

Model Curriculum

Junior Batching Plant Operator

SECTOR: INFRASTRUCTURE EQUIPMENT
SUB-SECTOR: EQUIPMENT OPERATIONS
OCCUPATION: OPERATOR
REF ID: IES/Q0117, V1.0
NSQF LEVEL: 3



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

INFRASTRUCTURE EQUIPMENT SKILL COUNCIL

for the

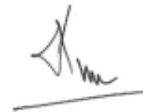
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Junior Batching Plant Operator' QP No. 'IES/ Q 0117 NSQF Level 3'

Date of Issuance: June 1st, 2017

Valid up to: April 30th, 2018

* Valid up to the next review date of the Qualification Pack



Authorized Signatory
(Infrastructure Equipment Skill Council)

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Junior Batching Plant Operator

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Junior Batching Plant Operator”, in the “Infrastructure Equipment” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Junior Batching Plant Operator		
Qualification Pack Name & Reference ID	IES/Q0117		
Version No.	1.0	Version Update Date	01 June 2017
Pre-requisites to Training	Preferably Class 8th Standard Certification Training in Batching Plant Operations preferred Preferably 2 years experience as 'helper' in batching plant operations		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Assist in carrying out pre-operation checks on a batching plant. General introduction to batching plants, basic working of various components sections, engine, hydraulic and electrical systems, operational controls and instrument panel, preparing machine and related systems for operations • Assist in operating a batching plant. Properties of materials cement and aggregates, starting of transit mixer, loading of materials, monitoring and regulating mixing, discharging of concrete, shutting down the plant; post-operative checks • Assist in carrying out regular maintenance of a batching plant. General maintenance procedures and periodic service schedule; common faults and their diagnosis; reports and documents. • Comply with worksite health and safety guidelines. Health, safety and environment policies; personal protective equipment, fire-fighting equipment, basic first aid for common injuries at work site 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Junior Batching Plant Operator” Qualification Pack issued by “Infrastructure Equipment Skill Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Assist in carrying out pre-operation checks on a transit mixer</p> <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 24:00</p> <p>Corresponding NOS Code IES/N0149</p>	<p>Organisational Context: Acquire working knowledge of the following:</p> <ul style="list-style-type: none"> • Organisation structure, reporting and escalation line. • Performance standards and procedures in the company. • Work target and review mechanism with supervisor • Location and process for storage and disposal of waste. <p>Technical Knowledge: Understand the fundamentals of the following:</p> <ul style="list-style-type: none"> • Different types of batching plant, features and performance. • Components and sections of batching plant and its functioning. • Equipment operating systems: <ul style="list-style-type: none"> ○ Hydraulic, electrical, pneumatic. ○ Weighing, storage, conveying, admix • Controls, levers, switches and instrument panel & fuse box • Procedure for filling and topping up of fuel, coolant, oils • Method of greasing and lubrication. • Optimal working condition of components and monitoring systems <p>Skills - Core & Professional. Acquire the ability to:</p> <ul style="list-style-type: none"> • Read & understand general instructions/guidelines related to equipment & worksite ops. • Write and record any incidents & deviations on the prescribed formats. • Orally communicate information & instructions to co-workers in a clear and concise manner. • Plan and organise work related tasks with all concerned in most efficient and cost effective way. <p>Performance Criteria: Execute the following tasks and procedures:</p> <ul style="list-style-type: none"> • Examine all parts, components and sections of the plant for damage and leakages. • Assist in checking all fluid levels in the engine, hydraulic & water systems; top 	<ul style="list-style-type: none"> • Scaled Model of Batching Plant for theory sessions • Live Batching Plant at nearby project site for practical sessions • Class room with audio-video system • Manufacturers O and M Manual & Video • Safety video • PPE Items & Safety Gear

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>up where necessary</p> <ul style="list-style-type: none"> • Check all V-drive and other belts for tension, wear and tear. • Check conveyors, boom scrapers and bucket elevators for free running. • Fill all bins and silos as per instructions. • Store the admix as per instructions and check dispensers are functional. • Empty the weigh hoppers of previous days operations. • Check all hoppers and doors for cleanliness and smooth functioning. • Remove cement and concrete build-up in the mixer and clean. • Inspect all greasing points and ensure lubrication. • Check all electrical wiring for damage and fitting. • Check all controls, gauges, lights and horns are functional. • Ensure safety equipment in place before operating the plant • Assist in maintaining a log book to record all actions done before starting. 	
2	<p>Assist in operating a batching plant.</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code IES/N0150</p>	<p>Organisational Context: Acquire working knowledge of the following:</p> <ul style="list-style-type: none"> • Procedures and guidelines related to breakdown & maintenance services. • Location of tools and equipment and procedure for issue and return. • Safety policy of the organisation and emergency drills. <p>Technical Knowledge. Understand the fundamentals of the following:</p> <ul style="list-style-type: none"> • Specs and features/performance/output of the batching plant. • Type and grade of cement, aggregates and admixture. • Feeding system into silos. • Starting procedure, basic operations and monitoring systems. • Stopping procedure including emergency stop button • Identification and correct usage of basic tools. • Various hand signals, safety & emergency signs at project site. <p>Skills - Core & Professional. Acquire the ability to:</p> <ul style="list-style-type: none"> • In addition to core and generic skills listed above 	<ul style="list-style-type: none"> • <u>Scaled Model of Batching Plant for theory sessions</u> • <u>Live Batching Plant at nearby project site for practical sessions</u> • Adequate stocks of cement, admixture and other aggregates. • Class room with audio-video system • Manufacturers O and M Manual & Video • Safety video • PPE Items & Safety Gear

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Interpret signage at project work site correctly. Use correct terminology while interacting with others at site Help plan work schedule in time bound and cost effective way. Help identify operational slow-downs and take timely remedial action. <p>Performance Criteria. Execute the following tasks and procedures:</p> <p>Starting and Monitoring.</p> <ul style="list-style-type: none"> Assist in starting components /systems in the correct order. Assist in monitoring and regulating materials as per instructions. In crisis operate emergency button to disconnect power to the plant. <p>Discharging of Concrete.</p> <ul style="list-style-type: none"> Ensure truck is correctly positioned under sock Assist in discharging the batched concrete safely and correctly into the delivery trucks /mixers. Assist in shutting down procedures as per instructions. Inspect for damages; leaks etc and report / take appropriate action. <p>Safety during operations</p> <ul style="list-style-type: none"> Ensure PPE is worn especially dust mask when moving around the plant. Ensure proper communication through correct hand signals and eye contact 	
3	<p>Assist in regular maintenance of a batching plant.</p> <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 26:00</p> <p>Corresponding NOS Code IES/N0151</p>	<p>Organisational Context: Acquire working knowledge of the following:</p> <ul style="list-style-type: none"> Emergency organisation structure and maintenance policy. Location of special tools and equipment/ accessories. <p>Technical Knowledge. Understand the fundamentals of the following:</p> <ul style="list-style-type: none"> Maintenance and service Schedule including related checklists Common defects and general causes for breakdown. <p>Skills - Core & Professional. Acquire the ability to:</p> <ul style="list-style-type: none"> In addition to core and generic skills 	<ul style="list-style-type: none"> <u>Scaled Model of Batching Plant for theory sessions</u> <u>Live Batching Plant at nearby project site for practical sessions</u> Class room with audio-video system Manufacturers O and M Manual & Video Safety video PPE Items & Safety Gear

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>listed above;</p> <ul style="list-style-type: none"> Plan maintenance & servicing keeping operational needs in mind. <p>Performance Criteria. Execute the following tasks and procedures:</p> <ul style="list-style-type: none"> Routine Maintenance: Wash & clean the plant externally to remove deposits Clean drum mixer internally as per instructions. Clean air filter, replenish lubes and coolants as necessary Lubricate/grease all the moving joints/pins and pivot points. Assist in basic housekeeping activities in the control room. Basic Trouble Shooting: Turn off the mains power from panel before carrying out maintenance activity. Assist in diagnosing the defect/problem and rectify; if need be seek advice from supervisor. Documentation & Reporting: Assist in maintaining records/documents. Report defects and problems in time and escalate as necessary 	
4	<p>Comply with Worksite Health and Safety Guidelines</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 10:00</p> <p>Corresponding NOS Code IES/N7601</p>	<p>Organisational Context. Acquire working knowledge of the following:</p> <ul style="list-style-type: none"> Health, safety, environmental (HSE) policies and guidelines of the company & their importance Contact details of personnel responsible for HSE related matters & in case of emergencies. Location of first aid room / station and assembly points. Reporting channel and documentation procedure for all HSE related matters. <p>Technical Knowledge. Understand the fundamentals of the following:</p> <ul style="list-style-type: none"> OEMs guidelines for health, safety and security requirements. Types, use and importance of Personal Protective Equipment (PPE) Types of common hazards and risks at worksite and preventive measures. In case of emergencies procedure to stop/ shut down machinery. Common injuries and appropriate basic first aid treatment. Firefighting equipment: Basic 	<ul style="list-style-type: none"> <u>Scaled Model of Batching Plant for theory sessions</u> <u>Live Batching Plant at nearby project site for practical sessions</u> Class room with audio-video system Organisation's ESH / Safety video PPE Items & Safety Gear Firefighting equipment & Charts First Aid Kit and Charts

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>knowledge of handling and using them.</p> <ul style="list-style-type: none"> • Guidelines for transport, storage and disposal of hazardous materials and waste • Safety signs/symbols and warnings used in worksites and their meaning <p>Skills - Core & Professional. Acquire the ability to:</p> <ul style="list-style-type: none"> • In addition to the core and generic skills listed above • Use correct PPE and other safety gear while in the work site. <p>Performance Criteria. Execute the following tasks and performances:</p> <ul style="list-style-type: none"> • Comply with safety, health, environment and security related regulations & guidelines at work. • Correct use of Personal Protective Equipment (PPE) and other safety gear at work site. • Follow safety measures during operations to ensure health and safety of self and others; general public not at risk. • Operate fire extinguishers as applicable. • Support in administering basic first aid. • Record and report details as related to operations, incidents or accidents as applicable. 	
	<p>Total Duration</p> <p>Theory Duration 40:00</p> <p>Practical Duration 80:00</p>	<p>Unique Equipment Required:</p> <ul style="list-style-type: none"> • <u>Scaled Model of Batching Plant for theory sessions</u> • <u>Live Batching Plant at nearby project site for practical sessions</u> • Adequate stocks of cement, admixtures and other aggregates. • Class room with audio-video projection system • Manufacturers O and M Manual & Video; Safety video • PPE Equipment: Helmet, gloves, earplugs, goggles, safety shoes • Firefighting equipment and 'How to Use' Charts • First Aid Box and 'How to Do' Charts 	

Grand Total Course Duration: **120 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Infrastructure Equipment Skill Council](#))

Trainer Pre-requisites for Job role: “Junior Batching Plant Operator” mapped to Qualification Pack: “IES/Q0117, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “IES/Q 0117 Version 1.0”.
2	Personal Attributes	Aptitude for conducting training, with strong communication and interpersonal skills. Passion for training and developing others; well-organised; and a team player. Eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Class 8 th ; preferably 10 th
4a	Domain Certification	Certified for Job Role: “ <u>Junior Batching Plant Operator</u> ” mapped to QP: “ <u>IES/Q 0117 – Version 1.0</u> ”. Minimum accepted score 70%. Desired: Certification Training in Batching Plant Operations & Maintenance
4b	Platform Certification	Certified for Job Role: “ <u>Trainer</u> ” mapped to Qualification Pack: SSC/1402. Minimum accepted score 70%.
5	Experience	<ul style="list-style-type: none"> • Around 3 to 4 years’ site experience in Batching Plant Operations. • At least 1 to 2 years’ experience in conducting O and M training programs.

Assessment Criteria	
Job Role	Junior Batching Plant Operator
Qualification Pack	IES/Q 0117 Version 1.0
Sector Skill Council	Infrastructure Equipment

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for Qualification Pack has been laid down based on the NOS's. Each Performance Criteria (PC) has been assigned marks proportional to its importance within NOS.SSC will also lay down proportion of marks for Theory and Skill 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.

Assessment Outcomes	Assessment Criteria for the outcome	Total Mark	Marks Allocation		
			Out of	Theory	Skills Practical
1. IES/N0149 Assist in carrying pre-operation checks on a batching plant	PC1. Assist in inspecting oil and filter on air compressor, drain tank manifolds and all water traps as per the procedures set by the manufacturer	35	2	1	1
	PC2. Check the oil level in all gear boxes, hydraulic unit, drum motor oil and auto-roll as per instructions from the operator/supervisor		1	0	1
	PC3. Fill all the bins and silos as per instructions from the operator/ supervisor		2	1	1
	PC4. Check for tensions on all V-drive belts and other belts for wear and tear as per the instructions from the operator/supervisor		1	0	1
	PC5. Store the liquid admixtures as per the organizational standards to avoid contamination		3	1	2

	PC6. Check that admixture dispensers are in good working condition as stated by the operator/ supervisor		2	1	1
	PC7. Ensure that safety equipment is present and securely mounted as per the organizational standards		1	0	1
	PC8. Check for wiring damage and loose electrical fitting for the electric drive motors		2	1	1
	PC9. Turn off mixer motor before carrying out mixer cleaning or chipping		2	1	1
	PC10. Empty the weigh hoppers from the previous day's operation		2	0	2
	PC11. Clean the area under plant for spillage and trace source		1	0	1
	PC12. Check conveyors, boom scrapers and bucket elevators for free running and wear, and adjust as per the instructions from the operator's supervisors		3	1	2
	PC13. Check all hoppers and doors are in clean and efficient working order		1	0	1
	PC14. Check tightness of all hydraulic connections and the condition of flexible tubes		2	1	1
	PC15. Check and remove any cement or concrete build up in the mixer		1	0	1
	PC16. Check dust seals on cement hoppers for wear		3	1	2
	PC17. Check mixer drum for structural cracks or damage		1	0	1
	PC18. Ensure that before work, the machine should have an empty running		2	1	1
	PC19. Assist in maintaining a check/maintenance logbook to record all activities performed before starting the batching plant		1	0	1
	PC20. Report defects precisely to the operator/ supervisor		2	1	1
		Total	35	11	24

2. IES/N0150 Assist in carrying out batching plant operations	PC1. Assist in starting components in correct order as per instructions from the operator/ supervisor	30	3	1	2
	PC2. Assist in monitoring and regulate materials such as proportions of aggregates, cement, water, and admixtures as per instructions from the operator/ supervisor		3	1	2
	PC3. Use the emergency stop button to disable all power to the batching plant in case of a crisis, as per instructions from the operator/supervisor		3	1	2
	PC4. Coordinate with ground personnel, loader operators and truck drivers		3	1	2
	PC5. Ensure that truck is properly positioned under sock to ensure correct direction of the drum		4	1	3
	PC6. Discharge batched concrete into delivery trucks/mixers as per instructions from the operator/ supervisor		3	1	2
	PC7. Assist in shutting down procedures as per instructions from the operator/ supervisor		3	1	2
	PC8. Wear dust masks when working around the plant		2	0	2
	PC9. Make positive eye contact with other equipment operators at the site before crossing in front of or behind the equipment		3	1	2
	PC10. Wear all PPE while sampling concrete and for all operations		3	1	2
		Total	30	9	21
3. IES/N0151 Assist in regular maintenance of the batching plant	PC1.Clean drum mixer internally as per instructions from the operator/ supervisor	20	1.5	0.5	1
	PC2.Wash the batching plant externally with water to remove all built-up deposits as per instructions from the operator/ supervisor		1	0	1
	PC3.Lubricate the equipment in different parts as per instructions of the operator		1	0	1

	PC4.Replace defective components as per instructions from the operator/ supervisor		1.5	0.5	1
	PC5.Clean the rubber chute that discharges the cement into the mixer as per instructions from the operator/ supervisor		2	1	1
	PC6.Assist in performing basic housekeeping activities in the control room		1	0	1
	PC7.Adjust all belt wipers as per instructions from the operator/ supervisor		1.5	1	0.5
	PC8.Blow clean all air filters on air compressor and aeration blowers as per instructions from the operator/ supervisor		1	0	1
	PC9.Adjust tension of the chain and scoops unit as per instructions from the operator/ supervisor		1	0	1
	PC10.Turn off the mains power from panel completely before carrying out maintenance work		1	0	1
	PC11.Replace the defective parts are replaced immediately as per instructions from the operator/ supervisor		1.5	1	0.5
	PC12 Clean magnetic oil plugs during each oil change as per instructions from the operator/ supervision		1.5	0.5	1
	PC13. Handle and dispose waste based on environmental guidelines at the work place		1	0	1
	PC14.Follow reporting procedures as laid down by the employer		2	1	1
	PC15.Report and escalate problems/ incidents as required in a timely manner		1.5	0.5	1
		Total	20	6	14
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	2	1	1

	PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite instructions from the operator/supervisor		1	0	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		2	1	1
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		1	0	1
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		3	1	2
	PC6. Operate various grades of fire extinguishers, as applicable		1	0	1
	PC7. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		2	1	1
	PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		1	0	1
	PC9. Record and report details related to operations, incidents or accidents, as applicable		2	1	1
		Total	15	5	10