



Model Curriculum

Mobile Equipment Operator

SECTOR: IRON & STEEL
**SUB-SECTOR: STEEL, SPONGE IRON, FERRO ALLOYS,
RE-ROLLERS, REFRACTORY**
OCCUPATION: IRON MAKING
REF ID: ISC/Q0401
NSQF LEVEL: 3



  

Certificate

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

is hereby issued by the
INDIAN IRON AND STEEL SECTOR SKILL COUNCIL
for the
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Mobile Equipment Operator' QP No. 'ISC/Q0401 NSQF Level 3'

Date of Issuance: **December 22nd, 2015**
Valid up to: **December 21st, 2016**

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


Authorised Signatory
(Indian Iron and Steel Sector Skill Council)



TABLE OF CONTENTS

| | |
|---|-----------|
| 1. Curriculum | 04 |
| 2. Trainer Prerequisites | 07 |
| 3. Annexure: Assessment Criteria | 08 |

Mobile Equipment Operator

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Mobile Equipment Operator”, in the “Iron & Steel” Sector/Industry and aims at building the following key competencies amongst the learner.

| | | | |
|--|--|----------------------------|------------|
| Program Name | Mobile Equipment Operator | | |
| Qualification Pack Name & Reference ID. | Mobile Equipment Operator ISC/Q0401 | | |
| Version No. | 1.0 | Version Update Date | 01-04-2017 |
| Pre-requisites to Training | Minimum qualification – 10th Pass | | |
| Training Outcomes | After completing this programme, participants will be able to: <ul style="list-style-type: none"> • Prepare the vehicle • Perform mobile equipment operations • Perform basic maintenance and troubleshooting of the mobile equipments • Use basic health and safety practices at the work place • Works effectively with others | | |

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Mobile Equipment Operator” Qualification Pack issued by “Indian Iron & Steel Sector Skill Council”.

| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|---|
| 1 | Over view of Iron & Steel Industry Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code | <ul style="list-style-type: none"> • Understanding Iron & steel industry • Understanding types of Iron & Steel Industry • Understanding products of Iron & Steel industry • Activities in Iron & Steel Industry | PPTs of Iron and steel manufacturing, Charts showing the same |
| 2 | Occupational, Health and Safety (OHAS) Theory Duration (hh:mm) 08:00 Practical Duration (hh:mm) 06:00 Corresponding NOS | <ul style="list-style-type: none"> • Understanding the Occupational health & Safety • Understand What is hazard • Documentation for Health and safety • Working at Heights, confined spaces • Remedies for fire at work place | PPTs for OHAS related to Job Role, Display Material for PPEs related to Job Role, Safety Material |



| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|---|
| | Code ISC/N0008 | | |
| 3 | 5S & House keeping Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 06:00 Corresponding NOS Code ISC/N0008 | <ul style="list-style-type: none"> • Identification of bottlenecks in functioning of work place • Various methods of housekeeping both pre-work & post-work as well | PPTs of 5S, Display Charts of 5S, Audit Checklists of 5S |
| 4 | Prepare the vehicle Theory Duration (hh:mm) 23:00 Practical Duration (hh:mm) 50:00 Corresponding NOS Code ISC/N0401 | <ul style="list-style-type: none"> • Understand the job requirements according to the checklist • Conduct pre-operation checks according to a checklist and to ensure that the vehicle is working & is safe to use | PPTs for various types of drawings, Fork lift, JCB, Skid Loader/Bob cat, Pay loader , coolant, engine oil |
| 5 | Perform mobile equipment operations Theory Duration (hh:mm) 28:00 Practical Duration (hh:mm) 75:00 Corresponding NOS Code ISC/N0402 | <ul style="list-style-type: none"> • Start & operate the vehicle to lift the specific load (coils, slag, debris, bricks, slabs, zinc/lead/aluminium ingots, spares, equipment etc.) to be transferred • Drive the vehicle safely on the approved route • Discharge the load in correct & safe way at the desired location • Park the vehicle with the arm/fork/boom/basket/bucket in lowered condition | Fork lift, JCB, Skid Loader/Bob cat, Pay loader , coolant, engine oil |
| 6 | Perform basic maintenance and troubleshooting on the mobile equipment Theory Duration (hh:mm) 30:00 Practical Duration (hh:mm) 80:00 | <ul style="list-style-type: none"> • Carry out routine maintenance in accordance with the manufacturer's recommendations and company procedures. • Carry out basic diagnostics and troubleshooting. | Fork lift, JCB, Skid Loader/Bob cat, Pay loader , coolant, engine oil |



| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|---|
| | Corresponding NOS Code ISC/N0403 | | |
| 7 | Use basic health and safety practices at the workplace Duration (hh:mm) 04:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code ISC/N0008 | <ul style="list-style-type: none"> Health and safety procedures Fire safety procedures Emergencies, rescue and first aid procedures | PPE, Different Type of Safety Sign, First Aid Box, Safety instrument and clothing, Step Ladder, Sample Accident reports, Fire Extinguishers, Items required for fire extinguisher and fire Safety |
| 8 | Work effectively with others Duration (hh:mm) 08:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code ISC/N0009 | <ul style="list-style-type: none"> Ensure appropriate communication with superiors, peers and others as applicable at work place Demonstrate appropriate behaviour and etiquette at work place | Communication skills PPTs, Posters Team management posters |
| | Total Duration Theory Duration 111:00 Practical Duration 239:00 | Unique Equipment Required: <ul style="list-style-type: none"> Mechanical Drawings, Blueprints, Basic Tools and Equipment's, measuring tools& precision measurement tools, Assembling tools Lubricant and coolant Material and Equipment for cleaning, Bearing pulling, lifting machines PPE, Safety Sign, First Aid Box, Fire Extinguishers | |

Grand Total Course Duration: **350Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by **Indian Iron and Steel Sector Skills Council**)



Trainer Prerequisites for Job role: “Mobile Equipment Operator” mapped to Qualification Pack: “ISC/Q0401”

| Sr. No. | Area | Details |
|---------|---|--|
| 1 | Description | To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ISC/Q0401”. |
| 2 | Personal Attributes | Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field. |
| 3 | Minimum Educational Qualifications | Min. ITI pass and preferably CTI/ATI cleared/ Diploma Mechanical |
| 4a | Domain Certification | Certified for Job Role: “ <u>Mobile Equipment Operator</u> ” mapped to QP: “ISC/Q0401”. Minimum accepted score is 80% |
| 4b | Platform Certification | Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/1402”. Minimum accepted score is 80% |
| 5 | Experience | Min. 5 years industry experience and minimum 2 years’ experience as Trained or untrained for same Job Role/ Trade |



Annexure: Assessment Criteria

| | |
|-----------------------------|---|
| Assessment Criteria | |
| Job Role | Mobile Equipment Operator |
| Qualification Pack | ISC/Q0401 |
| Sector Skill Council | Indian Iron & Steel Sector Skill Council |

| 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 these criteria. |
| 5 | To pass the Qualification Pack , every trainee should score a minimum of 60% in every NOS. |
| 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 outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|---|--|-------------|--------|------------------|------------------|
| | | | | Theory | Skills practical |
| ISC/N0401: Prepare the vehicle | PC1. Interpret and understand the job requirements | 200 | 25 | 10 | 15 |
| | PC2. Prepare a work plan to carry out the job | | 15 | 5 | 10 |
| | PC3. Check oil levels of engine, transmission, radiator coolant and brake | | 15 | 0 | 15 |
| | PC4. Check differential and hydraulic oil levels | | 15 | 0 | 15 |
| | PC5. Check the hydraulic hose and ram for leakages | | 10 | 0 | 10 |
| | PC6. Check condition of parking brake, main horn, reverse horn, and head light | | 10 | 0 | 10 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--|---|--------------|------------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC7. Check the various controls, gauges, warning lamp and other safety devices | | 20 | 5 | 15 |
| | PC8. Check fan belt tension, electrolyte level and terminal tightness | | 15 | 5 | 10 |
| | PC9. Check and adjust driving position, rear and side mirrors, seat belts | | 5 | 0 | 5 |
| | PC10. Clean air filter dust bowls | | 10 | 5 | 5 |
| | PC11. Drain water and sediment from the fuel tank | | 5 | 0 | 5 |
| | PC12. Top up coolant and oil in engine, transmission, etc. if necessary | | 10 | 0 | 10 |
| | PC13. Check electrolyte level, terminals, seating arrangements of the battery | | 5 | 0 | 5 |
| | PC14. Apply grease to all greasing pins and pivot points | | 5 | 0 | 5 |
| | PC15. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) | | 15 | 5 | 10 |
| | PC16. Keep footplates and steps clean and free from mud, dirt and oil. | | 5 | 0 | 5 |
| | PC17. Report defects precisely to the supervisor if beyond scope of his role | | 15 | 5 | 10 |
| | NOS Total Marks | Total | 200 | 45 | 155 |
| ISC/N0402: Perform mobile equipment operation | PC1. Start the engine using the push-button switch and key switch together | 400 | 25 | 5 | 20 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--------------------------|---|-------------|--------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC2. Use the priming pump and pre-heater to start the engine in cold weather conditions | | 20 | 10 | 10 |
| | PC3. Load the material to be transferred safely & correctly, ensuring that it is not damaged or spilt or does not slip/fall off during loading or during journey | | 40 | 10 | 30 |
| | PC4. Always wear safety belt & helmet while driving | | 10 | 0 | 10 |
| | PC5. Ensure proper functioning of rear view mirror and audio visual alarm | | 10 | 0 | 10 |
| | PC6. Not use mobile phones while driving | | 10 | 0 | 10 |
| | PC7. Look out for pedestrians, people working, stationary objects and hazards such as trenches, potholes, cables, caring for overhead pipes, power lines, confined space etc. | | 25 | 0 | 25 |
| | PC8. Operate the shifting quadrant device for selecting the correct gear setting | | 35 | 10 | 25 |
| | PC9. Ensure vehicle load and operating speed are within limits specified by the manufacturer & do not cross the limits specified in the company | | 40 | 10 | 30 |
| | PC10. Adhere to time limits given by supervisor | | 20 | 5 | 15 |
| | PC11. Follow the road signs and locally developed signals | | 30 | 10 | 20 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|---|---|--------------|------------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC12. Keep a safe distance from a tip edge and use an approved stop block before tipping over an edge | | 15 | 5 | 10 |
| | PC13. Select & use the right type of brake in different situations during journey | | 20 | 5 | 15 |
| | PC14. Discharge the load safely at the position and in the manner designated by the supervisor | | 30 | 5 | 25 |
| | PC15. Ensure that vehicle is always parked on firm, level ground; with handbrake applied and drive & controls disengaged | | 25 | 0 | 25 |
| | PC16. Put the front accessory (boom, fork, basket/bucket) in lowered condition touching the ground; switch the engine off, apply handbrake and alight from the seat | | 30 | 5 | 25 |
| | PC17. Ensure that nobody except the authorised driver ever boards, travels on or stands near the Vehicle | | 15 | 5 | 10 |
| | NOS Total Marks | Total | 400 | 85 | 315 |
| ISC/N0403: Perform basic maintenance and troubleshooting on the mobile equipment | PC1. Track machine operating hours to assess the right service schedule. | 150 | 25 | 10 | 15 |
| | PC2. Clean air filter dust bowls | | 5 | 0 | 5 |
| | PC3. Clean footplates, pedals and steps free from mud, or dirt. | | 5 | 0 | 5 |
| | PC4. Drain water and sediment /fuel separators | | 5 | 0 | 5 |
| | PC5. Replenish coolants, lubricants and fluids | | 10 | 0 | 10 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|---|---|--------------|------------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC6. Grease all greasing pins and pivot points | | 5 | 0 | 5 |
| | PC7. Check battery electrolyte levels and condition of the terminals and carrying out minor adjustments if required. | | 10 | 0 | 10 |
| | PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads. | | 5 | 0 | 5 |
| | PC9. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity. | | 5 | 0 | 5 |
| | PC10. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) | | 15 | 5 | 10 |
| | PC11. Ensure that no maintenance task on the engine is performed when the vehicle is running or still hot | | 10 | 0 | 10 |
| | PC12. Identify any problem with the normal functioning of the forklift | | 15 | 5 | 10 |
| | PC13. Carry out troubleshooting to ensure completion of given task | | 20 | 5 | 15 |
| | PC14. Assess when the problem is beyond his competence and report the problem to suitably qualified/designated and competent personnel | | 15 | 5 | 10 |
| | NOS Total Marks | Total | 150 | 30 | 120 |
| ISC/N0008: Use basic health and safety practices | PC1. Use protective clothing/equipment for specific tasks and work conditions | 150 | 10 | 5 | 5 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--------------------------|---|-------------|--------|------------------|------------------|
| | | | | Theory | Skills practical |
| at the workplace | PC2. State the name and location of people responsible for health and safety in the workplace | | 5 | 0 | 5 |
| | PC3. State the names and location of documents that refer to health and safety in the workplace | | 1 | 0 | 1 |
| | PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace | | 9 | 5 | 4 |
| | PC5. Carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role | | 10 | 5 | 5 |
| | PC6. State location of general health and safety equipment in the workplace | | 5 | 0 | 5 |
| | PC7. Inspect for faults, set up and safely use steps and ladders in general use | | 5 | 0 | 5 |
| | PC8. Work safely in and around trenches, elevated places and confined areas | | 5 | 0 | 5 |
| | PC9. Lift heavy objects safely using correct procedures | | 5 | 0 | 5 |
| | PC10. Apply good housekeeping practices at all times | | 5 | 0 | 5 |
| | PC11. Identify common hazard signs displayed in various areas | | 6 | 5 | 1 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--------------------------|--|-------------|--------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC12. Retrieve and/or point out documents that refer to health and safety in the workplace | | 4 | 0 | 4 |
| | PC13. Use the various appropriate fire extinguishers on different types of fires correctly | | 10 | 5 | 5 |
| | PC14. Demonstrate rescue techniques applied during fire hazard | | 10 | 5 | 5 |
| | PC15. Demonstrate good housekeeping in order to prevent fire hazards | | 5 | 0 | 5 |
| | PC16. Demonstrate the correct use of a fire extinguisher | | 5 | 0 | 5 |
| | PC17. Demonstrate how to free a person from electrocution | | 5 | 0 | 5 |
| | PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. | | 5 | 0 | 5 |
| | PC19. Demonstrate basic techniques of bandaging | | 5 | 0 | 5 |
| | PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments | | 10 | 5 | 5 |
| | PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments | | 5 | 0 | 5 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--|--|--------------|------------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC22. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases | | 5 | 0 | 5 |
| | PC23. Demonstrate the artificial respiration and the CPR Process | | 4 | 0 | 4 |
| | PC24. Participate in emergency procedures | | 4 | 0 | 4 |
| | PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible | | 6 | 5 | 1 |
| | PC26. Demonstrate correct method to move injured people and others during an emergency | | 1 | 0 | 1 |
| | NOS Total Marks | Total | 150 | 45 | 110 |
| ISC/N0009: Work effectively with others | PC1. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required | 100 | 10 | 5 | 5 |
| | PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt | | 10 | 5 | 5 |
| | PC3. Provide information to others clearly, at a pace and in a manner that helps them to understand | | 10 | 0 | 10 |
| | PC4. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible | | 10 | 5 | 5 |



| Assessment outcome (nos) | Assessment criteria | Total marks | Out of | Marks allocation | |
|--------------------------|---|--------------|-------------|------------------|------------------|
| | | | | Theory | Skills practical |
| | PC5. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks | | 10 | 5 | 5 |
| | PC6. Display appropriate communication etiquette while working | | 10 | 0 | 10 |
| | PC7. Display active listening skills while interacting with others at work | | 10 | 0 | 10 |
| | PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism | | 10 | 5 | 5 |
| | PC9. Demonstrate responsible and disciplined behaviors at the workplace | | 15 | 5 | 10 |
| | PC10. Escalate grievances and problems to | | 5 | 0 | 5 |
| | NOS Total Marks | Total | 100 | 30 | 70 |
| | Grand Total | 1000 | 1000 | 235 | 770 |
| | Percentage Weightage: | | | 50% | 50% |
| | Minimum Pass% to qualify (aggregate): | | | 60% | |