



Supervisor - Control Room (Steel Melting Shop)

QP Code: ISC/Q0409

Version: 2.0

NSQF Level: 5

Indian Iron and Steel Sector Skill Council || Karigari Bhawan 5th Floor, Room No-509
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Contents

ISC/Q0409: Supervisor - Control Room (Steel Melting Shop)	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
ISC/N0008: Use basic health and safety practices at the work place	5
ISC/N0009: Work effectively with others	11
ISC/N0430: Perform control room operations	15
Assessment Guidelines and Weightage	20
Assessment Guidelines	20
Assessment Weightage	20
Acronyms	21
Glossary	22

ISC/Q0409: Supervisor - Control Room (Steel Melting Shop)

Brief Job Description

The individual in this role coordinate and monitor the operation of various functions of steel plant (blast furnace, sinter plant, coke making, steel making, finishing etc.) for steel making through control panels, computer terminals or other control systems, usually from a central control room.

Personal Attributes

The person should be patient, organized, team-oriented and have the ability to work for long hours in adverse conditions. They must be able to plan and prioritise tasks effectively and have an eye for detail and quality.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ISC/N0008: Use basic health and safety practices at the workplace](#)
2. [ISC/N0009: Work effectively with others](#)
3. [ISC/N0430: Perform control room operations](#)

Qualification Pack (QP) Parameters

Sector	Iron & Steel
Sub-Sector	Steel
Occupation	Steel Making
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification & Experience	3 years Diploma (after 10th Class) in Metallurgy with 2 years of relevant experience OR Graduation (B. Sc) with 1 year of relevant experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA

Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	NA
NSQC Approval Date	
Version	2.0

ISC/N0008: Use basic health and safety practices at the workplace

Description

This OS unit is about following safety and adopting sustainable practices for optimizing use of resources.

Scope

The scope covers the following:

- Maintain safe and secure working environment
- Emergencies, rescue and first aid procedures
- Health and hygiene
- Housekeeping and waste management
- Material and energy conservation

Elements and Performance Criteria

Maintain safe and secure working environment

To be competent, the user/individual on the job must be able to:

- PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace
- PC2. follow safe working practices while dealing with hazards to ensure safety of self and others
- PC3. use appropriate protective clothing/equipment for specific tasks and work
- PC4. follow appropriate safety practices while working in and around trenches, elevated places and confined areas
- PC5. lift heavy objects safely using correct procedures
- PC6. carry out routine check of the machine for identifying potential hazards
- PC7. report any identified breaches in health, safety and security policies and procedures to the designated person

Emergencies, rescue and first aid procedures

To be competent, the user/individual on the job must be able to:

- PC8. use appropriate type of fire extinguisher
- PC9. apply appropriate rescue techniques during fire hazard
- PC10. provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.
- PC11. follow emergency procedures such as raising alarm, safe evacuation etc.
- PC12. attend safety training and fire drills to respond promptly during an emergency

Health and hygiene

To be competent, the user/individual on the job must be able to:

- PC13. follow regular cleaning and disinfection practices at work place using appropriate techniques and materials



PC14. follow hand hygiene practices at work place using appropriate techniques and materials

PC15. report regarding the contagious illness of self or people in close contact

PC16. avoid contact with ill people and self-isolate in a similar situation

Housekeeping and waste management

To be competent, the user/individual on the job must be able to:

PC17. follow the fundamentals of 5S for housekeeping

PC18. ensure good housekeeping in order to prevent hazards and accidents

PC19. store the material, tools and equipment in the correct location and in good condition

PC20. segregate waste into different categories

PC21. identify recyclable, non-recyclable and hazardous waste

PC22. dispose non-recyclable, recyclable and reusable waste appropriately at identified location

Material and energy conservation

To be competent, the user/individual on the job must be able to:

PC23. identify ways to optimize usage of material in various tasks/activities/processes

PC24. check for spills/leakages in various tasks/activities/processes

PC25. plug spills/leakages and escalate to appropriate authority if unable to rectify

PC26. check if the equipment/machine is functioning normally before commencing work and rectify wherever required

PC27. ensure electrical equipment and appliances are properly connected and turned off when not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation procedures for health, safety and security, individual role and responsibilities in this context

KU2. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU3. evacuation procedures for workers and visitors

KU4. how and when to report hazards

KU5. potential hazards, risks and threats based on the nature of work

KU6. preventative and remedial actions to be taken in case of exposure to toxic material

KU7. various types of fire extinguisher

KU8. various types of safety signs and their meaning

KU9. appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.

KU10. relevant standards, procedures and policies related to 5S followed in the company

KU11. the various materials used and their storage norms

KU12. efficient utilisation of material and water

- KU13. basics of electricity and prevalent energy efficient devices
- KU14. common practices of conserving electricity
- KU15. categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU16. usage of different colors of dustbins
- KU17. waste management techniques

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read safety instructions/guidelines
- GS2. modify work practices to improve them
- GS3. ask for clarifications from superior about the job requirement
- GS4. work with supervisors/team members to carry out work related tasks
- GS5. complete tasks efficiently and accurately within stipulated time
- GS6. inform/report to concerned person in case of any problem
- GS7. make timely decisions for efficient utilization of resources
- GS8. write reports such as accident report, in at least English/regional language
- GS9. be punctual and utilize time efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	10	14	-	6
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	2	-	1
PC2. follow safe working practices while dealing with hazards to ensure safety of self and others	2	3	-	1
PC3. use appropriate protective clothing/ equipment for specific tasks and work	1	2	-	1
PC4. follow appropriate safety practices while working in and around trenches, elevated places and confined areas	2	1	-	-
PC5. lift heavy objects safely using correct procedures	1	2	-	1
PC6. carry out routine check of the machine for identifying potential hazards	1	2	-	1
PC7. report any identified breaches in health, safety and security policies and procedures to the designated person	1	2	-	1
<i>Emergencies, rescue and first aid procedures</i>	6	9	-	5
PC8. use appropriate type of fire extinguisher	1	1	-	1
PC9. apply appropriate rescue techniques during fire hazard	1	2	-	1
PC10. provide appropriate first aid procedure to victims wherever required eg. in case of bleeding, burns, choking, electric shock etc.	2	2	-	1
PC11. follow emergency procedures such as raising alarm, safe evacuation etc.	1	2	-	1
PC12. attend safety training and fire drills to respond promptly during an emergency	1	2	-	1
<i>Health and hygiene</i>	2	6	-	2
PC13. follow regular cleaning and disinfection practices at work place using appropriate techniques and materials	1	2	-	1

PC14.follow hand hygiene practices at workplace using appropriate techniques and materials	1	2	-	1
PC15.report regarding the contagious illness of self or people in close contact	-	1	-	-
PC16.avoid contact with ill people and self-isolate in a similar situation	-	1	-	-
<i>Housekeeping and waste management</i>	7	12	-	5
PC17.follow the fundamentals of 5S for housekeeping	2	3	-	2
PC18.ensure good housekeeping to prevent hazards and accidents	1	2	-	-
PC19.store the material, tools and equipment in the correct location and in good condition	1	2	-	-
PC20.segregate waste into different categories	1	2	-	1
PC21.identify recyclable, non-recyclable and hazardous waste	1	1	-	1
PC22.dispose non-recyclable, recyclable and reusable waste appropriately at identified location	1	2	-	1
<i>Material and energy conservation</i>	5	9	-	2
PC23.identify ways to optimize usage of material in various tasks/activities/processes	1	2	-	-
PC24.check for spills/leakages in various tasks/activities/processes	1	2	-	1
PC25.plugin spills/leakages and escalate to appropriate authority if unable to rectify	1	2	-	1
PC26.check if the equipment/machine is functioning normally before commencing work and rectify wherever required	1	2	-	-
PC27.ensure electrical equipment and appliances are properly connected and turned off when not in use	1	1	-	-
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	ISC/N0008
NOS Name	Use basic health and safety practices at the work place
Sector	Iron & Steel
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	

ISC/N0009: Work effectively with others

Description

This OS unit is about communicating with colleagues/superiors and others, either in own work group or in other work groups within organisation.

Scope

The scope covers the following :

- Communicate effectively with colleagues and others
- Interact with supervisor
- Follow appropriate behaviour at workplace

Elements and Performance Criteria

Communicate effectively with colleagues and others

To be competent, the user/individual on the job must be able to:

- PC1. coordinate with colleagues to share work, as per the workload in order to achieve team goals
- PC2. maintain clear communication with colleagues and others, wherever needed, through all means i.e. face-to-face, telephonic or written
- PC3. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity
- PC4. respect all colleagues and co-workers
- PC5. resolve conflicts by communicating with colleagues and other departments

Interact with supervisor

To be competent, the user/individual on the job must be able to:

- PC6. identify work requirements by receiving instructions from reporting supervisor
- PC7. escalate problems to supervisors that cannot be handled
- PC8. report the completed work
- PC9. interact with the reporting supervisor about any possible hazards and safety concerns

Follow appropriate behaviour at work place

To be competent, the user/individual on the job must be able to:

- PC10. extend help to people with Disability (PwD) at workplace, if required
- PC11. empathize with people with disability
- PC12. adopt a gender neutral behavior
- PC13. adopt responsible and disciplined behaviour at the workplace

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



- KU1. the importance of effective communication and establishing good working relationships with colleagues and supervisor
- KU2. different methods of communication as per the circumstances
- KU3. importance of teamwork in organization and individual success
- KU4. various components of effective communication
- KU5. barriers to effective communication
- KU6. common reasons for interpersonal conflict
- KU7. what constitutes disciplined behaviour for a working professional
- KU8. gender concepts, issues & legislation
- KU9. organisational policies and procedures related to gender equality
- KU10. challenges faced by PWD and the ways to help them overcome the same

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read instructions/guidelines/procedures
- GS2. listen effectively and orally communicate information
- GS3. ask for clarification and advice from the concerned person
- GS4. maintain positive and effective relationships with colleagues
- GS5. evaluate the possible solution(s) to the problem
- GS6. spot and communicate potential areas of disruptions in the work process and report the same
- GS7. complete written work with attention to detail
- GS8. check that the work meets customer requirements

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with colleagues and others</i>	13	20	-	9
PC1. coordinate with colleagues to share work, as per the workload in order to achieve team goals	3	5	-	2
PC2. maintain clear communication with colleagues and others, wherever needed, through all means i.e. face-to-face, telephonic or written	5	7	-	3
PC3. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	3	4	-	2
PC4. respect all colleagues and co-workers	1	2	-	1
PC5. resolve conflicts by communicating with colleagues and other departments	1	2	-	1
<i>Interact with supervisor</i>	8	14	-	6
PC6. identify work requirements by receiving instructions from reporting supervisor	2	3	-	1
PC7. escalate problems to supervisors that cannot be handled	2	3	-	2
PC8. report the completed work	2	3	-	1
PC9. interact with the reporting supervisor about any possible hazards and safety concerns	2	5	-	2
<i>Follow appropriate behaviour at work place</i>	9	16	-	5
PC10. extend help to people with Disability (PwD) at workplace, if required	2	4	-	2
PC11. empathize with people with disability	2	4	-	1
PC12. adopt a gender neutral behavior	2	4	-	1
PC13. adopt responsible and disciplined behaviours at the workplace	3	4	-	1
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	ISC/N0009
NOS Name	Work effectively with others
Sector	Iron & Steel
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	



ISC/N0430: Perform control room operations

Description

This OS unit is about controlling the process by monitoring the parameters on computer screen in the control room.

Scope

The scope covers the following:

- Prepare for control room operation
- Perform control room operations
- Record observations/deviations in the process

Elements and Performance Criteria

Prepare for control room operation

To be competent, the user/individual on the job must be able to:

- PC1. identify the work to be done by interpreting the logbook report of previous shift
- PC2. co-ordinate with the supervisor to identify the production requirements and various operating parameters
- PC3. identify machinery, consumables and tools required during production
- PC4. ensure sufficient availability of machinery, consumables and tools required for smooth running of the operation to achieve production schedule
- PC5. check that the bins & hopper have the required quantity of materials required to carry out smooth operation
- PC6. ensure that work area is clean and free of any obstacle or encumbrance
- PC7. ensure that the process parameters set up on the operator work station are in accordance with the process sheets or instructions from the supervisor

Perform control room operations

To be competent, the user/individual on the job must be able to:

- PC8. ensure that all safety measures, interlocks, alarms are working and in conformance with the safe running of the equipment
- PC9. operate multi-function central process control machinery to grind, separate, filter, melt, roast, treat, refine or otherwise as per process requirement
- PC10. start and shut down the production system in case of emergency or as required by schedule
- PC11. observe computer printouts, video monitors and gauges to verify specified processing conditions and make necessary adjustments
- PC12. monitor and analyse the trends and alarms that appear on the HMI and inform the supervisor for taking necessary countermeasures
- PC13. note observations/deviations in the on-going process as per organizational procedures
- PC14. control/set/vary the operating parameters according to SOP/Control Plan and take corrective/preventive measures



- PC15. co-ordinate with the Operations & Maintenance department & inform them about any change in parameters/system requirements
- PC16. ensure the effective implementation of operational policies covering all areas of the steel plant so that all relevant procedural / legislative requirements are fulfilled
- PC17. inform supervisor in case of any abnormalities observed during execution of work

Record observations/deviations in the process

To be competent, the user/individual on the job must be able to:

- PC18. maintain shift log of production and prepare production and other reports
- PC19. record all instructions received during the operation process in the instruction book and all incidents in the occurrence book
- PC20. inform supervisor and maintenance team in case abnormalities of data/process parameters are being noticed/recorded

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant standards and procedures followed in the company
- KU2. basic process of control room & the effect of different parameters
- KU3. SOP recommended by the manufacturer for using machinery and tools required during production
- KU4. normal running characteristics of equipment
- KU5. safety manuals and process documents provided by the equipment supplier to understand the equipment and processes better
- KU6. how a system should work and changes in conditions, operations, and the environment will affect outcomes
- KU7. causes of operating errors and necessary steps for rectification/correction
- KU8. emergency procedures and safety measures associated with control room operation

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read work instructions, equipment manuals and process documents
- GS2. communicate the process requirements to the supervisor and co-workers
- GS3. attentively listen and comprehend the information given by the supervisor/team members
- GS4. write work related information in English/regional language
- GS5. recognise a workplace problem and take suitable action
- GS6. plan and organise work according to the work requirements
- GS7. complete the assigned tasks with minimum supervision
- GS8. report to the supervisor or deal with a colleague individually, depending on the type of concern

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for control room operation</i>	10	15	-	7
PC1. identify the work to be done by interpreting the logbook report of previous shift	1	2	-	1
PC2. co-ordinate with the supervisor to identify the production requirements and various operating parameters	1	2	-	1
PC3. identify machinery, consumables and tools required during production	3	2	-	2
PC4. ensure sufficient availability of machinery, consumables and tools required for smooth running of the operation to achieve production schedule	1	2	-	1
PC5. check that the bins & hopper have the required quantity of materials required to carry out smooth operation	1	2	-	-
PC6. ensure that work area is clean and free of any obstacle or encumbrance	1	2	-	1
PC7. ensure that the process parameters set up on the operator work station are in accordance with the process sheets or instructions from the supervisor	2	3	-	1
<i>Perform control room operations</i>	16	28	-	11
PC8. ensure that all safety measures, interlocks, alarms are working and in conformance with the safe running of the equipment	1	2	-	-
PC9. operate multi-function central process control machinery to grind, separate, filter, melt, roast, treat, refine or otherwise as per process requirement	2	4	-	2
PC10.start and shut down the production system in case of emergency or as required by schedule	2	3	-	1
PC11.observe computer printouts, video monitors and gauges to verify specified processing conditions and make necessary adjustments	2	3	-	1
PC12.monitor and analyse the trends and alarms that appear on the HMI and inform the supervisor for taking necessary countermeasures	2	4	-	2
PC13.note observations/deviations in the on-going process as per organizational procedures	1	2	-	1

PC14.control/set/vary the operating parameters according to SOP/Control Plan and take corrective/preventive measures	2	4	-	2
PC15.co-ordinate with the Operations & Maintenance department & inform them about any change in parameters/system requirements	1	2	-	1
PC16.ensure the effective implementation of operational policies covering all areas of the steel plant so that all relevant procedural / legislative requirements are fulfilled	2	3	-	1
PC17.inform supervisor in case of any abnormalities observed during execution of work	1	1	-	-
<i>Perform control room operations</i>	4	7	-	2
PC18.maintain shift log of production and prepare production and other reports	2	3	-	1
PC19.record all instructions received during the operation process in the instruction book and all incidents in the occurrence book	1	2	-	1
PC20.inform supervisor and maintenance team in case abnormalities of data/process parameters are being noticed/recorded	1	2	-	-
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	ISC/N0430
NOS Name	Perform control room operations
Sector	Iron & Steel
Sub-Sector	Steel
Occupation	Steel Making
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level: 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ISC/N0008. Use basic health and safety practices at the work place	30	50	0	20	100	15
ISC/N0009. Work effectively with others	30	50	0	20	100	15
ISC/N0430. Perform control room operations	30	50	0	20	100	70
Total	90	150	0	60	300	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar / related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.