



QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR IRON & STEEL INDUSTRY

What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding



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Introduction

Qualifications Pack - Furnace Operator: Ferro Alloys

SECTOR: Iron & Steel

SUB-SECTOR: Ferro Alloys

REFERENCE ID: ISC/Q5303

ALIGNED TO: NCO-2004/NIL

Title of Job: This job is all about understanding and operating all control parameters related to Furnace Control Desk and Gas Cleaning plant Control Desk. This also involves raw material feeding system operation.

Personal Attributes: This job requires the candidate to work independently as well as in teams. Some of the key attributes includes physical fitness, not having colour blindness , having analytical skills, problem solving attitude, high concentration levels, a sharp reflex and willingness to work in a factory environment.

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Job Details	Qualifications Pack Code	ISC/Q5303		
	Job Role	Furnace Operator: Ferro Alloys		
	Credits(NSQF)	TBD	Version number	1.0
	Industry	Iron & Steel	Drafted on	20/09/2014
	Sub-sector	Ferro Alloys	Last reviewed on	25/03/2015
	Occupation	Operations	Next review date	1/04/2017
	NSQDC Clearance on	20/07/2015		

Job Role	Furnace Operator: Ferro Alloys
Role Description	This job is all about understanding and operating all Control parameters related to Furnace Control Desk and Gas Cleaning plant Control Desk. This also involves Raw material feeding system operation.
NSQF level	4
Minimum Educational Qualifications	ITI (Electrical) / B.Sc pass
Maximum Educational Qualifications	Diploma (Metallurgical/Electrical/Mechanical) pass
Training (Suggested but not mandatory)	<ul style="list-style-type: none"> • Basic concepts on all electrical formulas, relating to power factor / load factor / Current densities / balancing currents etc. • Basic knowledge on processes related to Ferro Alloys • Knowledge on Raw materials that are used • Basic knowledge of PLC systems
Experience	<ul style="list-style-type: none"> • 0-1 year experience in control room operation • In lieu of minimum qualification the incumbent should have minimum 3 to 4 years relevant experience in the similar field/function under an experienced supervisor as assistant to Furnace Operator



Occupational Standards (OS)	Compulsory: ISC/N5308: Carry out control room & control desk operation ISC/N0008: Use basic health and safety practices at the workplace ISC/N0009: Work effectively with others Optional: N/A
Performance Criteria	As described in the relevant OS unit



Definitions

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	Organisational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the 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 the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.



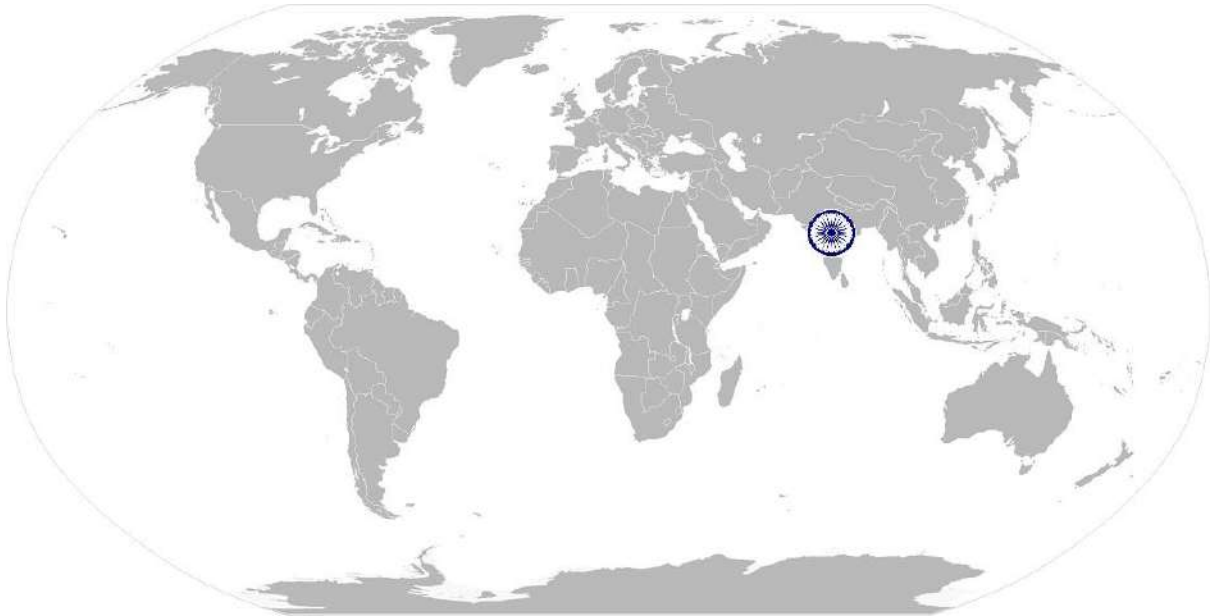
Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Keywords /Terms	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack
5 S	Technique of maintaining orderliness –Japanese terminology
CP	Control Plan
WI	Work Instructions

Acronyms



ISC/N1110: _____ Carry out control room and control desk operations _____

National Occupational Standards



Overview

The unit is about understanding and operating all control parameters related to Furnace Control Desk and Gas Cleaning Plant Control Desk.



ISC/N1110:

Carry out control room and control desk operations

National Occupational Standard

Unit Code	ISC/N5308
Unit Title (Task)	Carry out control room & control desk operation
Description	The Unit is about understanding and operating all Control parameters related to Furnace Control Desk and Gas Cleaning Plant Control Desk.
Scope	<p>This unit /task covers the following:</p> <ul style="list-style-type: none"> • Understand furnace operation & processes • Understand relation between Voltage / Currents / Power Factor • Operate the furnace on optimum loads defined by the Shift In Charge • Operate the raw material feeding system Programmable Logic Controller (PLC) of the furnace • Inspection of critical equipment periodically during the shift • Monitor the Gas Cleaning System
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Understand furnace operation & processes	To be competent, the user/individual on the job must be able to: PC1. Understand Furnace operation, product knowledge, chemical formulas and emissions
Understand relation between Voltage / Currents / Power Factor	To be competent, the user/individual on the job must be able to: PC2. Understand the relation between Primary and Secondary Voltages & Currents PC3. Understand calculations involved for various electrical units involved in operation PC4. Understand electrode operations and maintaining currents at optimal level PC5. Understand importance of Power Factor & Load factor
Operate the furnace on optimum loads defined by the Shift In Charge	To be competent, the user/individual on the job must be able to: PC6. Understand importance of maintaining uniform currents on electrodes PC7. Understand selection of suitable Voltage and Currents PC8. Carry out timely slipping of electrodes & maintaining electrode baking conditions PC9. Maintain tapping timings to avoid accumulation in the furnace PC10. Ensure proper covering of the furnace
Operate the raw material feeding system Programmable Logic Controller (PLC) of the furnace	To be competent, the user/individual on the job must be able to: PC11. Understand the equipments functioning involved in feeding systems PC12. Understand PLC systems / Micro-processor operations PC13. Ensure to spare the feeding systems for timely preventive maintenance PC14. Maintain Log sheets
Inspection of critical equipment periodically during the shift	To be competent, the user/individual on the job must be able to: PC15. Inspect regularly to ensure no water leakages PC16. Understand electrode baking conditions and inspect casing additions PC17. Ensure transformer parameters monitoring



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Carry out control room and control desk operations

Monitor the Gas Cleaning System	To be competent, the user/individual on the job must be able to: PC18. Ensure Gas Cleaning plant parameters monitoring PC19. Ensure to spare equipments for timely maintenance
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Implications of poorly maintained equipment KA2. Risk and impact of not following defined procedures/work instructions KA3. Escalation and reporting identified problems to shift In charge KA4. Maintaining log sheets and documentation KA5. Records to be maintained and implications of non-maintenance of the same KA6. Importance of housekeeping & good shop floor practices KA7. Health, Safety and Environment guidelines, legislation and regulations applicable KA8. Personal protection (Which protective equipment to be used and how) KA9. Potential hazards and actions to minimize the same
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Basic understanding about the Sub-merged Arc Furnace (SAF) design KB2. Parameters involved in Primary & Secondary Voltages & Currents KB3. Calculations involved in maintaining current densities on Electrodes KB4. Electrode Baking Conditions and its role KB5. Steps required for starting up SAF KB6. Steps required for shutting down the SAF KB7. Implications of not adhering to organizational Standard Operating Procedures (SOP) KB8. Response to emergencies e.g. Power failures ,fire and system failures KB9. Use of different type of fire extinguishers KB10. Material flow sheet and the equipment involved in the process KB11. Raw material sufficiency in Day Bins and reporting to Shift In Charge KB12: Various raw materials used in the process
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills:
	The user/individual on the job needs to know and understand how to: SA1. Maintain Log Sheets and Log Books and express clearly through written communication SA2. Interpret activity logs which are maintained SA3. Communicate with his immediate supervisor (Shift In Charge) SA4. Interpret various calculations involved in electrical parameters / units of measurement
	Reading & Understanding
	The user/individual on the job needs to know and understand how to:



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Carry out control room and control desk operations

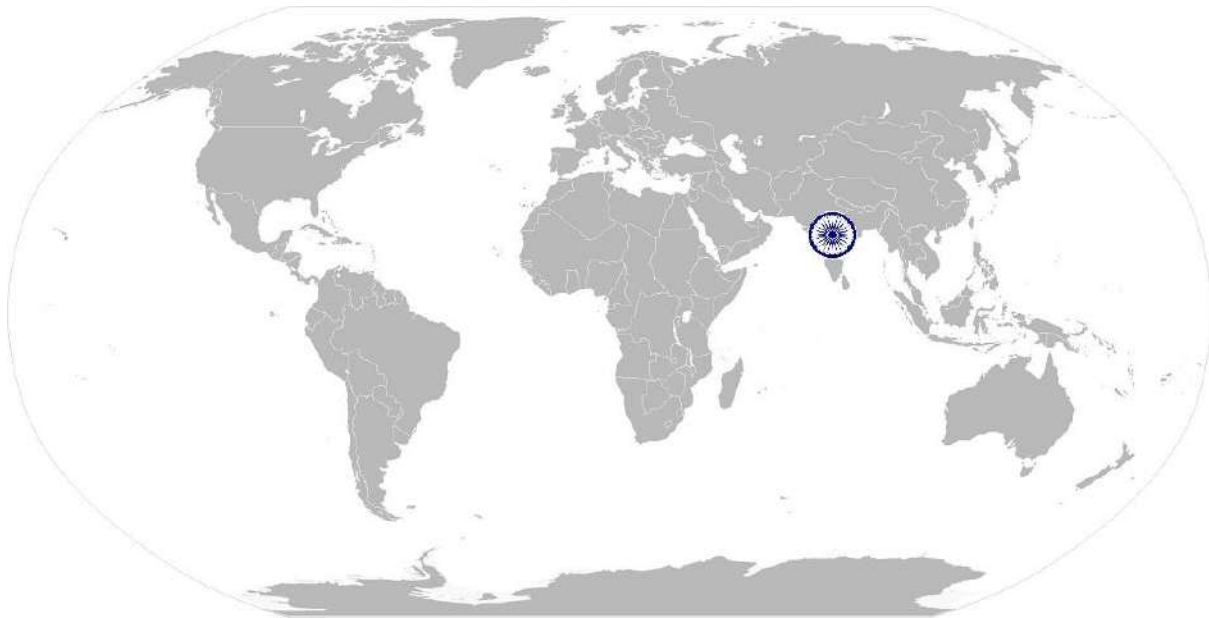
	SA5. Read and understand Standard Operating Procedures (SOPs), manuals, specific standards, health and safety instructions, memos, reports, etc.
	SA6. Read and interpret instructions received in English, Hindi and Local Language (E/H/LL)
	Oral Skills
	The user/individual on the job needs to know and understand how to:
	SA7. Express statements, opinions or information clearly in English, Hindi and Local Language (E/H/LL)
	SA8. Respond appropriately to any queries
	SA9. Communicate with down the line workmen & his supervisor and close coordination with shift maintenance departments
	SA10. Work in a team and other behavioral skills required to support the small group activities (Quality Circle, Cross Functional Team, Suggestion Scheme)
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to:
	SB1. Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
	Plan and Organize
	The user/individual on the job needs to know and understand:
	SB2. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Customer Centricity
	N.A
	Problem Solving
	N.A
Analytical Thinking	
The user/individual on the job needs to know and understand how to:	
SB3. Diagnose common problems in the bearing functioning based on visual inspection, sound, temperature etc.	
SB4. Suggest improvements (if any) in maintenance processes based on experience	
Critical Thinking	
N.A	



ISC/N1110: Carry out control room and control desk operations

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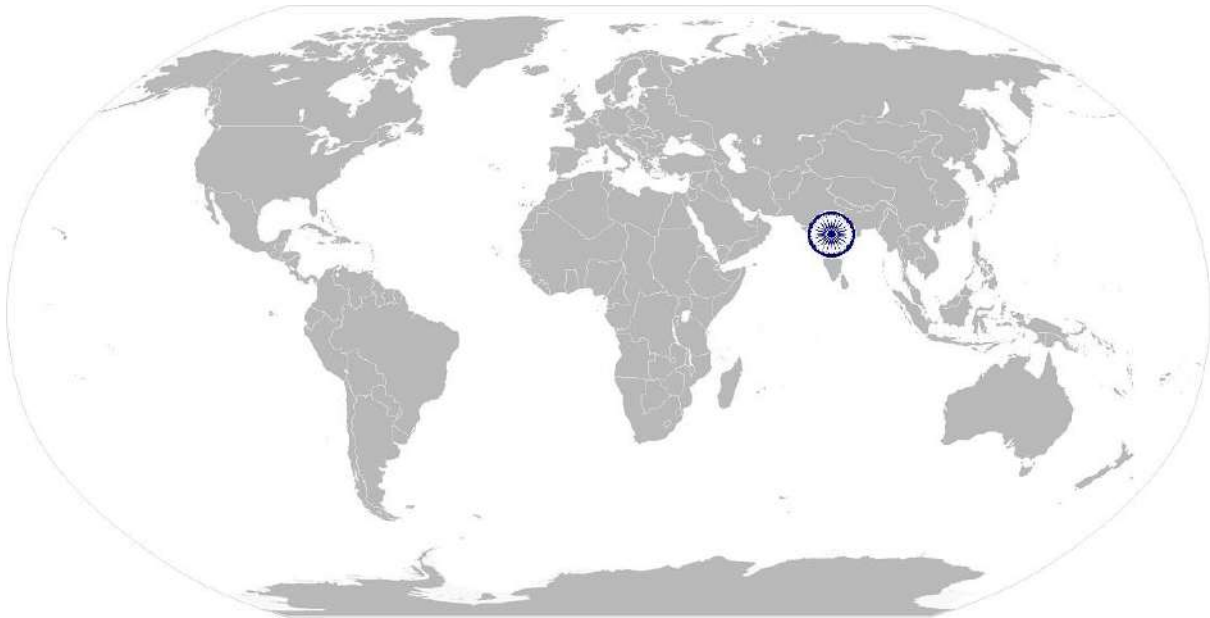
NOS Code	ISC/N1110		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron & Steel	Drafted on	23/07/2014
Industry Sub-sector	Ferro Alloys	Last reviewed on	25/03/2015
Occupation	Operations	Next review date	1/04/2017





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

National Occupational Standards



Overview

This unit covers health, safety and security at the workplace. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment.



ISC/N0008:

Use basic health and safety practices at the workplace

National Occupational Standard	Unit Code	ISC/N0008
	Unit Title (Task)	Use basic health and safety practices at the work place
	Description	<p>This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace. It covers responsibilities towards self, others, assets and the environment.</p> <p>It includes understanding of risks and hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies, etc.</p>
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Health and safety procedures • Fire safety procedures • Emergencies, rescue and first aid procedures
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Health and safety procedures	<p>The user/individual on the job should be able to:</p> <p>PC1. Use protective clothing/equipment for specific tasks and work conditions</p> <p>Protective clothing includes:</p> <ul style="list-style-type: none"> • Leather or asbestos gloves • Flame proof aprons • Flame proof overalls buttoned to neck • Cuff less (without folds) trousers • Reinforced footwear • Helmets/hard hats • Cap and shoulder covers • Ear defenders/plugs • Safety boots • Knee pads • Particle masks • Glasses/gloves/visors <p>Equipment includes:</p> <ul style="list-style-type: none"> • Hand shields • Machine guards • Residual current devices • Shields • Dust sheets • Respirator
		<p>PC2. State the name and location of people responsible for health and safety in the workplace</p> <p>Various areas are listed below:</p> <ul style="list-style-type: none"> • On chemical containers • Equipment • Packages • Inside buildings

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Use basic health and safety practices at the workplace

	<ul style="list-style-type: none">• Open areas, public places etc. <p>PC3. State the names and location of documents that refer to health and safety in the workplace</p> <p>PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace</p> <p>Hazards include:</p> <ul style="list-style-type: none">• Working with electrical and thermal tools and equipment• Sharp edged and heavy tools• Heated metals• Oxyfuel and gas cylinders• Welding radiation• Surfaces: sharp, slippery, uneven, chipped, broken, etc.• Substances: chemicals, gas, oxy-fuel, fumes, dust, etc.• Physical: working at heights, large and heavy objects and machines, sharp and piercing objects, tools and machines, intense light, load noise, obstructions in corridors, by doors, blind turns, noise, over stacked shelves and packages, etc.• Electrical: power supply and points, loose and naked cables and wires, electrical machines and appliances, etc. <p>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</p> <p>Safe working practices include:</p> <ul style="list-style-type: none">• Using protective clothing and equipment• Putting up and reading safety signs• Handle tools in the correct manner and store and maintain them properly• Keep work area clear of clutter, spillage and unsafe object lying casually• While working with electricity take all electrical precautions like insulated clothing, adequate equipment insulation, use of control equipment, dry work area, switch off the power supply when not required, etc.• Safe lifting and carrying practices• Use equipment that is working properly and is well maintained• Take due measures for safety while working in confined places, trenches or at heights, etc. Including safety harness, fall arrestors etc. <p>Methods are:</p> <ul style="list-style-type: none">• Training in health and safety procedures• Using health and safety procedures• Use of equipment and working practices (such as safe carrying procedures)• Safety notices, advice• Instruction from colleagues and supervisors <p>PC6. State location of general health and safety equipment in the workplace</p> <p>PC7. Inspect for faults, set up and safely use steps and ladders in general use</p> <p>Faults :</p> <ul style="list-style-type: none">• Corrosion of metal components• Deterioration
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ISC/N0008:

Use basic health and safety practices at the workplace

	<ul style="list-style-type: none"> • Splits and cracks timber components • Imbalance • Loose rungs • Nuts or bolts, etc. <p>Set up:</p> <ul style="list-style-type: none"> • Firm/level base • Clip/lash down • Leaning at the correct angle, etc. <p>PC8. Work safely in and around trenches, elevated places and confined areas PC9. Lift heavy objects safely using correct procedures PC10. Apply good housekeeping practices at all times. Good housekeeping practices:</p> <ul style="list-style-type: none"> • Clean/tidy work areas • Removal/disposal of waste products • Protect surfaces <p>PC11. Identify common hazard signs displayed in various areas PC12. Retrieve and/or point out documents that refer to health and safety in the workplace</p>
<p>Fire safety procedures</p>	<p>The user/individual on the job should be able to:</p> <p>PC13. Use the various appropriate fire extinguishers on different types of fires correctly.</p> <p>Fire extinguishers:</p> <ul style="list-style-type: none"> • Sand • Water • Foam • Co2 • Dry powder <p>Fires:</p> <ul style="list-style-type: none"> • Class A: Ordinary solid combustibles, e.g. wood, paper, cloth, plastic, charcoal etc. • Class B: Flammable liquids and gases, e.g. gasoline, propane, diesel fuel, tar, cooking oil and similar substances • Class C: Electrical equipment e.g. appliances, wiring, breaker panels etc. (these categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no longer receiving electricity) • Class D: Combustible metals such as magnesium, titanium, and sodium (these fires burn at extremely high temperatures and require special suppression agents) <p>Causes of fires:</p> <ul style="list-style-type: none"> • Heating of metal • Spontaneous ignition • Sparking, • Electrical heating • Loose fires (e.g. Smoking, welding, etc.) • Chemical fires, etc. <p>PC14. Demonstrate rescue techniques applied during fire hazard PC15. Demonstrate good housekeeping in order to prevent fire hazards</p>

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Use basic health and safety practices at the workplace

	<p>PC16. Demonstrate the correct use of a fire extinguisher</p>
<p>Emergencies, rescue and first-aid procedures</p>	<p>The user/individual on the job should be able to:</p> <p>PC17. Demonstrate how to free a person from electrocution</p> <p>PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.</p> <p>PC19. Demonstrate basic techniques of bandaging</p> <p>PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments. few General health and safety equipment are mentioned below :</p> <ul style="list-style-type: none"> • Fire extinguishers • First aid equipment • Safety instruments and clothing • Safety installations, e.g. Fire exits, exhaust fans etc. <p>PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments</p> <p>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</p> <p>PC23. Demonstrate the artificial respiration and the CPR Process</p> <p>PC24. Participate in emergency procedures. Emergency procedures are:</p> <ul style="list-style-type: none"> • Raising alarm • Safe/efficient evacuation • Correct means of escape • Correct assembly point • Roll call • Correct return to work <p>PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible</p> <p>Incident Report should capture:</p> <ul style="list-style-type: none"> • Name • Date/time of incident • Date/time of report, • Location • Environment conditions • Persons involved • Sequence of events • Injuries sustained • Damage sustained • Actions taken • Witnesses • Supervisor/manager notified <p>Documents:</p> <ul style="list-style-type: none"> • Fire notices • Accident reports • Safety instructions for equipment and procedures • Company notices and documents • Legal documents (e.g. Government notices)

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

	<p>Job titles:</p> <ul style="list-style-type: none"> • Health and safety officer • First aid officer • Fire officer <p>PC26. Demonstrate correct method to move injured people and others during an emergency</p>
Element	Knowledge and Understanding
<p>A. Organisational Context (Knowledge of the Company/ Organisation and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. State the names (and job titles if applicable), and describe where to find, all the people responsible for health and safety in a workplace</p> <p>KA2. State the names and location of documents that refer to health and safety in the workplace</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Meaning of “hazards” and “risks”</p> <p>KB2. Health and safety hazards commonly present in the work environment and related precautions</p> <p>KB3. Possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible</p> <p>KB4. Activities and causes of risk and accident</p> <p>KB5. Methods of accident prevention</p> <p>KB6. Safe working practices when working with tools and machines</p> <p>KB7. Safe working practices while working at various hazardous sites</p> <p>KB8. Where to find all the general health and safety equipment in the workplace</p> <p>KB9. Various dangers associated with the use of electrical equipment</p> <p>KB10. Preventative and remedial actions to be taken in the case of exposure to toxic materials.</p> <ul style="list-style-type: none"> • Exposure: ingested, contact with skin, inhaled • Preventative action: ventilation, masks, protective clothing/equipment • Remedial action: immediate first aid, report to supervisor • Materials: solvents, flux, lead <p>KB11. Importance of using protective clothing/equipment while working</p> <p>KB12. Precautionary activities to prevent the fire accident</p> <p>Activities and causes:</p> <ul style="list-style-type: none"> • Physical actions • Reading • Listening to and giving instructions • Inattention • Sickness and incapacity (e.g. Drunkenness) • Health hazards (e.g. Untreated injuries and contagious illness) <p>KB13. Various causes of fire</p> <p>KB14. Techniques of using the different fire extinguishers</p> <p>KB15. Different methods of extinguishing fire</p> <p>KB16. Rescue techniques applied during a fire hazard</p>



ISC/N0008:

Use basic health and safety practices at the workplace

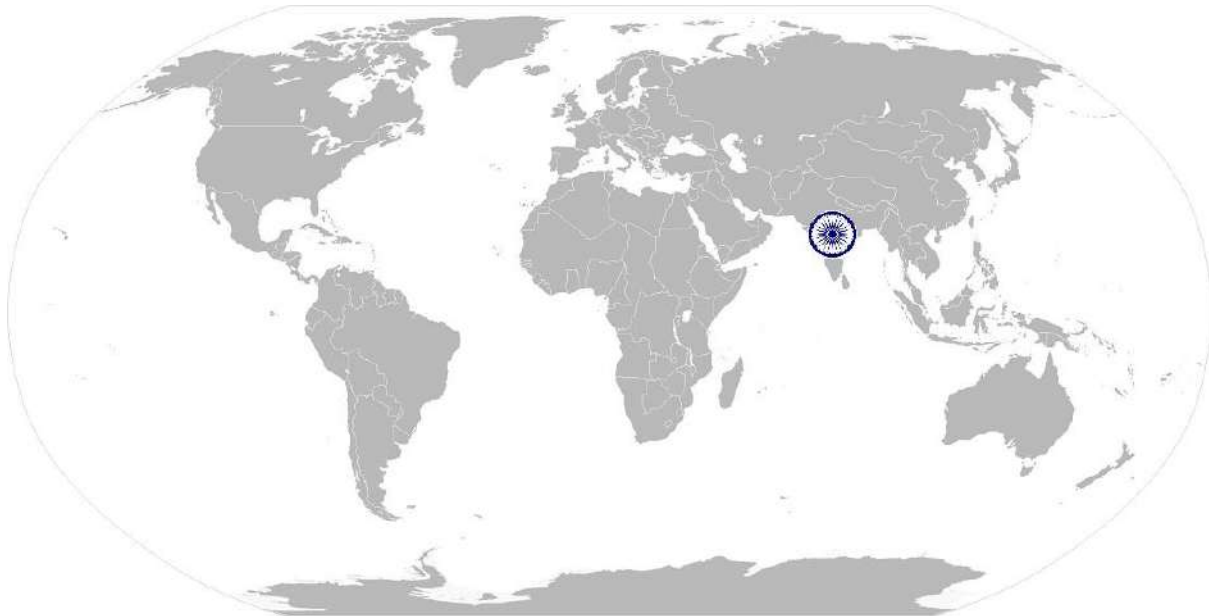
	<p>KB17. Various types of safety signs and what they mean KB18. Appropriate basic first aid treatment relevant to the condition e.g. Shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries KB19. Content of written accident report KB20. Potential injuries and ill health associated with incorrect manual handling KB21. Safe lifting and carrying practices KB22. Personal safety, health and dignity issues relating to the movement of a person by others KB23. Potential impact to a person who is moved incorrectly</p>
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Reading and Writing Skills
	The user/individual on the job needs to know and understand how to: SA1. Read and comprehend basic content to read labels, charts, signage's SA2. Read and comprehend basic English to read manuals of operations SA3. Read and write an accident/incident report in local language or English
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Question co-workers appropriately in order to clarify instructions and other issues SA5. Give clear instructions to co-workers, subordinates others
	B. Professional Skills
	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
	Plan and Organize
	The user/individual on the job needs to know and understand: SB2. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Customer Centricity
	N.A
	Problem Solving
	N.A
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB3. Diagnose common problems in the bearing functioning based on visual inspection, sound, temperature etc. SB4. Suggest improvements (if any) in maintenance processes based on experience
	Critical Thinking
	N.A



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

NOS Version Control

NOS Code	ISC/N0008		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and steel	Drafted on	23/07/2014
Industry Sub-sector	All departments	Last reviewed on	30/12/2014
Occupation	Operations	Next review date	1/04/2017

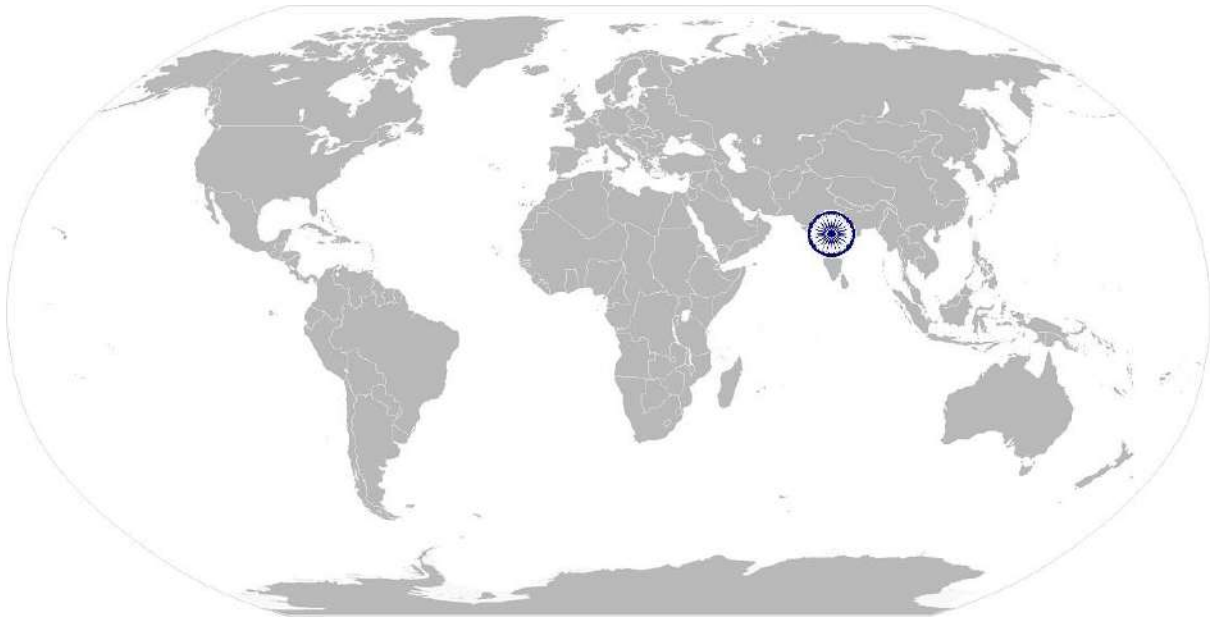




ISC/N0009:

Work effectively with others

National Occupational Standards



Overview

This unit covers basic practices that improve effectiveness of working with others in an organisational set-up.



ISC/N0009:

Work effectively with others

National Occupational Standard

Unit Code	ISC/N0009
Unit Title (Task)	Work effectively with others
Description	This unit covers basic etiquette and competencies that a candidate is required to possess and demonstrate in their behaviour and interactions with others at the workplace.
Scope	<p>This unit/task covers the following:</p> <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
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Ensure appropriate communication with superiors, peers and others as applicable at work place	<p>The user/individual on the job should be able to:</p> <p>PC1. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required</p> <p>PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt</p> <p>PC3. Provide information to others clearly, at a pace and in a manner that helps them to understand</p>
Demonstrate appropriate behaviour and etiquette at work place	<p>The user/individual on the job should be able to:</p> <p>PC4. Display helpful behaviour by assisting others in performing tasks in a positive manner, where required and possible</p> <p>PC5. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks</p> <p>PC6. Display appropriate communication etiquette while working</p> <p>PC7. Display active listening skills while interacting with others at work</p> <p>PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism</p> <p>PC9. Demonstrate responsible and disciplined behaviours at the workplace</p> <p>PC10. Escalate grievances and problems to</p>
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. Reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA3. Relevant people and their responsibilities within the work area</p> <p>KA4. Escalation matrix and procedures for reporting work and employment related</p>



ISC/N0009:

Work effectively with others

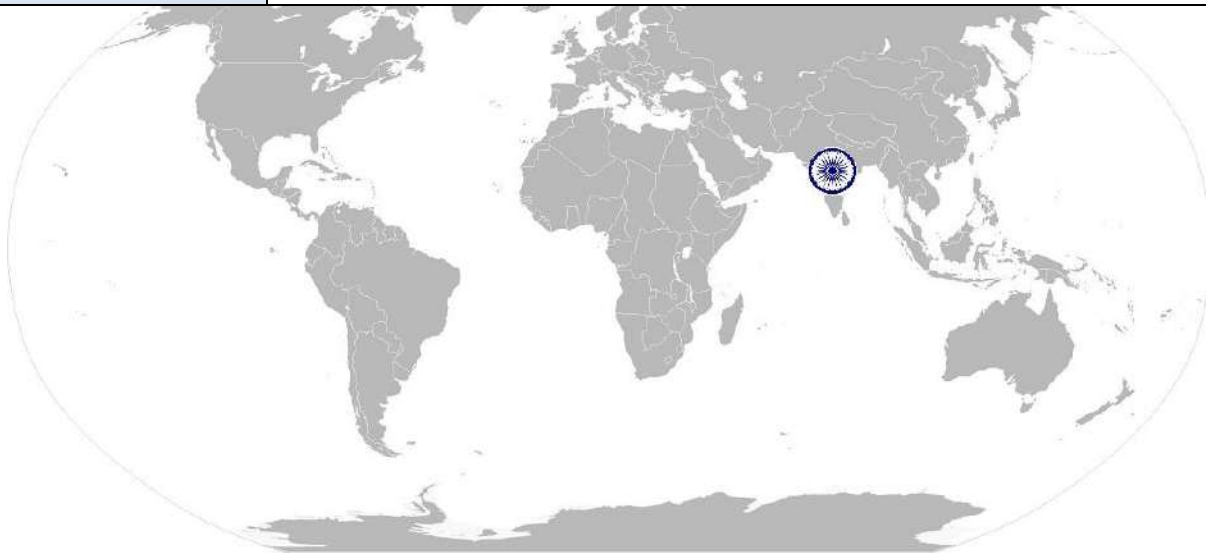
	issues
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Various categories of people that one is required to communicate and co-ordinate with in the organization</p> <p>KB2. Importance of effective communication in the workplace</p> <p>KB3. Importance of teamwork in organizational and individual success</p> <p>KB4. Various components of effective communication</p> <p>KB5. Key elements of active listening</p> <p>KB6. Value and importance of active listening and assertive communication</p> <p>KB7. Barriers to effective communication</p> <p>KB8. Importance of tone and pitch in effective communication</p> <p>KB9. Importance of avoiding casual expletives and unpleasant terms while communicating professional circles</p> <p>KB10. How poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer</p> <p>KB11. Importance of ethics for professional success</p> <p>KB12. Importance of discipline for professional success</p> <p>KB13. What constitutes disciplined behaviour for a working professional</p> <p>KB14. Common reasons for interpersonal conflict</p> <p>KB15. Importance of developing effective working relationships for professional success</p> <p>KB16. Expressing and addressing grievances appropriately and effectively</p> <p>KB17. Importance and ways of managing interpersonal conflict effectively</p>
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Reading and Writing Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. Read and comprehend basic content to read labels, charts, signage's</p> <p>SA2. Read and comprehend basic English to read manuals of operations</p> <p>SA3. Read and write an accident/incident report in local language or English</p>
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA4. Question co-workers appropriately in order to clarify instructions and other issues</p> <p>SA5. Provide clear instructions to co-workers, subordinates others</p>
B. Professional Skills	Decision Making
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines</p>



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	Plan and Organize
	The user/individual on the job needs to know and understand: SB2. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Customer Centricity
	N.A
	Problem Solving
	N.A
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB3. Diagnose common problems in the bearing functioning based on visual inspection, sound, temperature etc. SB4. Suggest improvements (if any) in maintenance processes based on experience
	Critical Thinking
N.A	



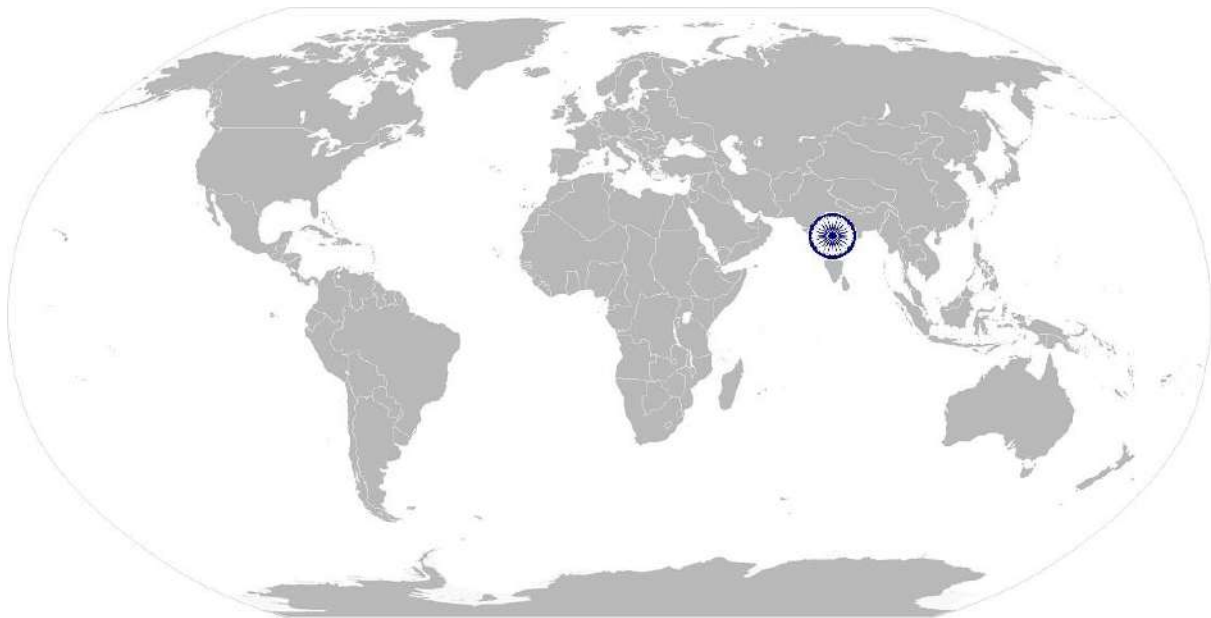


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NOS Version Control

NOS Code	ISC/N0009		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and steel	Drafted on	23/07/2014
Industry Sub-sector	All departments	Last reviewed on	30/12/2014
Occupation	Operations	Next review date	1/04/2017





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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role: Furnace Operator: Ferro Alloys

Qualification Pack: ISC/Q1102

Sector Skill Council: Indian Iron & Steel Sector Skill Council

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 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 this 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 Outcomes	Assessment Criteria for outcomes	Total Marks 1000	Out Of	Marks Allocated	
				Theory	Practical
ISC/N1110: Carry out control room & control desk operation	PC1. Understand Furnace operation, product knowledge, chemical formulas and emissions	750	45	15	30
	PC2. Understand the relation between Primary and Secondary Voltages & Currents		45	15	30
	PC3. Understand calculations involved for various electrical units involved in operation		45	15	30
	PC4. Understand electrode operations and maintaining currents at optimal level		40	15	25
	PC5. Understand importance of Power Factor & Load Factor		45	15	30



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	PC6. Understand importance of maintaining uniform currents on electrodes		40	15	25
	PC7. Understand selection of suitable Voltage and Currents		40	15	25
	PC8. Carry out timely slipping of Electrodes & maintaining electrode baking conditions		40	15	25
	PC9. Maintain tapping timings to avoid accumulation in the furnace		40	15	25
	PC10. Ensure proper covering of the furnace		40	15	25
	PC11. Understand the equipments functioning involved in feeding systems		40	15	25
	PC12. Understand PLC systems / Micro-processor operations		45	15	30
	PC13. Ensure to spare the feeding systems for timely preventive maintenance		35	15	20
	PC14. Maintain Log sheets		35	15	20
	PC15. Inspect regularly to ensure no water leakages		35	15	20
	PC16. Understand electrode baking conditions and inspect casing additions		35	15	20
	PC17. Ensure transformer parameters monitoring		35	15	20
	PC18. Ensure Gas Cleaning plant parameters monitoring		35	15	20
	PC19. Ensure to spare equipments for timely maintenance		35	15	20
		Total	750	285	465
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



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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	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
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



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	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
	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
		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 behaviour 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



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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 behaviours at the workplace		15	5	10
PC10. Escalate grievances and problems to supervisor		5	0	5
	Total	100	30	70