Model Curriculum

Heating Regulator

SECTOR: IRON & STEEL
SUB-SECTOR: STEEL

OCCUPATION: Coke Making
REF ID: ISC/Q0203
NSQF LEVEL: 4

Skill India

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: 'Heating Regulator' QP No. 'ISC/Q0203 NSQF Level 4'

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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Heating Regulator

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Heating Regulator", in the "Iron & Steel" Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	**Heating Regulator**		
Qualification Pack Name & Reference ID.	**Heating Regulator ISC/Q0203**		
Version No.	1.0	**Version Update Date**	01-04-2017
Pre-requisites to Training	Minimum qualification – ITI Pass		
Training Outcomes	**After completing this programme, participants will be able to:** • Understand the assigned job of heating regulator • Understand measurement parameters of "Technological Regime" of a coke oven battery • Use basic health and safety practices at the work place • Works effectively with others		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of "Heating Regulator" 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**	• 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) 12:00 **Practical Duration** (hh:mm) 20:00	• 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
	Corresponding NOS Code ISC/N0008		
3	**5S & House keeping** **Theory Duration** (hh:mm) 12:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ISC/N0008	• 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	**Understand the assigned job of heating regulator** **Theory Duration** (hh:mm) 45:00 **Practical Duration** (hh:mm) 140:00 **Corresponding NOS Code** ISC/N0207	• Understand all enabling jobs to control "Technological Regime" of coke oven battery • Understand all required activities for measurement and regulation	optical/ digital pyrometer, thermo couple and manometers
5	**Understand measurement parameters of "Technological Regime" of a coke oven battery** **Theory Duration** (hh:mm) 55:00 **Practical Duration** (hh:mm) 140:00 **Corresponding NOS Code** ISC/N0702	• Understand all enabling jobs of Technological Regime of coke oven battery • Understand the activities involved in measurements of Technological Regime parameters	optical/ digital pyrometer, thermo couple and manometers
6	**Use basic health and safety practices at the workplace** **Duration** (hh:mm) 08:00	• 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,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 12:00 **Corresponding NOS Code** ISC/N0008		Fire Extinguishers, Items required for fire extinguisher and fire Safety
7	**Work effectively with others** **Duration** (hh:mm) 12:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ISC/N0009	• 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 148:00** **Practical Duration 352:00**	**Unique Equipment Required:** • Mechanical Drawings, Blueprints, • Basic Tools and Equipment's, • measuring tools& precision measurement tools, • Material and Equipment for cleaning, lifting machines • PPE, Safety Sign, First Aid Box, Fire Extinguishers	

Grand Total Course Duration: **500Hours, 0 Minutes**
*(This syllabus/ curriculum has been approved by **Indian Iron and Steel Sector Skills Council**)*

Trainer Prerequisites for Job role: "Heating Regulator" mapped to Qualification Pack: "ISC/Q0203"

Sr. No.	Area	Details
1	**Description**	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "ISC/Q0203".
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: "Heating Regulator" mapped to QP: "ISC/Q0203". 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 un trained for same Job Role/ Trade

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	**Heating Regulator**
Qualification Pack	**ISC/Q0203**
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.

				Marks allocation	
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
ISC/N0207: Understand the assigned job of heating regulator	PC1. Interpret and understand the "Technological Regime" control job requirements	**250**	30	10	20
	PC2. Plan, as appropriate to carry out the jobs		30	10	20
	PC3. Understand measurement of heating regime temperatures e.g. Control Vertical Temperature (CVT), End Vertical Temperature (EVT) and coke mass temperature etc. as per schedule		50	10	40
	PC4. Understand measurement of hydraulic regime parameters e.g. oven sole pressure, vertical top pressure, differential pressure of Gas Collecting Main, regenerator checker work resistance etc.		50	10	40

			Marks allocation		
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	PC5. Understand control of CVT, EVT etc.		50	10	40
	PC6. Understand control of draft regulation		40	10	30
	NOS Total Marks	**Total**	**250**	**60**	**190**
ISC/N0208: Understand measurement parameters of "Technological Regime" of a coke oven battery	PC1. Understand measurement of various temperature parameters as below: • CVT • EVT • Coke mass • Sole flues in all regenerators • Vertical flues along all the heating walls • Cross walls • Adjustment of bottom and top temperature in case of heat recovery oven	**500**	35	10	25
	PC2. Understand measurement of various pressure parameters as below: • Oven sole • Vertical Top • Gas collecting main differential (in case of double GC main) • Regenerator checker work resistance		35	10	25
	PC3. Understand measurement of leveller bar deflection		35	10	25
	PC4. Understand measurement of coke mass shrinkage		35	10	25

				Marks allocation	
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	PC5. Understand regulation of fuel gas pressure and flow		35	10	25
	PC6. Understand regulation of cross wall temperature		35	10	25
	PC7. Understand flow regulation of up-going fuel gas and down coming waste gas at the regenerator level (draft regulation)		35	10	25
	PC8. Understand of stamping time, coal crushing index, charge coal moisture, bulk density of charge coal in case of stamp charge battery		35	10	25
	PC9. Measure various temperature parameters as below: • CVT • EVT • Coke mass • Sole flues in all regenerators • Vertical flues along all the heating walls • Cross walls		30	10	20
	PC10. Measure various pressure parameters as below: • Oven sole • Vertical Top • Gas collecting main differential • · Regenerator checker work resistance		35	10	25
	PC11. Measure leveller bar deflection		35	10	25

				Marks allocation	
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	PC12. Measure coke mass shrinkage		30	10	20
	PC13. Regulate fuel gas pressure and flow		30	10	20
	PC14. Regulate cross wall temperature		30	10	20
	PC15. Regulate up-going fuel gas and down coming waste gas at the regenerator level (draft regulation)		30	10	20
	NOS Total Marks	**Total**	**500**	**150**	**350**
ISC/N0008: Use basic health and safety practices at the workplace	PC1. Use protective clothing/equipment for specific tasks and work conditions	**150**	10	5	5
	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

			Marks allocation		
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	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		1	0	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		4	0	4
	PC13. Use the various appropriate fire extinguishers on different types of fires correctly		9	5	4
	PC14. Demonstrate rescue techniques applied during fire hazard		10	5	5
	PC15. Demonstrate good housekeeping in order to prevent fire hazards		1	0	1

			Marks allocation		
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	PC16. Demonstrate the correct use of a fire extinguisher		4	0	4
	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.		10	5	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
	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		5	0	5
	PC24. Participate in emergency procedures		5	0	5

				Marks allocation	
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		9	5	4
	PC26. Demonstrate correct method to move injured people and others during an emergency		1	0	1
	NOS Total Marks	**Total**	**100**	**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

				Marks allocation	
Assessment outcome (nos)	**Assessment criteria**	**Total marks**	**Out of**	**Theory**	**Skills practical**
	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	**950**	**950**	**285**	**715**
	Percentage Weightage:			**50%**	**50%**
	Minimum Pass% to qualify (aggregate):			**60%**	