

# Model Curriculum

## Crawler Crane Operator

**SECTOR: INFRASTRUCTURE EQUIPMENT**  
**SUB-SECTOR: EQUIPMENT OPERATIONS**  
**OCCUPATION: OPERATOR**  
**REF ID: IES/Q0110, V1.0**  
**NSQF LEVEL: 4**



## Certificate

### CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

**INFRASTRUCTURE EQUIPMENT SKILL COUNCIL**

for the

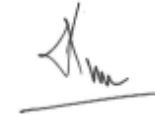
### MODEL CURRICULUM

Complying to National Occupational Standards of  
Job Role/ Qualification Pack: 'Crawler Crane Operator' QP No. 'IES/ Q 0110 NSQF Level 4'

Date of issuance: April 1<sup>st</sup>, 2017

Valid up to: March 31<sup>st</sup>, 2019

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



Authorized Signatory  
(Infrastructure Equipment Skill Council)

## TABLE OF CONTENTS

<b>1. Curriculum</b>	<b>01</b>
<b>2. Trainer Pre-requisites</b>	<b>09</b>
<b>3. Annexure: Assessment Criteria</b>	<b>10</b>

# Crawler Crane Operator

## CURRICULUM / SYLLABUS

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

<b>Program Name</b>	<b>Crawler Crane Operator</b>		
<b>Qualification Pack Name &amp; Reference ID</b>	IES/Q0110		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	31 March 2015
<b>Pre-requisites to Training</b>	Class 8th Standard preferably Certification Training in Crawler Crane Operations preferred 2 years' experience in operating a Crawler Crane		
<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>Carry out pre-operation checks for crawler crane.</b> Introduction to crawler crane, basic working of engine, hydraulic and electrical systems, operational controls and alarms, instrument panel, preparing machine for operations.</li> <li>• <b>Carry out crawler crane operations.</b> Load charts, work site inspection, starting up, assembling crane, rigging, hooking, lifting load and hauling safely and stacking stably, parking &amp; shutting down the machine; post-operative checks.</li> <li>• <b>Carry out regular maintenance of crawler crane.</b> General maintenance policy and procedures, 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, disposal of waste.</li> </ul>		











Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• <b>Shutting down:</b> Uninstall outriggers, / counterweights move and park the machine in garage; shut down as per procedure.</li> <li>• Inspect for damages; leaks etc and report / take appropriate action as laid down.</li> </ul>	
3	<p><b>Carry out routine maintenance and trouble shooting of a crawler crane.</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 16:00</p> <p><b>Corresponding NOS Code</b> IES/N0130</p>	<p><b>Organisational Context: Acquire working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>• Breakdown and maintenance policy and services.</li> <li>• Emergency organisation structure and reporting channel at work site.</li> <li>• Escalation matrix and time frame for resolution of problems.</li> <li>• Location of special tools and equipment/ accessories.</li> <li>• Safety policy and procedures</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> <p><b>Routine Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Ensure machine correctly and safely positioned before carrying out maintenance.</li> <li>• Clean machine outside and inside thoroughly of all spilt oils, grease, mud and dirt</li> <li>• Check crane structure and boom for deformed, cracked or corroded members</li> <li>• Check boom for extension alignment, cords, lattices and end connections</li> <li>• Check wire ropes for wear and tear.</li> <li>• Check all control mechanisms and monitoring devices.</li> <li>• Check engine, hydraulic &amp; electrical systems / components.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Crawler Crane</u> with standard tools, accessories 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>Lab/workshop/covered shed</u></li> </ul>





## Trainer Pre-requisites for Job role: “Crawler Crane Operator” mapped to Qualification Pack: “IES/Q0110, 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 0110 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: “Crawler Crane Operator” mapped to QP: “IES/Q 0110 – Version 1.0”. Minimum accepted score 70%. Desired: Certification Training in Crawler Crane Operations & Maintenance
4b	<b>Platform Certification</b>	Certified for Job Role: “Trainer” 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 Crawler Crane Operations.</li> <li>• At least 1 to 2 years’ experience in conducting O and M training programs.</li> </ul>

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Crawler Crane Operator</b>
<b>Qualification Pack</b>	<b>IES/Q 0110 Version 1.0</b>
<b>Sector Skill Council</b>	<b>Infrastructure Equipment</b>

Sr. No.	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 centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria.
5	To pass the Qualification Pack, every trainee should score a minimum of 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.

Assessable Outcomes	Assessment criteria for the outcome	Total Marks	Out Of	Marks Allocation	
				Theory	Skills Practical
1. IES/N0128 Carry out pre – operation checks on Crawler Crane	PC1. Adhere to time limits given by supervisor	35	2	1	1
	PC2. Visually inspect the crane body components for cracks and wear		1	0	1
	PC3. Ensure that all decals are legible and in place as per operation manual		1	0	1
	PC4. Ensure there is no hydraulic oil leak		2	1	1
	PC5. Ascertain proper oil level as per manufacturer's indicator		3	0	3
	PC6. Make sure no battery fluid leaks and there is proper fluid level as per manufacturer's indicator		4	1	3
	PC7. Inspect tyres and ensure proper tire pressure and lug nut torque as per manufacturer's indicator		1	0	1

	PC8. Ensure no engine oil leaks		1	0	1
	PC9. Ascertain proper fuel and fluid levels as per manufacturer's indicator		3	0	3
	PC10. Ensure the following components do not have any areas for damage, improperly installed or missing parts as per the manufacturer's manual: <ul style="list-style-type: none"> <li>• Electrical components, wiring and electrical cables</li> <li>• Hydraulic power unit, reservoir, hoses, fittings, cylinders and manifolds</li> <li>• Tires and wheels</li> <li>• Trailer lights and reflectors</li> <li>• Parking brake, and electric braking system (including the breakaway system)</li> <li>• Drive wheel and motor</li> </ul>		3	0	3
	PC11. Get the following components checked as per operation manual: <ul style="list-style-type: none"> <li>• Hoist</li> <li>• Limit switches</li> <li>• Pins, nuts, bolts and other fasteners</li> <li>• Hitch components</li> <li>• Safety chains</li> <li>• Engines their fuel systems and related components</li> <li>• Hoist               <ul style="list-style-type: none"> <li>• Crawler track</li> <li>• Personal protective devices</li> </ul> </li> </ul>		4	1	3
	PC12. Ensure that all structural and other critical components are present as per operation manual		1	0	1
	PC13. Ensure that all associated fasteners and pins are in place and properly tightened as per operation manual		1	0	1



PC9. Select the appropriate hook, jib, as per the load, site and lift conditions	3	0	3
PC10. Ensure appropriate boom extension as per operation manual	1	0	1
PC11. Hoist and release the load at a small height to check the holding and control breaks are functioning properly, ahead of the actual lifting	3	0	3
PC12. Carry out lifting of load in coordination with rigger as per the requirement	2	1	1
PC13. Monitor stability whilst moving a load	1	0	1
PC14. Ensure good visibility of both ends of the crane arm at all times	1	0	1
PC15. Ensure no obstacles, personnel or other obstructions during lifting operation	1	0	1
PC16. Look out for people working and hazards such as trenches, potholes and cables	2	1	1
PC17. Adhere to time limits given by the supervisors	1	0	1
PC18. Perform in-operation visual checks on critical temperature and pressure gauges as per operation manual	2	1	1
PC19. Select and use the right type of brake in different situations and conditions as per the operation manual	1	0	1
PC20. Ensure that walkway rules e.g. operating the crane within the permissible/ allocated areas are followed	3	0	3
PC21. Utilize judiciously various signaling devices available in the crane	2	1	1





	<ul style="list-style-type: none"> <li>Excessive wear on brake and clutch system parts.</li> <li>Deformed wedges.</li> <li>Defective cotter keys, pins and guardrails.</li> </ul>				
	<p>PC4. Check for the following in hydraulic system of Crane as per operation &amp; maintenance manual:</p> <ul style="list-style-type: none"> <li>Deterioration or leakage in air or hydraulic systems</li> <li>Safe and effective operation on hoses, pumps and motors</li> <li>Levels of fluid               <ul style="list-style-type: none"> <li>Air cleaners for replacement or cleaning</li> </ul> </li> </ul>		2	1	1
	<p>PC5. Check for the following Control Mechanisms and Monitoring Devices as per operation &amp; maintenance manual</p> <ul style="list-style-type: none"> <li>Cables, brakes and levers for poor adjustment or excessive wear.</li> <li>Marking on the load/radius indicator over full range.</li> <li>Load moment indicator,</li> <li>Boom angle indicator,</li> <li>Boom length indicator and</li> <li>Anti two-block system</li> </ul>		4	1	3
	PC6. Check crawler track as per operation manual		1	0	1
	PC7. Check wire ropes for wear and tear		4	1	3
	<p>PC8. Check the following in the main boom as per operation manual</p> <ul style="list-style-type: none"> <li>lift cylinder(s)</li> <li>telescoping cylinder(s)</li> </ul>		4	1	3

	<ul style="list-style-type: none"> <li>hydraulic hoses / tubing &amp; fittings</li> <li>holding device</li> <li>boom sections alignment</li> <li>auxiliary boom head and structure</li> </ul>			
	PC9. Check the following in the Lattice boom extension <ul style="list-style-type: none"> <li>Boom</li> <li>extension alignment</li> <li>cords</li> <li>lattices</li> <li>end connections</li> </ul>	3	0	3
	PC10. Replenish coolants, lubricants and fluids as per operation & maintenance manual	1	0	1
	PC11. Grease all greasing pins and pivot points as per operation & maintenance manual	3	0	3
	PC12. Check battery levels and condition of the terminals and carry out minor adjustments as per manufacturer's indicators	2	1	1
	PC13. Check and maintain the tire rims, air pressure, wheel nits and treads as per manufacturer's indicators	1	0	1
	PC1. Track machine operating hours to assess the right service schedule	1	0	1
	PC2. Complete timely and legibly daily/ weekly maintenance sheets as provided by the company	2	1	1
	PC3. Ensure that suitable props/ support devices are used and the bucket is not raised while performing maintenance	1	0	1
	PC4. Ensure that no maintenance task on the engine is performed when running or still hot	3	0	3
	PC5. Assess when the problem is beyond his competence and report the problem to suitably	2	1	1



	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		1	0	1
	PC6. Follow safety regulations and procedures with regard to worksite hazards and risks		1	0	1
	PC7. Operate various grades of fire extinguishers, as applicable		1	0	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. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		1	0	1
	PC10. Record and report details related to operations, incidents or accidents, as applicable		1	0	1
		<b>Total</b>	<b>16</b>	<b>2</b>	<b>14</b>