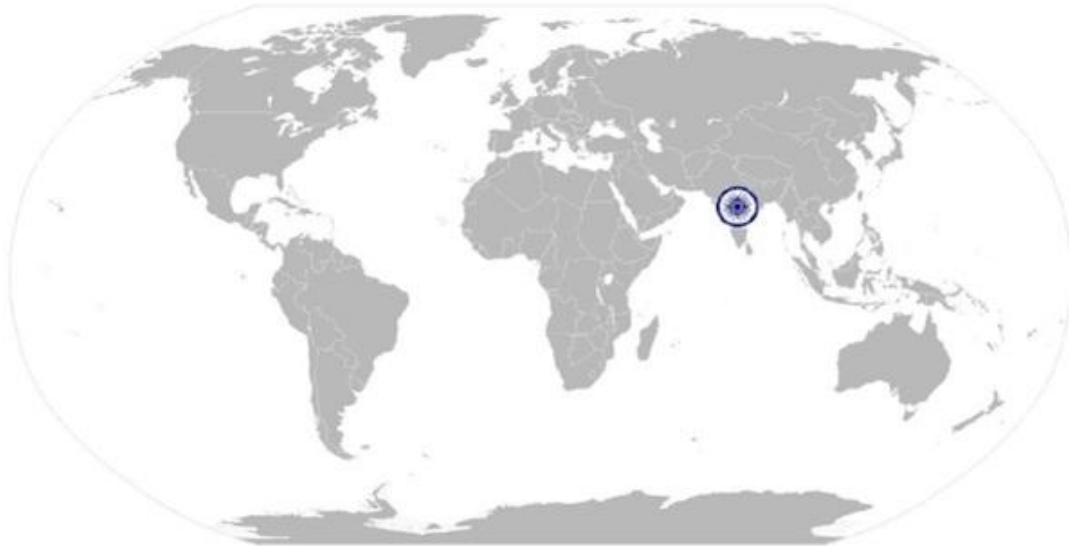
observation, experience, reasoning, or communication to act efficiently



## IES/N0145 Assist in regular maintenance of hot mix plant NOS Version Control

NOS Code	IES/N0145		
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

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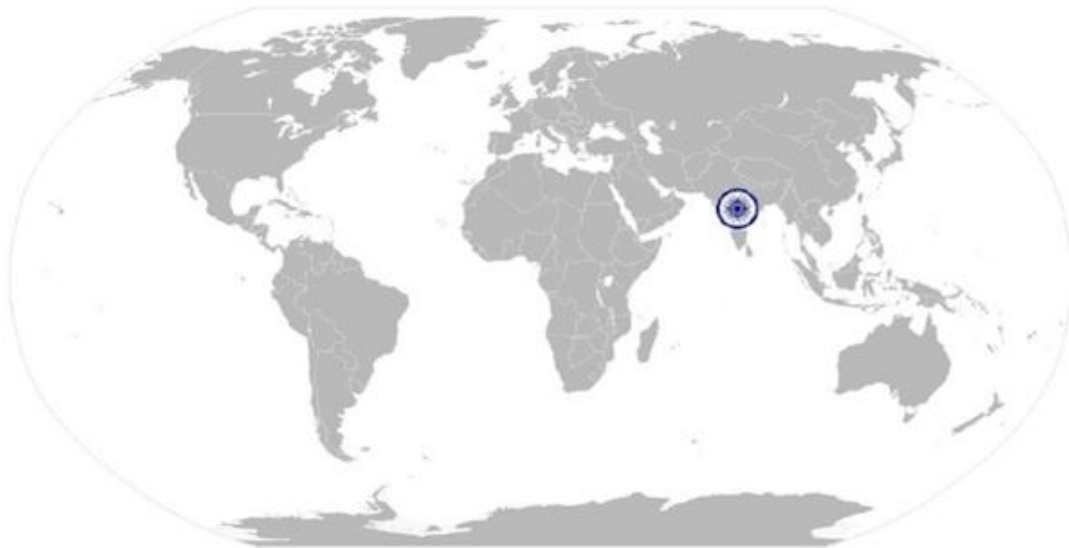


IES/N7601

Comply with worksite health and safety guidelines

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# 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

<b>Unit Code</b>	<b>IES/N7601</b>
<b>Unit Title (Task)</b>	<b>Comply with worksite health and safety guidelines</b>
<b>Description</b>	This unit is about adhering to health and safety requirements at the worksite during equipment operations.
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Worksite health and safety</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Worksite health and safety</b>	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 situation, within limits of your role and responsibility PC9. Record and report details related to operations, incidents or accidents, as applicable
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. Health, safety, environmental(HSE) and security related policies/ guidelines of the organization and the worksite and its importance KA2. Personnel responsible for Health, Safety and environment (HSE) related matters and their contact details KA3. Location of worksite storage, HSE team and safe assembly points KA4. Reporting and documentation procedures for HSE and security matters
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. Manufacturer's guidelines related to health and safety requirements KB2. Common types of health, safety, environment and security risks related to the worksite and operations KB3. Types, use and importance of Personal Protective Equipment (PPE) and other safety gear KB4. Safe working practices to avoid common hazards and risks KB5. Guidelines for transport, storage and disposal of hazardous materials and waste

**IES/N7601**

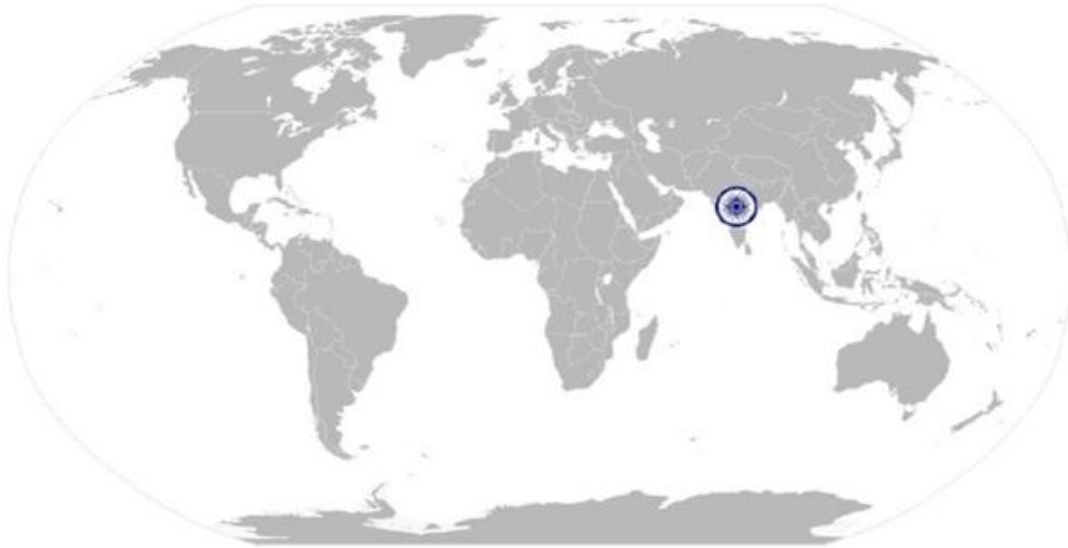
**Comply with worksite health and safety guidelines**

	<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>
<b>Skills (S)</b>	
<p><b>A. Core Skills / Generic Skills</b></p>	<p><b>Writing Skills</b></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><b>Reading Skills</b></p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA2. Read and comprehend basic symbols and signage related health and safety</p> <p>SA3. Read organizational and equipment related health and safety manuals and documents</p> <p>SA4. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations</p>
	<p><b>Oral Communication (Listening and Speaking Skills)</b></p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA5. Give clear instructions to co-workers, subordinates and other personnel</p> <p>SA6. Use correct technical terms while interacting with supervisor</p>
<p><b>B. Professional Skills</b></p>	<p><b>Decision Making</b></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><b>Plan and Organize</b></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><b>Customer Centricity</b></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><b>Problem Solving</b></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><b>Analytical Thinking</b></p>	
<p>The user/ individual on the job needs to know and understand how to:</p> <p>SB7. Assess the intensity of the fire accident and operate fire extinguishers</p>	
<p><b>Critical Thinking</b></p>	

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### Comply with worksite health and safety guidelines

	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
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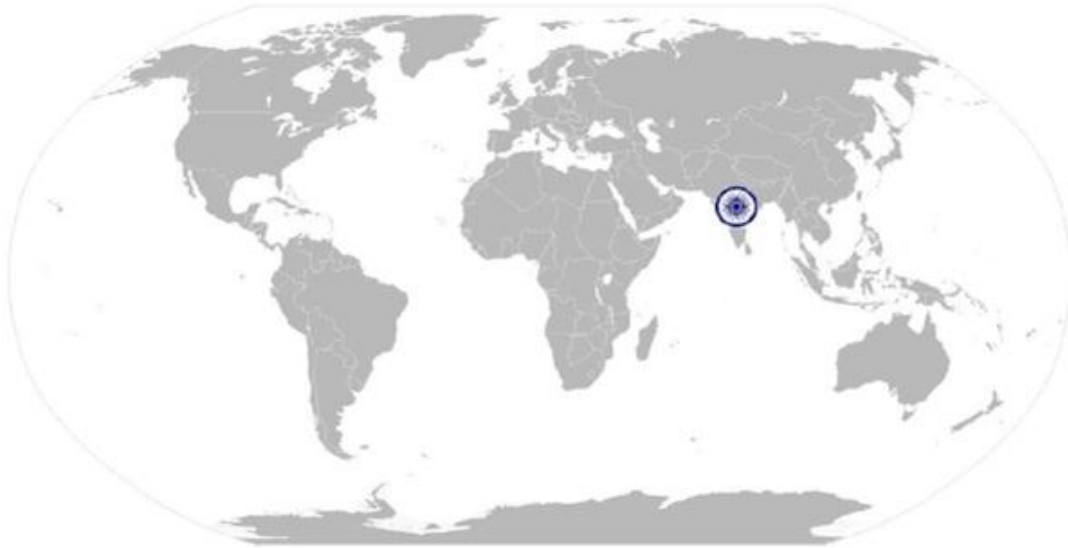


## IES/N7601 Comply with worksite health and safety guidelines

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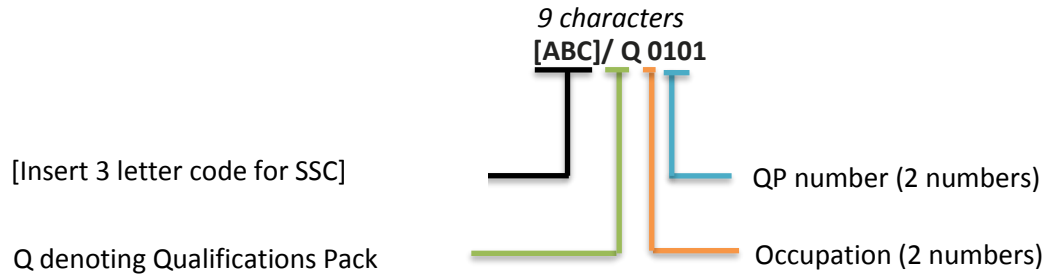




## Annexure

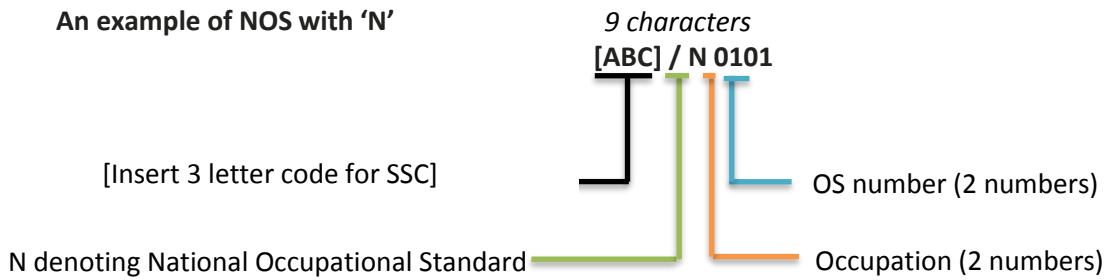
### Nomenclature for QP and NOS

#### 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** Junior Hot Mix Plant Operator

**Qualification Pack** IES/Q0115

**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 50% 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/N0143 Assist in carrying out pre-operation checks on hot mix plant	PC1. Assist in conducting visual inspection around the hot mix plant with the senior operator for oil leaks in different parts of the plant	<b>35</b>	3	1	2
	PC2. Assist in checking electrical connection including the motors used in the plant		2	1	1
	PC3. Check if the roller filters are free of impurities		2	1	1

	PC4. Check whether the bolts and other valves are appropriately fixed		3	1	2
	PC5. Fill diesel in the power generator as per operator's / supervisor's instructions		3	1	2
	PC6. Check all incoming electrical connections and the motors in the plant		3	1	2
	PC7. Check if the fuel and lubricant levels in the burners is as per the requirement		2	1	1
	PC8. Visually check the cabin for any obstructions		2	1	1
	PC9. Check the amount and size of course aggregate and gravels are present in the hoppers		1.5	0.5	1
	PC10. Check if the quantity of the bitumen in the plant is as per the requirement of the mix design/ instructions from the operator		3	1	2
	PC11. Clear all the hoppers are clear and free from the obstructions if any		2.5	0.5	2
	PC12. Check for water levels in the drum and the pollution control bank as per the operator's instructions		2.5	0.5	2
	PC13. Assist in maintaining a checking/maintenance logbook to record all activities performed before starting the operation		2.5	0.5	2
	PC.14 Report defects precisely to the operator/supervisor		3	1	2
	<b>Total</b>	<b>Total</b>	<b>35</b>	<b>12</b>	<b>23</b>
2. IES/N0144 Assist to carrying out hot mix plant operations	PC1. Check if the pipeline of the bitumen is clear the residual from previous operations as per instructions of the operator/ supervisor	<b>30</b>	3	1	2

	PC2. Check the temperature of the bitumen and keep it ready 12 hours before mixing as per instructions from the operator/supervisor		3	1	2
	PC3. Turn on the exhaust motor to clear the dust from the filler elevators as per operator/ supervisor's instructions		1	0.5	0.5
	PC4. Assist in test run of the hot mix plant to check the normal functioning of the plant		1	0.5	0.5
	PC5. Assist in starting components in correct order manually or through computer controls		2.5	0.5	2
	PC6. Assist in checking flow of materials into the mixing drum based on the instructions from the operator/ supervisor		3	1	2
	PC7. Provide indications to the operator to control the speed and flow of different materials		3	1	2
	PC8. Assist the operator in monitoring the temperature of the bitumen regularly		2	1	1
	PC9. Coordinate with the co- workers to ensure regular supply of raw materials in the appropriate hoppers		1.5	1	0.5
	PC10. Remove obstructions if any during the operations based on instructions from the operator/ supervisor		1.5	1	0.5
	PC11. Check water supply in the mixing drum and pollution bank as per the instructions from the operator/ supervisor		1	0	1
	PC12. Check the output is as per the mix design/ customer requirements		1	0	1
	PC13. Check the weigh hopper for appropriate flow of output		1	0	1

	PC16. Check proper flow of hot mix in hot mix surge silo as per the requirement		1	0	1
	PC 17. Wear dust masks when working around the plant		1.5	0.5	1
	PC18. Make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment		1	0.5	0.5
	PC19. Wear all PPE while sampling asphalt binder and for all operations		1.5	0.5	1
	PC20. Assist the operator in recording input and output flow as per the desired formats of the organization		0.5	0	0.5
		<b>Total</b>	<b>30</b>	<b>10</b>	<b>20</b>
3. IES/N0145 Assist in regular maintenance of hot mix plant	PC1. Assist in performing scheduled maintenance, such as replace worn parts such as belts, roller bearings, etc.	<b>20</b>	3	1	2
	PC2. Assist in basic maintenance, such as change spark plug, grease controls, cleaning of conveyor belts as per instructions from the operator/ supervisor		3	1	2
	PC3. Check bearings at the burner end of the slinger conveyor for excessive heating		1.5	0.5	1
	PC4. Replenish coolants, lubricants and fluids regularly as per the instructions from the operator/ supervisor		1.5	0.5	1
	PC5. Change filter, clean and change flame-eye regularly as per instructions from the operator/supervisor		1.5	0.5	1
	PC6. Inspect silos, fuel tanks for leaks or scattering of concrete or limestone regularly		1.5	0.5	1

	PC7. Lubricate all pins and pivot points regularly as per instructions from the operator/ supervisor		1.5	0.5	1
	PC8. Check battery levels and condition of the terminals and carry out minor adjustments if required		1.5	0.5	1
	PC 9. Assist in repair or replacement of defective components, such as motor, burner, temperature control		1	0	1
	PC10. Identify missing or defective components or controls as per the equipment drawings		1	0.5	0.5
	PC11. Comply with safety requirements, such as confined space, lock-out procedures		1	0.5	0.5
	PC12. Assist in maintaining records and documentation relating to service, such as log books, repair lists, etc.		1.5	1	0.5
	PC13. Follow reporting procedures as laid down by the employer		0.5	0	0.5
		<b>Total</b>	<b>20</b>	<b>7</b>	<b>13</b>
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	<b>15</b>	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
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>10</b>
<b>Grand Total</b>			<b>100</b>	<b>34</b>	<b>66</b>