

# Model Curriculum

## Hydra Crane Operator

**SECTOR: INFRASTRUCTURE EQUIPMENT**  
**SUB-SECTOR: EQUIPMENT OPERATIONS**  
**OCCUPATION: OPERATOR**  
**REF ID: IES/Q0108, 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

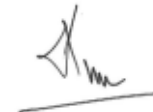
### MODEL CURRICULUM

Complying to National Occupational Standards of  
Job Role/ Qualification Pack: 'Hydra Crane Operator' QP No. 'IES/ Q 0108 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)

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# Hydra Crane Operator

## CURRICULUM / SYLLABUS

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

<b>Program Name</b>	<b>Hydra Crane Operator</b>		
<b>Qualification Pack Name &amp; Reference ID</b>	IES/Q0108		
<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 Hydra Crane Operations preferred 2 years' experience in operating a Hydra 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 hydra crane.</b> General introduction to hydra crane, types, basic working of engine, hydraulic and electrical systems, operational controls and alarms, instrument panel, preparing machine for operations.</li> <li>• <b>Carry out hydra crane operations.</b> Load charts, work site inspection, starting up, assembling crane, rigging, hooking, lifting load and hauling safely and stacking stably, parking and shutting down the machine; post-operative checks.</li> <li>• <b>Carry out regular maintenance of hydra 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>		

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

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Carry out pre-operation checks on a hydra 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/N0122</p>	<p><b>Organisational Context: Acquire a working knowledge of the following:</b></p> <ul style="list-style-type: none"> <li>• Organisation structure, reporting and escalation line.</li> <li>• Time frame for resolution of problems reported.</li> <li>• Performance standards and procedures in the company.</li> <li>• Work target and review mechanism with supervisor.</li> <li>• Location of special tools and accessories/equipment</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>• Overview of different types of cranes and its use/application.</li> <li>• Basic working of engine hydraulic &amp; electrical systems in a hydra crane.</li> <li>• Hoists and extension mechanism</li> <li>• Controls, levers, switches and alarms, instrument panel &amp; fuse box</li> <li>• Procedure for checking, filling and topping up of fuel, coolants and 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>	<ul style="list-style-type: none"> <li>• <u>Hydra Crane</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
		<p><b>Performance Criteria: Execute the following tasks and procedures:</b></p> <p><b><u>Pre-op checks</u></b></p> <ul style="list-style-type: none"> <li>• Visually inspect the machine for               <ul style="list-style-type: none"> <li>○ Cracks in the weld or structural components.</li> <li>○ Excessive rust or corrosion /oxidation in components</li> <li>○ Oil leaks and damages to hoses and lines.</li> </ul> </li> <li>• Check all critical structural components, associated fasteners and pins are in place.</li> <li>• Check all compartment covers are in place and properly secured/latched.</li> <li>• Check all components in engine, hydraulic and electrical systems are fitted correctly/not missing</li> <li>• Check all levels in the engine (fuel, lube, coolant), transmission &amp; hydraulic systems; top up where necessary</li> <li>• Inspect air filters and gaskets; clean and empty dust bowls</li> <li>• Drain water sediments in the fuel system</li> <li>• Check battery electrolyte levels and terminal tightness.</li> <li>• Check tension of fan belt and compressor belt if fitted</li> <li>• Inspect all greasing points and pivots and ensure lubrication</li> <li>• Check footplates and steps are free of mud and oil spills.</li> <li>• Check tire pressure and wheel nuts for tightness.</li> <li>• Check all controls, gauges, switches, lights, reflectors and horns are functional especially limit switches</li> <li>• Inspect cables, grappling devices, safety chains, hitch components, hoist, outriggers and engaging tools.</li> <li>• Check the parking and electrical braking system including breakaway mechanism.</li> <li>• Check all decals are legible and in place</li> </ul>	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<b><u>Documentation &amp; Reporting</u></b> <ul style="list-style-type: none"> <li>Maintain a logbook to record all checks /activities carried out before starting the hydra crane</li> <li>Report defects and problems in time and, if beyond his scope, escalate as necessary</li> </ul>	
2	<b>Operate a hydra crane.</b>  <b>Theory Duration</b> (hh:mm) 18:00 <b>Practical Duration</b> (hh:mm) 36:00  <b>Corresponding NOS Code</b> IES/N0123	<b>Organisational Context: Acquire a working knowledge of the following:</b> <ul style="list-style-type: none"> <li>Responsibilities and time frame for assigned jobs/work targets.</li> <li>Emergency organisation and reporting channel at work site.</li> <li>Escalation matrix and time frame for resolution of problems</li> <li>Equipment costs and delay implications to company.</li> <li>Location and process for storage and disposal of waste.</li> <li>Work target and performance review mechanism with supervisor.</li> </ul> <b>Technical Knowledge: Understand the fundamentals of the following:</b> <ul style="list-style-type: none"> <li>Besides technical knowledge related to pre-op checks should know</li> <li>Types of material, methods and tools used in various construction activities where cranes are used.</li> <li>Manufacturers criteria for:               <ul style="list-style-type: none"> <li>Equipment operations</li> <li>Equipment modification</li> <li>Load capacity limitations</li> </ul> </li> <li>Reading of load charts and their correct interpretation &amp; application</li> <li><b>Rigging:</b> Hardware and tools, methods and procedures, different configurations, hook up points</li> <li><b>Hoisting:</b> Hook up points, operation techniques, safety measures and stability conditions.</li> <li><b>Hauling:</b> Rules of the road/walkways, safety dos and don'ts, stability during move.</li> <li><b>Stacking:</b> Procedures for stacking loads in designated manner, correctly and safely;</li> <li>Crane tipping prevention techniques</li> <li>Multi crane operations</li> </ul>	<ul style="list-style-type: none"> <li><u>Hydra Crane</u> with standard tools, accessories and equipment.</li> <li>Range of weighted loads with lifting hooks.</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>Regulations, standards and safety rules for hydra crane operations.</li> <li>Various hand signals, safety and emergency signs at 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 actions.</li> </ul> <p><b>Performance Criteria. Execute the following tasks and procedures:</b></p> <ul style="list-style-type: none"> <li>Understand the task, plan and organise the methodology for execution as per the conditions.</li> <li><b>Starting up:</b> After pre- use and running checks, start engine and move near load on firm level ground.</li> <li><b>Rigging:</b> Assist in extending outriggers and check locking pins</li> <li><b>Hooking:</b> Assist in hooking to attach sling, shackle and chains as required.</li> <li><b>Lifting:</b> Lift the load and test its stability before moving.</li> <li><b>Hauling.</b> Move the load to the desired area safely observing all precautions</li> <li><b>Stacking.</b> Discharge load in the designated area safely and correctly.</li> <li><b>Shutting down:</b> 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 hydra crane.</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b></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> </ul>	<ul style="list-style-type: none"> <li><u>Hydra 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> </ul>



Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 16:00  <b>Corresponding NOS Code</b> IES/N0124	<ul style="list-style-type: none"> <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> <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, tyre pressure and wheel nuts for tightness.</li> </ul> <p><b>Basic Trouble Shooting:</b></p> <ul style="list-style-type: none"> <li>Track machine operating hours to assess the right service schedule</li> <li>Place machine correctly and safely using supports as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>PPE Items &amp; Safety Gear</li> <li><u>Lab/workshop/covered shed</u></li> </ul>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Diagnose the defect/ problem and rectify; if need be seek advice from supervisor.</li> </ul> <p><b>Documentation &amp; Reporting:</b></p> <ul style="list-style-type: none"> <li>Ensure documentation on prescribed formats completed legibly and in time.</li> <li>Report defects and problems in time and escalate, if beyond his scope, 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 at the work site.</li> </ul>	<ul style="list-style-type: none"> <li>Hydra Crane with standard tools, accessories 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 40:00</b></p> <p><b>Practical Duration 80:00</b></p>	<p><b>Unique Equipment Required:</b></p> <ul style="list-style-type: none"> <li>• <u>Hydra Crane with standard tools, accessories and equipment.</u></li> <li>• <u>Range of weighted loads with built in lifting hooks</u></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: **120 Hours, 0 Minutes**

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

## Trainer Pre-requisites for Job role: “Hydra Crane Operator” mapped to Qualification Pack: “IES/Q0108, 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 0108 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: “Hydra Crane Operator” mapped to QP: “IES/Q 0108 – Version 1.0”. Minimum accepted score 70%. Desired: Certification Training in Hydra 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 Hydra 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>Hydra Crane Operator</b>
<b>Qualification Pack</b>	<b>IES/Q 0108 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	Marks Allocation			
		Total Mark	Out Of	Theory	Practical
IES/N0122 Carry out pre-operation checks on hydra crane	PC1. Adhere to time limits given by supervisor	45	2	0	2
	PC2. Inspect the crane body to ensure that the components are free of cracks and wear		3	1	2
	PC3. Checks that all decals are legible and in place as per operation manual		3	1	2
	PC4. Examine the hydraulic oil level to ensure no leaks and oil level are as per manufacturer's indicator		3	0	3
	PC5. Examine battery fluid to ensure proper fluid level as per manufacturer's indicator		3	0	3
	PC6. Check the tyre pressure and lug nut torque to make sure they are as per manufacturer's indicator		3	0	3
	PC7. Confirm for no engine oil leaks and proper fuel and fluid levels, as per manufacturer's indicator		3	0	3
	PC8. Check the holding and control breaks to ensure that they are functioning properly		3	0	3

	<p>PC9. Get the following components checked for areas for damage, improperly installed or missing parts as per the manufacturer 's manual:</p> <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>		4	1	3
	<p>PC10. Check to ensure that the following components as per operation manual:</p> <ul style="list-style-type: none"> <li>• Hoist</li> <li>• Wheels</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</li> <li>• Personal protective devices</li> </ul>		4	1	3
	PC11. Check and ensure that all structural and other critical components are present as per operation manual		3	1	2
	PC12. Approve that all associated fasteners and pins are in place and properly tightened as per operation manual		2	0	2
	<p>PC13. Inspect entire machine for:</p> <ul style="list-style-type: none"> <li>• Cracks in welds or structural components</li> <li>• Excessive rust, corrosion or oxidation</li> <li>• Dents or damage to machine</li> </ul>		4	1	3
	PC14. Maintain a checking/maintenance logbook to record all activities performed before starting the excavator		2	0	2
	PC15. Report defects precisely to the supervisor if beyond scope of his role		3	1	2
		<b>Total</b>	<b>45</b>	<b>7</b>	<b>38</b>
IES/N0123 Operate Hydra Crane	PC1. Plan and organize the job according to given instructions	70	3	1	2
	PC2. Position the hook to attach sling, shackle and chains as per operation's manual		3	0	3
	PC3. Start the engine as per operation's manual		2	0	2
	PC4. Check the assembly and ensure that relevant safety measures as per safety guidelines taken		2	0	2

PC5. Use the emergency stop button to disable all power to the hydra crane in case of a crisis, as per operator manual	3	1	2
PC6. Ensure safe working load as per operation manual	2	0	2
PC7. Check wind speeds are within the crane's operational limits	1	1	0
PC8. Select the appropriate boom, jib, as per the load, site and lift conditions	3	0	3
PC9. Ensure appropriate boom extension as per operation manual	3	1	2
PC10. 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
PC11. Carry out lifting of load in coordination with rigger as per the requirement	3	0	3
PC12. Monitor stability whilst moving a load	2	0	2
PC13. Ensure good visibility of both ends of the crane arm at all times	2	0	2
PC14. Ensure no obstacles, personnel or other obstructions during lifting operation	3	1	2
PC15. Look out for people working and hazards such as trenches, potholes and cables	2	0	2
PC16. Adhere to time limits given by the supervisors	2	0	2
PC17. Perform in-operation visual checks on critical temperature and pressure gauges as per operation manual	2	0	2
PC18. Select and use the right type of brake in different situations and conditions as per the operation manual	3	1	2
PC19. Ensure that walkway rules e.g. operating the crane within the permissible/ allocated areas are followed	2	0	2
PC20. Utilize judiciously various signaling devices available in the crane	2	0	2
PC21. Keep a safe distance from other plant or vehicles	2	0	2
PC22. Work safely in accordance with operational requirements and associated Safe Systems of Work	2	0	2
PC23. Discharge the load safely at the position and in the manner designated by the supervisor	3	0	3
PC24. Follow the instructions by the rigger	2	0	2
PC25. Operate and control the boom and extensions as per operation manual	3	0	3

	PC26. Ensure lay down area is sufficient in size to accommodate load		2	0	2
	PC27. Ensure lay down area is clear of any obstruction and		2	0	2
	PC28. Ensure that no other operators travel on or stand near the Hydra Crane		2	0	2
	PC29. Inform supervisor/rigger of any problems while operating the Hydra Crane		2	0	2
	PC30. Shut down and secure the machine properly when it is unattended		2	0	2
	<b>Total</b>	<b>70</b>	<b>6</b>	<b>64</b>	
IES/N0124 Perform routine maintenance and troubleshooting of Hydra Crane	PC1. Assess the right service schedule by tracking machine operating hours	60	3	1	2
	PC2. Check Crane Structure and the following accessories as per operation & maintenance manual		2	0	2
	PC3. Check Crane structure for deformed, cracked or corroded members in the structure and boom. • Loose bolts or rivets. • Excessive wear on brake and clutch system parts. • Deformed wedges. • Defective cotter keys, pins and guardrails.		4	1	3
	PC4. Check for the following in hydraulic system of Crane as per operation & maintenance manual: • Deterioration or leakage in air or hydraulic systems • Safe and effective operation on hoses, pumps and motors • Levels of fluid • Air cleaners for replacement or cleaning		4	1	3
	PC5. Check for the following Control Mechanisms and Monitoring Devices as per operation & maintenance manual • Cables, brakes and levers for poor adjustment or excessive wear. • Marking on the load/radius indicator over full range. • Load moment indicator, • Boom angle indicator, • Boom length indicator and • Anti two-block system		4	1	3
	PC6. Check wire ropes for wear and tear		2	0	2



<p>PC7. 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> <li>• hydraulic hoses / tubing &amp; fittings</li> <li>• holding device</li> <li>• boom sections alignment</li> <li>• auxiliary boom head structure</li> </ul>	4	1	3
<p>PC8. Check the following in the Lattice boom extension</p> <ul style="list-style-type: none"> <li>• boom</li> <li>• extension alignment               <ul style="list-style-type: none"> <li>• cords</li> <li>• lattices</li> <li>• end connections</li> </ul> </li> </ul>	4	1	3
PC9. Replenish coolants, lubricants and fluids as per operation & maintenance manual	2	0	2
PC10. Grease all greasing pins and pivot points as per operation & maintenance manual	2	0	2
PC11. Check battery levels and condition of the terminals and carry out minor adjustments as per manufacturer's indicators	3	1	2
PC12. Check and maintain the tire rims, air pressure, wheel nuts and treads as per manufacturer's indicators	3	0	3
PC13. Track machine operating hours to assess the right service schedule	2	0	2
PC14. Complete timely and legibly daily/ weekly maintenance sheets as provided by the company	2	0	2
PC15. Ensure that suitable props/ support devices are used while performing maintenance	2	0	2
PC16. Ensure that no maintenance task on the engine is performed when running or still hot	2	0	2
PC17. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel	2	0	2
PC18. Diagnose the problem	3	1	2
PC19. Handle and dispose waste based on environmental guidelines at the work place	2	0	2
PC20. Follow reporting procedures as laid down by the employer	2	0	2
PC21. Complete all documentation in the prescribed standards in a timely manner	2	0	2
PC22. Report and escalate problems/ incidents as required in a timely manner	2	0	2

	PC23. Report defects precisely to the supervisor if beyond scope of his role		2	0	2
		<b>Total</b>	<b>60</b>	<b>8</b>	<b>52</b>
IES/N7601 Comply with worksite health and safety guidelines	PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site	25	3	1	2
	PC2. Use Personal Protective Equipment (PPE) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection		3	0	3
	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		3	1	2
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		3	1	2
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		2	0	2
	PC6. Follow safety regulations and procedures with regard to worksite hazards and risks		2	0	2
	PC7. Operate various grades of fire extinguishers, as applicable		2	0	2
	PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		2	0	2
	PC9. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		3	1	2
	PC10. Record and report details related to operations, incidents or accidents, as applicable		2	0	2
		<b>Total</b>	<b>25</b>	<b>4</b>	<b>21</b>