

Model Curriculum

Supervisor (Plant & Machinery)

SECTOR: INFRASTRUCTURE EQUIPMENT
SUB-SECTOR: EQUIPMENT OPERATIONS
**OCCUPATION: MANAGERIAL & SUPERVISORY –
EQUIPMENT OPERATIONS**
REF ID: IES/Q0201, V1.0
NSQF LEVEL: 7



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: 'Supervisor (Plant & Machinery)' QP No. 'IES/ Q 0201 NSQF Level 7'

Date of Issuance: May 8th, 2018
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Authorized Signatory
(Infrastructure Equipment Skill Council)

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Supervisor (Plant & Machinery)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Supervisor (Plant & Machinery)”, in the “Infrastructure Equipment” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Supervisor (Plant & Machinery)		
Qualification Pack Name & Reference ID	IES/Q0201		
Version No.	1.0	Version Update Date	31 March 2015
Pre-requisites to Training	<p>Preferably Diploma/Degree in Mechanical/Automobile Engineering. Experience:</p> <ul style="list-style-type: none"> • <u>Non – Diploma/Degree Holders</u>: 8 years’ experience in equipment operations. • <u>Diploma/Degree Holders</u>: 3 years’ experience in supervision of equipment operations <p>Training: OEMs courses on Equipment Operations & Project Management preferred</p>		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Plan and supervise equipment operations by selecting and allocating equipment and resources including manpower efficiently & judiciously to ensure a high level of customer satisfaction. • Manage stakeholders related to equipment operations by interacting with them on productivity and cost analysis, evaluation of personnel based on operational performance. • Enforce worksite safety and quality standards during equipment operations, work rectification process and disaster recovery drills. • Comply with worksite health and safety guidelines by following processes & procedures related to personal protective equipment, basic first aid for common injuries at work site, emergency evacuation and disposal of hazardous waste. 		

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

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Plan and supervise equipment operations</p> <p>Theory Duration (hh:mm) 14:00</p> <p>Practical Duration (hh:mm) 28:00</p> <p>Corresponding NOS Code IES/N0201</p>	<ul style="list-style-type: none"> • Plan and schedule equipment operations in accordance with organization’s and worksite policies, guidelines and procedures • Select and align equipment and resources including operators & support personnel required as per the task and the project requirements • Allocate work appropriately to subordinate team-mates as per their experience/ skill levels; train & brief them on the tasks allotted • Monitor and supervise operations on an ongoing basis to meet project requirements • Comply with the organisation’s and worksite level policies & procedures during operations • Adhere to relevant quality processes/ standards during operations • Complete role related documentation and reporting as per the organisation’s policies • Resolve process level issues or queries based on interactions with other stakeholders & supervisors • Acquire the ability to read and comprehend basic signs, symbols, diagrams, charts and decals on the equipment • Communicate information & instructions using correct technical terms to team members in a clear and concise manner. • Identify operational issues/ slow-downs and take timely remedial actions; escalate if beyond scope • Ensure quality service is delivered as committed to achieve high levels of customer satisfaction. 	<ul style="list-style-type: none"> • Class room with audio-video system • Manufacturer’s Technical Brochures, O and M Manuals & Videos on related equipment • Safety videos • PPE Items & Safety Gear
2	<p>Manage equipment operations related stakeholders.</p> <p>Theory Duration (hh:mm) 14:00</p> <p>Practical Duration (hh:mm) 28:00</p>	<ul style="list-style-type: none"> • Interact with various stakeholders to receive work instructions and feedback to initiate actions as per the requirements. • Analyse and present operational data like MTBF, MTRR, productivity analysis, cost to company etc on a periodic basis • Report to the manager and other stakeholders periodically on 	<ul style="list-style-type: none"> • Class room with audio-video system • Manufacturer’s Technical Brochures, O and M Manuals & Videos on related equipment • Safety videos • PPE Items & Safety Gear

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code IES/N0202	equipment operations and status of tools and equipment <ul style="list-style-type: none"> • Assist the P&M manager in finalizing process-flow and improving resource levels • Assist the P&M manager in providing alternate solutions that are economical productive and safe from an operational perspective • Communicate to manager about employee management related to deficiencies and performance • Communicate any potential hazards or expected process disruptions • Plan for re-work based on feedback provided by manager/ other stakeholders • Generate on line and system based requests for spares and consumables • Provide correct and reliable feedback on equipment and personnel to the P&M manager • Assist the P&M Manager to estimate the potential equipment/ manpower requirements from sub-contractors • Assist in the evaluation of sub-contractors as per the equipment required • Validate the submission of sub-contractor related documentation and work sheets as per company policy • Supervise sub-contractor personnel in order to get optimum work performance • Acquire the ability to record information & observations on activities/ incidents as per the prescribed norms/formats • Plan maintenance & servicing of equipment keeping operational schedule and requirements in mind 	
3	Comply with worksite safety & quality standards. Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code IES/N0203	<ul style="list-style-type: none"> • Comply with all organizational guidelines, SHE policy and quality standards during equipment operations • Supervise the enforcement of all HSE related guidelines in equipment operations • Plan procurement and provide safety gear and other equipment required to personnel for safe and productive operations. • Carry out fire/ other disaster recovery drills on work site along with the HSE 	<ul style="list-style-type: none"> • Class room with audio-video system • Manufacturer's Technical Brochures, O and M Manuals & Videos on related equipment • Safety videos • PPE Items & Safety Gear

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>team</p> <ul style="list-style-type: none"> • Inspect fire extinguishers and other machine equipment for validity and plan procurement/ renewal for necessary equipment • Carry out periodic walk-throughs to ensure that the worksite and workshop areas are clean and free from hazards as per the Safety, Health and Environmental policy/ guidelines • Supervise the handling and disposal of waste based on environmental guidelines at the work place • Participate, as required, in the investigation of near misses, accidents and incidents at the work site with the SHE and project management teams. • Assist in gathering data and complete documentation related to accidents/ incidents and share with concerned personnel • Assist with checking the project management plan to ensure operations are as per the quality and productivity specifications outlined • Carry out routine random checks and inspections to keep a check on the quality of work carried out • Inspect and evaluate damage to equipment and suggest rectification as per the work protocol and quality standards • Give feedback to team and stakeholders on the quality and productivity at the worksite on a continuous basis • Carry out job role related documentation and reporting as per the prescribed norms / formats • Acquire the ability to read and comprehend basic safety signs, warning/ precautionary symbols at the worksite. 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
4	Comply with Worksite Health and Safety Guidelines Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code IES/N7601	<ul style="list-style-type: none"> Comply with safety, health, security and environment related regulations/guidelines at the work site Utilise Personal Protective Equipment (PPE) and other safety gear related to protection of body in an effective manner. Follow safety measures during operations to ensure that the health and safety of all including members of the public is not at risk Handle the transportation, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines Operate various types and grades of fire extinguishers, as applicable Support in administering basic first aid and report to concerned team members, as required, in case of an accident Respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of one's roles and responsibilities Record and report essential details related to operations, incidents or accidents, as applicable 	<ul style="list-style-type: none"> Class room with audio-video system Organisation's ESH / Safety video PPE Items & Safety Gear Firefighting equipment & Charts First Aid Kit and Charts
	Total Duration Theory Duration (hh:mm) 40:00 Practical Duration (hh:mm) 80:00	Unique Equipment Required: <ul style="list-style-type: none"> Class room with audio-video projection system Manufacturer's Technical Brochures, O&M Manuals & Videos ESH (Environment, Safety & Health) & Equipment safety videos 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: “Supervisor (Plant & Machinery)” mapped to Qualification Pack: “IES/Q0201, 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 “ <u>IES/Q 0201 Version 1.0</u> ”.
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	Diploma in Mechanical/Automobile Engineering preferred <u>Training Preferred</u> : OEMs certification courses on Operations & Maintenance of Plant & Machinery.
4a	Domain Certification	Certified for Job Role: “ <u>Supervisor (Plant & Machinery)</u> ” mapped to QP: “ <u>IES/Q 0201– Version 1.0</u> ”. Minimum accepted score is 70%. <u>Desired</u> : Certification Training in Project Management & Quality Systems
4b	Platform Certification	Certified for the Job Role “ <u>Trainer</u> ” mapped to Qualification Pack MEP/Q0102. Minimum accepted score is 80%.
5	Experience	<ul style="list-style-type: none"> • Minimum 5 years’ experience of which at least 3 years should be as a supervisor in equipment operations. • At least 1 to 2 years’ experience in conducting training on equipment operations and maintenance.

Assessment Criteria	
Job Role	Supervisor (Plant & Machinery)
Qualification Pack	IES/Q 0201 Version 1.0
Sector Skill Council	Infrastructure Equipment

Sl. 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 given below)
4	Individual assessment agencies will create unique evaluation 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

NOS	Performance Criteria	Total Marks	Marks Allocation		
			Out of	Theory	Skills Practical
1. IES/N0201 Plan and supervise equipment operations	PC1. Plan and schedule equipment operations in accordance with organization, SHE and worksite guidelines and procedures	40	4	1	3
	PC2. Plan and align equipment and resources required as per the task		3	0	3
	PC3. Select the equipment as per the project requirements		3	0	3
	PC4. Allocate the schedule of operators and other P&M support personnel as per the project requirements		3	0	3
	PC5. Appropriately allocate work to subordinate team-mates as per their experience/ skill levels		4	1	3
	PC6. Train and brief them on the work allotted		4	1	3
	PC7. Communicate job expectations, based on task and site conditions, clearly to the team-mates		3	1	2
	PC8. Monitor and supervise operations on an ongoing basis to meet project requirements		2	0	2
	PC9. Carry out appraisals and training of the team-mates at regular intervals		3	1	2
	PC10. Adhere to organization and worksite level policies/ procedures during operations		3	1	2

	PC11. Adhere to relevant quality processes/ standards during operations		3	1	2
	PC12. Complete role related documentation and reporting		3	1	2
	PC13. Resolve process level issues or queries based on interactions with other stakeholders and supervisors		2	0	2
	Total		40	8	32
2. IES/N0202 Manage equipment operations related stakeholders	PC1. Receive work instructions and feedback from reporting manager or other senior construction team personnel at the work site	50	3	1	2
	PC2. Carry out work related activities in compliance with instructions and worksite requirements		3	1	2
	PC3. Analyse and present operations data like MTBF, MTTR, productivity analysis, cost to company etc on a periodic basis		5	0	5
	PC4. Generate system based requests for spares and consumables		3	0	3
	PC5. Report to manager and other stakeholders periodically on equipment operations		2	0	2
	PC6. Keep stakeholders informed about repairs and maintenance of tools and machinery as required		3	1	2
	PC7. Assist the P&M manager in finalizing process-flow and resource level improvements		3	1	2
	PC8. Assist the P&M manager in providing alternative economical but productive and safe alternatives from an operations perspective		3	1	2
	PC9. Communicate to manager about employee management, i.e., shortages or performance related		4	1	3
	PC10. Communicate any potential hazards or expected process disruptions		3	0	3
	PC11. Plan for re-work based on feedback provided by manager/ other stakeholders		3	0	3
	PC12. Provide correct and reliable feedback on equipment and personnel to the P&M manager		3	1	2
	PC13. Assist the P&M Manager to estimate the potential equipment/ manpower requirements from sub-contractors		3	0	3

	PC14. Assist in the evaluation of sub-contractors as per the equipment required		3	0	3
	PC15. Validate the submission of sub-contractor related documentation and work sheets as per company policy		3	0	3
	PC16. Supervise sub-contractor personnel in order to get optimum work performance		3	0	3
	Total		50	7	43
3. IES/N0203 Comply with worksite safety and quality standards	PC1. Comply with all organizational guidelines, SHE policy and quality standards during equipment operations	40	3	0	3
	PC2. Supervise the enforcement of all SHE related guidelines in equipment operations		2	0	2
	PC3. Plan procurement and provide safety gear and other equipment required to personnel for safe and productive operations.		3	0	3
	PC4. Carry out fire/ other disaster recovery drills on work site along with the SHE team		3	0	3
	PC5. Inspect fire extinguishers and other machine equipment for validity and plan procurement/ renewal for necessary equipment		3	0	3
	PC6. Carry out periodic walk-throughs to ensure that the worksite and workshop areas are clean and free from hazards as per the Safety, Health and Environmental policy/ guidelines		3	1	2
	PC7. Supervise the handling and disposal of waste based on environmental guidelines at the work place		3	0	3
	PC8. Participate, as required, in the investigation of near misses, accidents and incidents at the work site with the SHE and project management teams.		3	1	2
	PC9. Assist in gathering data and complete documentation related to accidents/ incidents and share with concerned personnel		2	0	2
	PC10. Assist with checking the project management plan to ensure operations are as per the quality and productivity specifications outlined		3	0	3
	PC11. Carry out routine random checks and inspections to keep a check on the quality of work carried out		3	1	2

	PC12. Inspect damage to equipment and suggest rectification as per the work protocol and quality standards		3	1	2
	PC13. Give feedback to team and stakeholders on the quality and productivity at the worksite on the continuous basis		3	1	2
	PC14. Carry out role related documentation and reporting		3	1	2
	Total		40	6	34
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	30	3	0	3
	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		4	1	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	0	3
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		3	0	3
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		4	1	3
	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		3	0	3
	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		3	1	2
	Total		30	4	26
	Grand		160	25	135