

# Model Curriculum

## Junior Transit Mixer Operator

**SECTOR: INFRASTRUCTURE EQUIPMENT**  
**SUB-SECTOR: EQUIPMENT OPERATIONS**  
**OCCUPATION: OPERATOR**  
**REF ID: IES/Q0119, 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 Transit Mixer Operator' QP No. 'IES/Q 0119 NSQF Level 3'

Date of Issuance: October 1<sup>st</sup>, 2016

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Authorized Signatory  
(Infrastructure Equipment Skill Council)

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# Junior Transit Mixer Operator

## CURRICULUM / SYLLABUS

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

<b>Program Name</b>	<b>Junior Transit Mixer Operator</b>		
<b>Qualification Pack Name &amp; Reference ID</b>	IES/Q0119		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	Preferably Class 8th Standard Certification Training in Transit Mixer Operations preferred		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• <b>Assist in carrying out pre-operation checks on a transit mixer.</b> General introduction to transit mixer, basic working of concrete mixers, engine, hydraulic and electrical systems, operational controls and instrument panel, preparing machine and related systems for operations</li> <li>• <b>Assist in operating a transit mixer.</b> Properties of materials cement and aggregates, starting of transit mixer, loading of materials, monitoring and regulating mixing, discharging of concrete, shutting down the mixer; post-operative checks</li> <li>• <b>Assist in carrying out regular maintenance of a transit mixer.</b> General maintenance procedures and periodic service schedule; common faults and their diagnosis; reports and documents.</li> <li>• <b>Comply with worksite health and safety guidelines.</b> Health, safety and environment policies; personal protective equipment, fire-fighting equipment, basic first aid for common injuries at work site</li> </ul>		

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

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Assist in carrying out pre-operation checks on a transit mixer</b></p> <p><b>Theory Duration</b> (hh:mm) 12:00</p> <p><b>Practical Duration</b> (hh:mm) 30:00</p> <p><b>Corresponding NOS Code</b> IES/N0134</p>	<p><b>Organisational Context: Acquire working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>• Organisation structure, reporting and escalation line.</li> <li>• Performance standards and procedures in the company.</li> <li>• Work target and review mechanism with supervisor</li> <li>• Location and process for storage and disposal of waste.</li> </ul> <p><b>Technical Knowledge: Understand the fundamentals of the following:</b></p> <ul style="list-style-type: none"> <li>• Different types of concrete mixers, features and performance.</li> <li>• Components of concrete mixer and its functioning.</li> <li>• Basic working of engine and all sub systems;             <ul style="list-style-type: none"> <li>◦ Transmission, Steering</li> <li>◦ Hydraulic &amp; Electrical.</li> </ul> </li> <li>• Controls, levers, switches and instrument panel &amp; fuse box</li> <li>• Procedure for filling and topping up of fuel, coolant, oils</li> <li>• Method of greasing and lubrication.</li> <li>• Optimal working condition of components and monitoring systems</li> </ul> <p><b>Skills - Core &amp; Professional. Acquire the ability to:</b></p> <ul style="list-style-type: none"> <li>• Read &amp; understand general instructions/guidelines related to equipment &amp; worksite ops.</li> <li>• Write and record any incidents &amp; deviations on the prescribed formats.</li> <li>• Orally communicate information &amp; instructions to co-workers in a clear and concise manner.</li> <li>• Plan and organise work related tasks with all concerned in most efficient and cost effective way.</li> </ul> <p><b>Performance Criteria: Execute the following tasks and procedures:</b></p> <ul style="list-style-type: none"> <li>• Examine the machine to ensure there are no cracks in the body and leakages.</li> <li>• Assist in checking all fluid levels in the engine, transmission &amp; hydraulic systems; top up where necessary</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Transit Mixer/Self Loading Concrete Mixer(SLCM)</u> with standard tools and equipment.</li> <li>• Class room with audio-video system</li> <li>• Manufacturers O and M Manual &amp; Video</li> <li>• Safety video</li> <li>• PPE Items &amp; Safety Gear</li> <li>• <u>Open ground</u></li> </ul>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Assist in checking water system for leaks and clean water pump filter if required.</li> <li>Clean the mixer drum as per instructions</li> <li>Inspect all greasing points and pivots and ensure lubrication.</li> <li>Check all controls, gauges, lights and horns are functional.</li> <li>Assist in maintaining a log book to record all actions done before starting.</li> </ul>	
2	<p><b>Assist in operating a transit mixer.</b></p> <p><b>Theory Duration</b> (hh:mm) 11:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p> <p><b>Corresponding NOS Code</b> IES/N0135</p>	<p><b>Organisational Context: Acquire working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>Procedures and guidelines related to breakdown &amp; maintenance services.</li> <li>Location of tools and equipment and procedure for issue and return.</li> <li>Safety policy of the organisation and emergency drills.</li> </ul> <p><b>Technical Knowledge. Understand the fundamentals of the following:</b></p> <ul style="list-style-type: none"> <li>Type and grade of materials; cement aggregates sand and mixture.</li> <li>Specs and features/performance/output of the machine/mixer.</li> <li>Procedure for turning on and off the transit mixer.</li> <li>Various hand signals and safety &amp; emergency signs on road &amp; work site</li> </ul> <p><b>Skills - Core &amp; Professional. Acquire the ability to:</b></p> <ul style="list-style-type: none"> <li>In addition to core and generic skills listed above</li> <li>Interpret signage on road and at work site operations correctly.</li> <li>Use correct terminology while interacting with others at site</li> <li>Plan work schedule in time bound and cost effective way.</li> <li>Identify operational slow-downs and take timely remedial action.</li> </ul> <p><b>Performance Criteria. Execute the following tasks and procedures:</b></p> <p><b>Loading of Materials.</b></p> <ul style="list-style-type: none"> <li>Inspect work site for loose soil, marshy patches etc where mixer can get stuck.</li> <li>Assist in loading correct proportions of aggregates- cement, water.</li> </ul>	<ul style="list-style-type: none"> <li>Transit Mixer/Self Loading Concrete Mixer(SLCM) with standard tools and equipment.</li> <li>Adequate stocks of cement, sand and other aggregates.</li> <li>Class room with audio-video system</li> <li>Manufacturers O and M Manual &amp; Video</li> <li>Safety video</li> <li>PPE Items &amp; Safety Gear</li> <li>Open ground</li> </ul>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Check for correct drum rotation during mixing.</li> <li><b>Discharging of Concrete.</b></li> <li>Guide operator in parking the mixer on firm level ground</li> <li>Assist in positioning for discharging the concrete safely at the desired location.</li> <li>Clean bucket, drum and concrete skid as per instructions.</li> <li>Assist in removing attachments after use as per instructions.</li> <li>Inspect for damages; leaks etc and report / take appropriate action.</li> </ul>	
3	<p><b>Assist in regular maintenance of a transit mixer.</b></p> <p><b>Theory Duration</b> (hh:mm) 16:00</p> <p><b>Practical Duration</b> (hh:mm) 38:00</p> <p><b>Corresponding NOS Code</b> IES/N0136</p>	<p><b>Organisational Context: Acquire working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>Emergency organisation structure and maintenance policy.</li> <li>Location of special tools and equipment/ accessories.</li> </ul> <p><b>Technical Knowledge. Understand the fundamentals of the following:</b></p> <ul style="list-style-type: none"> <li>Maintenance and service Schedule including related checklists</li> <li>Common defects and general causes for breakdown.</li> </ul> <p><b>Skills - Core &amp; Professional. Acquire the ability to:</b></p> <ul style="list-style-type: none"> <li>In addition to core and generic skills listed above;</li> <li>Plan maintenance &amp; servicing keeping operational needs in mind.</li> </ul> <p><b>Performance Criteria. Execute the following tasks and procedures:</b></p> <ul style="list-style-type: none"> <li><b>Routine Maintenance:</b> Clean machine outside and inside</li> <li>Clean air filter, replenish lubes and coolants as necessary</li> <li>Lubricate/grease all the moving joints/pins and pivot points.</li> <li>Check battery electrolyte levels and terminals.</li> <li>Check wheel rim and nuts for tightness, tyre pressure.</li> <li><b>Basic Trouble Shooting:</b> Place machine correctly and safely using supports as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Transit Mixer/Self Loading Concrete Mixer(SLCM) with standard tools and equipment.</li> <li>Class room with audio-video system</li> <li>Manufacturers O and M Manual &amp; Video</li> <li>Safety video</li> <li>PPE Items &amp; Safety Gear</li> <li>Lab/workshop/covered shed</li> </ul>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Assist in diagnosing the defect/problem and rectify; if need be seek advice from supervisor.</li> <li><b>Documentation &amp; Reporting:</b> Assist in maintaining records/documents.</li> <li>Report defects and problems in time and escalate as necessary</li> </ul>	
4	<p><b>Comply with Worksite Health and Safety Guidelines</b></p> <p><b>Theory Duration</b> (hh:mm) 06:00</p> <p><b>Practical Duration</b> (hh:mm) 12:00</p> <p><b>Corresponding NOS Code</b> IES/N7601</p>	<p><b>Organisational Context. Acquire working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>Health, safety, environmental (HSE) policies and guidelines of the company &amp; their importance</li> <li>Contact details of personnel responsible for HSE related matters &amp; in case of emergencies.</li> <li>Location of first aid room / station and assembly points.</li> <li>Reporting channel and documentation procedure for all HSE related matters.</li> </ul> <p><b>Technical Knowledge. Understand the fundamentals of the following:</b></p> <ul style="list-style-type: none"> <li>OEMs guidelines for health, safety and security requirements.</li> <li>Types, use and importance of Personal Protective Equipment (PPE)</li> <li>Types of common hazards and risks at worksite and preventive measures.</li> <li>In case of emergencies procedure to stop/ shut down machinery.</li> <li>Common injuries and appropriate basic first aid treatment.</li> <li>Firefighting equipment: Basic knowledge of handling and using them.</li> <li>Guidelines for transport, storage and disposal of hazardous materials and waste</li> <li>Safety signs/symbols and warnings used in worksites and their meaning</li> </ul> <p><b>Skills - Core &amp; Professional. Acquire the ability to:</b></p> <ul style="list-style-type: none"> <li>Use correct PPE and other safety gear while in the work site.</li> </ul>	<ul style="list-style-type: none"> <li>Transit Mixer /SLMC with standard tools and equipment</li> <li>Class room with audio-video system</li> <li>Organisation's ESH / Safety video</li> <li>PPE Items &amp; Safety Gear</li> <li>Firefighting equipment &amp; Charts</li> <li>First Aid Kit and Charts</li> </ul>



Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p><b>Performance Criteria. Execute the following tasks and procedures:</b></p> <ul style="list-style-type: none"> <li>Comply with safety, health, environment and security related regulations &amp; guidelines at work.</li> <li>Correct use of Personal Protective Equipment (PPE) and other safety gear at work site.</li> <li>Follow safety measures during operations to ensure health and safety of self and others; general public not at risk.</li> <li>Operate fire extinguishers as applicable.</li> <li>Support in administering basic first aid.</li> <li>Record and report details as related to operations, incidents or accidents as applicable.</li> </ul>	
	<p><b>Total Duration</b></p> <p><b>Theory Duration</b> <b>45:00</b></p> <p><b>Practical Duration</b> <b>105:00</b></p>	<p><b>Unique Equipment Required:</b></p> <ul style="list-style-type: none"> <li>Transit Mixer with standard tolls and equipment.</li> <li>Adequate stocks of cement, sand and other aggregates.</li> <li>Class room with audio-video projection system</li> <li>Manufacturers O and M Manual &amp; Video</li> <li>Safety video</li> <li>PPE Equipment: Helmet, gloves, earplugs, goggles, safety shoes</li> <li>Firefighting equipment and 'How to Use' Charts</li> <li>First Aid Box and 'How to Do' Charts</li> <li><u>Open ground and Lab/Workshop/Covered Shed</u></li> </ul>	

Grand Total Course Duration: **150 Hours, 0 Minutes**

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

## Trainer Pre-requisites for Job role: “Junior Transit Mixer Operator” mapped to Qualification Pack: “IES/Q0119, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “IES/Q 0119 Version 1.0”.
2	<b>Personal Attributes</b>	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	<b>Minimum Educational Qualifications</b>	Class 8 <sup>th</sup> ; preferably 10 <sup>th</sup>
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Junior Transit Mixer Operator</u> ” mapped to QP: “IES/Q 0119 – Version 1.0”. Minimum accepted score 70%. Desired: Certification Training in Transit Mixer Operations & Maintenance
4b	<b>Platform Certification</b>	Certified for Job Role: “ <u>Junior Transit Mixer Operator</u> ” mapped to Qualification Pack: SSC/1402. Minimum accepted score 70%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Around 3 to 4 years’ site experience in Transit Mixer Operations.</li> <li>• Atleast 1 to 2 years’ experience in conducting O and M training programs.</li> </ul>

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Junior Transit Mixer Operator</b>
<b>Qualification Pack</b>	<b>IES/Q 0119 Version 1.0</b>
<b>Sector Skill Council</b>	<b>Infrastructure Equipment</b>

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 and weightages have also been given among the NOSs accordingly.
2	The assessment of the theory/knowledge will be based on written test/viva or both while skill test shall be hands on practical. Behaviour and attitude will be assessed while performing the assigned task.
3	The assessment shall be done as per the guidelines formulated by IESC. The assessment agencies in consultation with IESC will create unique question papers for theory/knowledge and practical skills at each IESC accredited testing centres (as per assessment criteria below)
4	To pass the Qualification Pack, every trainee should score a minimum of 40% in each NOS and 50% aggregate. 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/N0134 Assist in carrying out pre-operation checks on a Transit mixer	PC1. Visually inspect the body components for cracks and bearing wear	35	3	1	2
	PC2. Tighten the wheel nuts firmly on the ground as per instructions from the operator		3	1	2
	PC3. Assist in checking that oil levels of engine transmission, radiator coolant and brake are as per instructions from the operator		4	1	3
	PC4. Assist in checking hydraulic oil levels as per instructions from the operator		3	1	2
	PC5. Check water system for leaks and clean water pump filter as per instructions from the operator		3	1	2

	PC6. Clean the mixer drum as per instructions from the operator		4	1	3
	PC7. Lubricate all the moving joints as per instructions from the operator/ supervisor		3	1	2
	PC8. Ensure that the area is clear of all personnel and equipment before moving		3	1	2
	PC9. Assist in conducting checks to ensure proper condition of parking brake, main horn, reverse horn and head light as per instructions from the operator		3	1	2
	PC10. Assist in maintaining a checking/maintenance logbook to record all activities performed before starting the machine		3	1	2
	PC11. Report defects precisely to the operator if beyond scope of the role		3	1	2
		<b>Total</b>	<b>35</b>	<b>11</b>	<b>24</b>
2. IES/N0135 Assist in operating a transit mixer	PC1. Check for loose soil, hidden deep trenches or marshy patches where a mixer could get stuck	<b>30</b>	1	0	1
	PC2. Fill water tanks ready for daily use as per instructions from the operator/ supervisor		2	0	2
	PC3. Check for hazards and risks, and ensure safety of self, other personnel and equipment		3	1	2
	PC4. Remove the obstacles if any during the loading process per instructions from the operator		4	2	2
	PC5. Assist in loading correct proportions of aggregates, cement, water and admixtures		3	1	2
	PC6. Check for correct direction of drum rotation during mixing as per instructions form the operator		2	0	2

	PC7. Guide the operator in keeping a safe distance from other vehicles		3	2	1
	PC8. Guide the operator in parking the transit mixer on firm, level ground		3	1	2
	PC9. Assist in determining a position for discharging the concrete safely and as per instructions from the operator		1	0	1
	PC10. Assist the operator in discharge of concrete to the desired locations		2	0	2
	PC11. Clean the bucket, drum and concrete-skid as per the instructions from the operator		3	1	2
	PC12. Assist in removing attachments after use as per instructions from the operator		3	1	2
		<b>Total</b>	<b>30</b>	<b>9</b>	<b>21</b>
3. IES/N0136 Assist in regular maintenance of the transit mixer	PC1. Clean footplates, pedals and steps free from mud, dirt, ice and snow at regular intervals	<b>20</b>	1	0	1
	PC2. Check and maintain the tire rims, air pressure, wheel nuts and treads as per instructions from the operator		2	1	1
	PC3. Replenish coolants, lubricants and fluids everyday as per instructions from the operator		1	0	1
	PC4. Lubricate all the moving joints in the mixer as per the instructions from the operator/supervisor		2	1	1
	PC5. Clean and adjust windows mirrors, lights and reflectors daily as per instructions from the operator/supervisor		1	0	1

	PC6. Assist in checking battery levels and condition of the terminals as per instructions from the operator/ supervisor		1	0	1
	PC7. Adjust alternator belt tension and feed pump while engine is off		2	1	1
	PC8. Keep the tools in the appropriate place after use		2	1	1
	PC9. Assist in ensuring the machine is on firm and level ground before attempting to carry out any maintenance; track machine operating hours to assess the right service schedule		1	0	1
	PC10. Ensure that bucket arm is lowered before any maintenance operations		2	1	1
	PC11. Handle and dispose waste based on environmental guidelines at the work place		1	0	1
	PC12. Comply with safety requirements such as confined space, lock-out procedures		2	1	1
	PC13. Assist in maintaining records and documentation relating to service, such as log books, repair lists, etc.		1	0	1
	PC14. Follow reporting procedures as laid down by the employer		1	0	1
		<b>Total</b>	<b>20</b>	<b>6</b>	<b>14</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>	2	1	1
	PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite		2	1	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	0	2
	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		2	1	1
	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. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		1	0	1
	PC9. Record and report details related to operations, incidents or accidents, as applicable		2	1	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>10</b>