



Model Curriculum

Stoking Car Operator: Ferro Alloys

SECTOR: IRON & STEEL
SUB-SECTOR: FERRO ALLOYS

OCCUPATION: FURNACE OPERATION
REF ID: ISC/Q5302
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: 'Stoking Car Operator: Ferro Alloys' QP No. 'ISC/Q5302 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)



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Stoking Car Operator: Ferro Alloys

CURRICULUM / SYLLABUS

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

Program Name	Stoking Car Operator: Ferro Alloys		
Qualification Pack Name & Reference ID.	Stoking Car Operator: Ferro Alloys ISC/Q5302		
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 stoking car • Perform operations with the stoking car • Perform basic maintenance and troubleshooting of the stoking car • 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 “Stoking Car Operator: Ferro Alloys” 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	<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

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 12:00 Corresponding NOS Code ISC/N0008		Material
3	5S & House keeping Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 10:00 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 stoking car Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 70:00 Corresponding NOS Code ISC/N5305	<ul style="list-style-type: none"> • Understand the job requirement where very high currents are passing through electrodes • Conduct pre-operation checks to ensure the car is safe to use 	PPTs for various types of drawings, parking brake, main horn, reverse horn, and head light, rear and side mirrors, seat belts
5	Perform stoking car operations Theory Duration (hh:mm) 25:00 Practical Duration (hh:mm) 80:00 Corresponding NOS Code ISC/N5306	<ul style="list-style-type: none"> • Start and Operate the stoking car • Drives safely on the approved route • Covering the furnace with Charge mix in correct way at the desired location between the electrodes without touching them 	parking brake, main horn, reverse horn, and head light, rear and side mirrors, seat belts
6	Performing routine maintenance and troubleshooting on stoking car Theory Duration (hh:mm) 25:00	<ul style="list-style-type: none"> • Routine maintenance in accordance with the manufacturer's recommendations and company procedures • Basic diagnostics and troubleshooting 	parking brake, main horn, reverse horn, and head light, rear and side mirrors, seat belts



Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 90:00 Corresponding NOS Code ISC/N5307		
7	Use basic health and safety practices at the workplace Duration (hh:mm) 06:00 Practical Duration (hh:mm) 08:00 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) 08:00 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 102:00 Practical Duration 278:00	Unique Equipment Required: <ul style="list-style-type: none"> • Mechanical Drawings, Blueprints, • Basic Tools and Equipment's, • measuring tools& precision measurement tools, • Lubricant and coolant • Material and Equipment for cleaning, lifting machines • PPE, Safety Sign, First Aid Box, Fire Extinguishers 	

Grand Total Course Duration: **380Hours, 0 Minutes**

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



Trainer Prerequisites for Job role: “Stoking Car Operator: Ferro Alloys” mapped to Qualification Pack: “ISC/Q5302”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ISC/Q5302”.
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>Stoking Car Operator: Ferro Alloys</u> ” mapped to QP: “ISC/Q5302”. 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	Stoking Car Operator: Ferro Alloys
Qualification Pack	ISC/Q5302
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/N5305: Stoking Car Operator: Ferro Alloys	PC1. Interpret the checklist and understand the job requirements	200	10	5	5
	PC2. Ensure the floor is clean and no obstructions before starting the job		5	0	5
	PC3. Operating the car near the Electrodes which carry very high currents		10	5	5
	PC4. Importance of covering the electric arc with charge mix		15	5	10
	PC5. Check oil levels of engine, transmission, radiator coolant and brake		15	5	10
	PC6. Check differential and hydraulic oil levels		15	5	10



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC7. Check the hydraulic hose and ram for leakages		15	5	10
	PC8. Check condition of parking brake, main horn, reverse horn, and head light.		15	5	10
	PC9. Check the various controls, gauges, warning lamp and other safety devices		15	5	10
	PC10. Check fan belt tension, electrolyte level and terminal tightness		15	5	10
	PC11. Check and adjust driving position, rear and side mirrors, seat belts		15	5	10
	PC12. Clean air filter dust bowls		15	5	10
	PC13. Check coolant and oil in engine		15	5	10
	PC14. Keep footplates and steps clean and free from mud, dirt and oil		10	0	10
	PC15. Report defects precisely to the supervisor if beyond scope of his role		15	5	15
	NOS Total Marks	Total	200	65	135
ISC/N5306 Perform stoking car operations	PC1. Start the engine using the pushbutton switch and key switch together	250	5	0	5
	PC2. Ensure that the stoking car stoker's movement is smooth		5	0	5
	PC3. Ensure that the furnace is covered with the charge mix between the electrodes and centre of the electrodes		15	5	10



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC4. Take fresh charge wherever required in consultation with the supervisor		15	5	10
	PC5. Ensure wearing safety belt while driving		10	5	5
	PC6. Ensure proper functioning of rear view camera and audio visual alarm		10	5	5
	PC7. Not use mobile phones while driving		5	0	5
	PC8. Look out for people moving on shop floor		10	0	10
	PC9. Operate the car forward and backwards carefully on the shop floor		20	5	15
	PC10. Operate car without touching the electrodes or its critical parts		20	5	15
	PC11. Ensure stoking car load and operating speed is within limits specified by the manufacturer		20	5	15
	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 and use the right type of brake in different situations and conditions		25	5	20
	PC14. Ensure that stoking car is always parked on firm, level ground; with handbrake applied and drive and controls disengaged		15	0	15
	PC15. Operate the stoker safely at the position and in the manner designated		25	5	20



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC16. Ensure that no other operators travel on or stand near the stoking car		15	5	10
	PC17. Ensure proper distribution of Charge mix in the furnace and always covered fully		20	5	15
	NOS Total Marks	Total	250	60	190
ISC/N5307: Performing routine maintenance and troubleshooting on stoking car	PC1. Track machine operating hours to assess the right service schedule	300	15	5	10
	PC2. Clean air filter dust bowls		15	5	10
	PC3. Clean footplates, pedals and steps free from mud/dirt		10	5	5
	PC4. Drain water and sediment /fuel separators		15	5	10
	PC5. Replenish coolants, lubricants and fluids		20	5	15
	PC6. Grease all greasing pins and pivot points		25	5	20
	PC7. Check battery levels and condition of the terminals and carrying out minor adjustments if required		25	5	20
	PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads		20	5	15
	PC9. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity		15	5	10
	PC10. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only)		20	5	15



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC11. Ensure that no maintenance task on the engine is performed when running or still hot		20	5	15
	PC12. Identify any problem with the usual functioning of the Stoking Car		35	10	25
	PC13. Carry out troubleshooting to ensure completion of given task		35	10	25
	PC14. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel		30	10	20
	NOS Total Marks	Total	300	85	215
ISC/N0008: Use basic health and safety practices at the workplace	PC1. Use protective clothing/equipment for specific tasks and work conditions	150	9	4	5
	PC2. State the name and location of people responsible for health and safety in the workplace		6	1	5
	PC3. State the names and location of documents that refer to health and safety in the workplace		2	1	1
	PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace		8	4	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		6	1	5



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC6. State location of general health and safety equipment in the workplace		6	1	5
	PC7. Inspect for faults, set up and safely use steps and ladders in general use		6	1	5
	PC8. Work safely in and around trenches, elevated places and confined areas		6	1	5
	PC9. Lift heavy objects safely using correct procedures		6	1	5
	PC10. Apply good housekeeping practices at all times		2	1	1
	PC11. Identify common hazard signs displayed in various areas		6	5	1
	PC12. Retrieve and/or point out documents that refer to health and safety in the workplace		5	1	4
	PC13. Use the various appropriate fire extinguishers on different types of fires correctly		9	4	5
	PC14. Demonstrate rescue techniques applied during fire hazard		8	4	4
	PC15. Demonstrate good housekeeping in order to prevent fire hazards		2	1	1
	PC16. Demonstrate the correct use of a fire extinguisher		6	1	5



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC17. Demonstrate how to free a person from electrocution		6	1	5
	PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		8	3	5
	PC19. Demonstrate basic techniques of bandaging		6	1	5
	PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		7	2	5
	PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments		6	1	5
	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		6	1	5
	PC23. Demonstrate the artificial respiration and the CPR Process		6	1	5
	PC24. Participate in emergency procedures		6	1	5
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		4	1	3



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC26. Demonstrate correct method to move injured people and others during an emergency		2	1	1
	NOS Total Marks	Total	150	45	105
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
	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



Assessment outcome (nos)	Assessment criteria			Marks allocation	
		Total marks	Out of	Theory	Skills practical
	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	285	715
	Percentage Weightage:			50%	50%
	Minimum Pass% to qualify (aggregate):			60%	