



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

Contact Us:

Indian Iron and Steel
Sector Skill Council
Royal Exchange, 6 N.S.
Road, Kolkata- 700 001
Tel: 09831052652
parimalbiswas.iisssc@ii
windia.com



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Introduction

Qualifications Pack- Lancing & Scarfing Operator

SECTOR: Iron & Steel

SUB-SECTOR: Iron Making

OCCUPATION: Operations

REFERENCE ID: ISC/Q0304

ALIGNED TO: NCO-2004/NIL

Brief Job Description: The job is all about carry out lancing & scarfing operations in the steel plant.

Personal Attributes: This job requires the candidate to work independently as well as in teams. Some of the key attributes include physical fitness, free from colour-blindness , high concentration levels, a sharp reflex, orientation to safety and an willingness to work in a factory environment.



Job Details	Qualifications Pack Code	ISC/Q0304		
	Job Role	Lancing & Scarfing Operator		
	Credits(NSQF)	TBD	Version number	1.0
	Industry	Iron & Steel	Drafted on	20/02/2015
	Sub-sector	Iron Making	Last reviewed on	25/03/2015
	Occupation	Operations	Next review date	1/04/2017
	NSQC Clearance On			

Job Role	Lancing & Scarfing Operator
Role Description	The job is all about carry out lancing & scarfing operations in the steel plant.
NSQF level	3
Minimum Educational Qualifications	Class 8 th pass, preferably
Maximum Educational Qualifications	Class 10 th pass
Training (Suggested but not mandatory)	Practical / on-site training of three (3) months with basic theoretical inputs on the details of the operation of lancing & scarfing
Minimum Job Entry Age	18 years
Experience	Six (6) months experience in similar function under an experienced operator before being put in independent charge of the actual operation
Applicable National Occupational Standards (NOS)	<p>Compulsory:</p> <ol style="list-style-type: none"> ISC/N0306: Carry out lancing operations ISC/N0307: Carry out scarfing operations ISC/N0008: Use basic health and safety practices at the workplace ISC/N0009: Work effectively with others <p>Optional: N/A</p>
Performance Criteria	As described in the relevant NOS units



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.

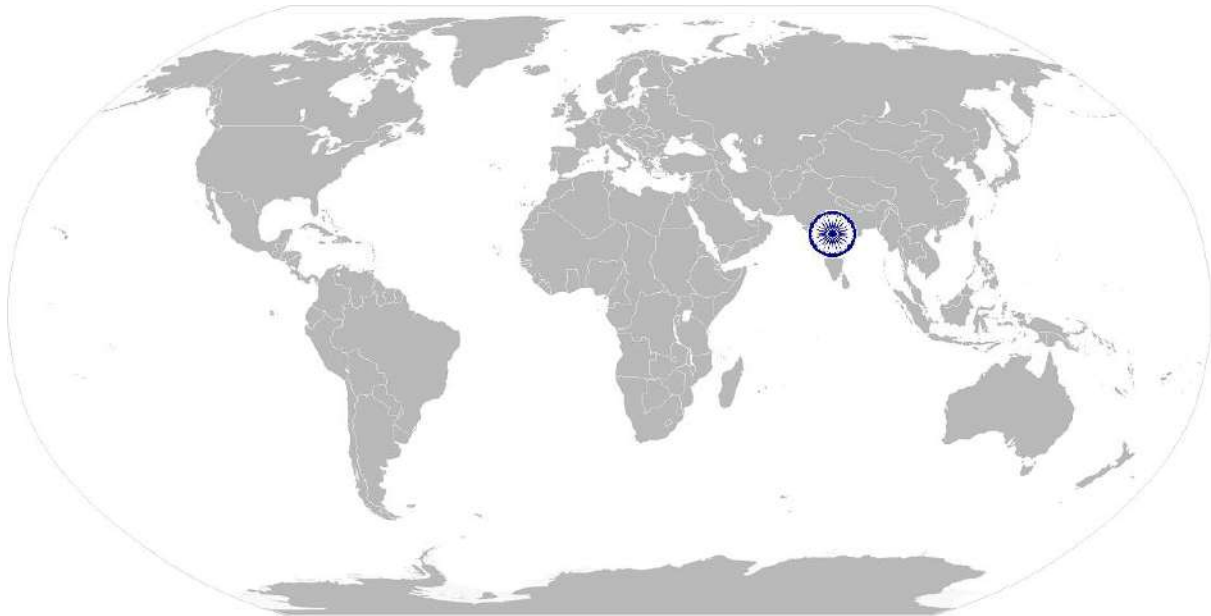


Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed 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



National Occupational Standards



Overview

This unit is about lancing or cutting operation in a steel plant, as and when required.



ISC/N0306

Carry out lancing operations

Unit Code	ISC/N0306
Unit Title (Task)	Carry out lancing operations
Description	This unit is about lancing or cutting operation in a steel plant.
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> • Understand the Lancing job from the supervisor • Ensure availability of the required tools and equipment & check their readiness for lancing • Keep arrangement for putting off any fire hazard during or after lancing • Carry out lancing operations • Ensure proper completion of lancing operations
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Understand the Lancing job from the supervisor	<p>To be a competent lancing operator, the user/individual on the job must be able to:</p> <p>PC1. Understand the job from the concerned Supervisor PC2. Inspect the job at the site, where lancing has to be done</p>
Ensure availability of the required tools and equipment & check their readiness for lancing	<p>PC3. Ensure all required equipment[like the main Lance/Pipe, Ignition probe, Oxygen hose, Hose Pipe & fittings, Control valve, O₂-regulator and all related safety gadgets are available on site and are in operational condition PC4. Check the adequacy of length of the lance in respect of the distance from the job PC5. Wear all the required safety PPE like fire retardant Jeans, Jacket, safety shoes, Hand gloves, Visor helmet with blue glasses</p>
Keep arrangement for putting off any fire hazard during or after lancing	<p>PC6. Keep sand buckets & water supply ready to fight any accidental fire hazard PC7. Handle any emergency situation involving fire hazard</p>
Carry out lancing operations	<p>PC8. Connect Oxygen line to the lance PC9. Bring the ignition probe near the lance tip to ignite PC10. Proceed with the ignited lance slowly through the job, ensuring that the spatters do not travel to any other combustible material nearby PC11. Take fresh air & drink water from time to time PC12. Understand hazards of lancing operation and take necessary mitigation action</p>
Ensure proper completion of lancing operations	<p>PC13. Ensure there is no trace of fire remaining anywhere PC14. Clean up the debris in the area PC15. Get the job inspected & certified by the Supervisor</p>
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation & its	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Risk and impact of not following defined procedures/work instructions KA2. Fundamental concepts of 1S & 2S & apply them in practice</p>



ISC/N0306

Carry out lancing operations

processes)	
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The operation of the equipment, different tools & tackles to be used in Lancing KB2. The role of oxygen, ignition probe and the main lance in operation KB3. How to handle the lance/pipe in line with the requirement of the job/area to be lanced KB4. Understands the hazards related to lancing operation and necessary mitigation action plan to be taken
Skills (S) [Optional]	
Element	Skills
A. Core Skills/ Generic Skills	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA1. Read all visual displays & warnings on the shop floor
	Writing skills
	N.A
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA2. Answer the queries raised by the Supervisor or colleagues in English, Hindi and Local Language (E/H/LL) SA3. Discuss task & schedule with supervisor/ others in E/H/LL
B. Professional Skills	Decision Making
	N.A
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB1. Prioritize and execute tasks within the scheduled time limits
	Customer Centricity
	N.A
	Problem Solving
	N.A
	Analytical Thinking
	N.A
	Critical Thinking
N.A	

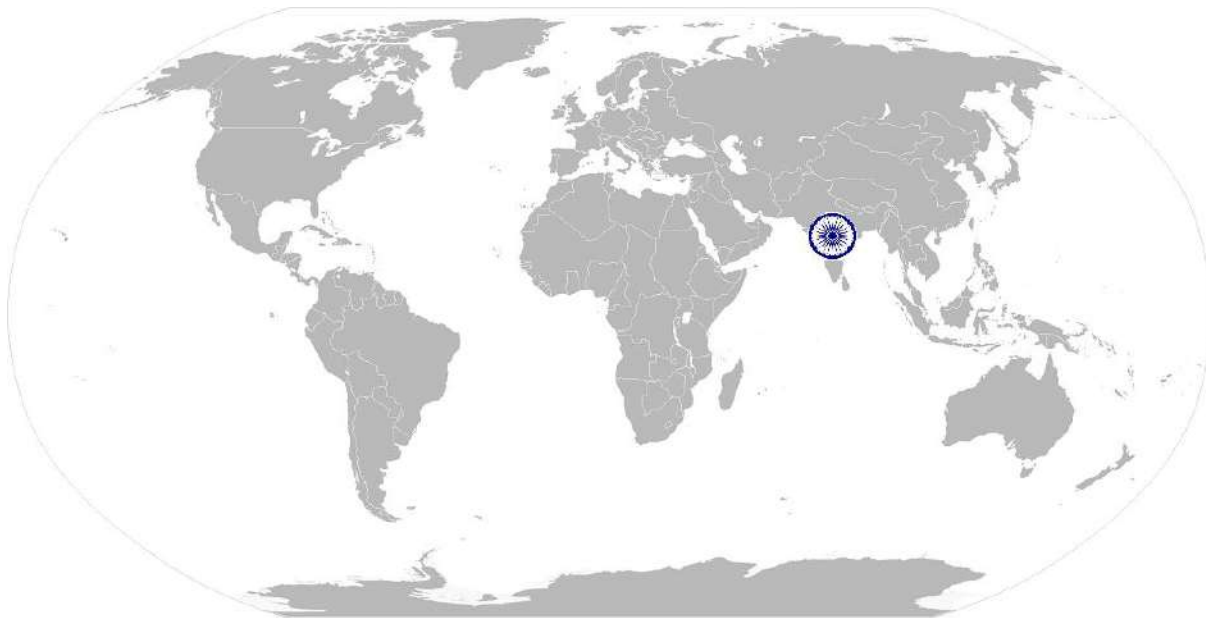


ISC/N0306

Carry out lancing operations

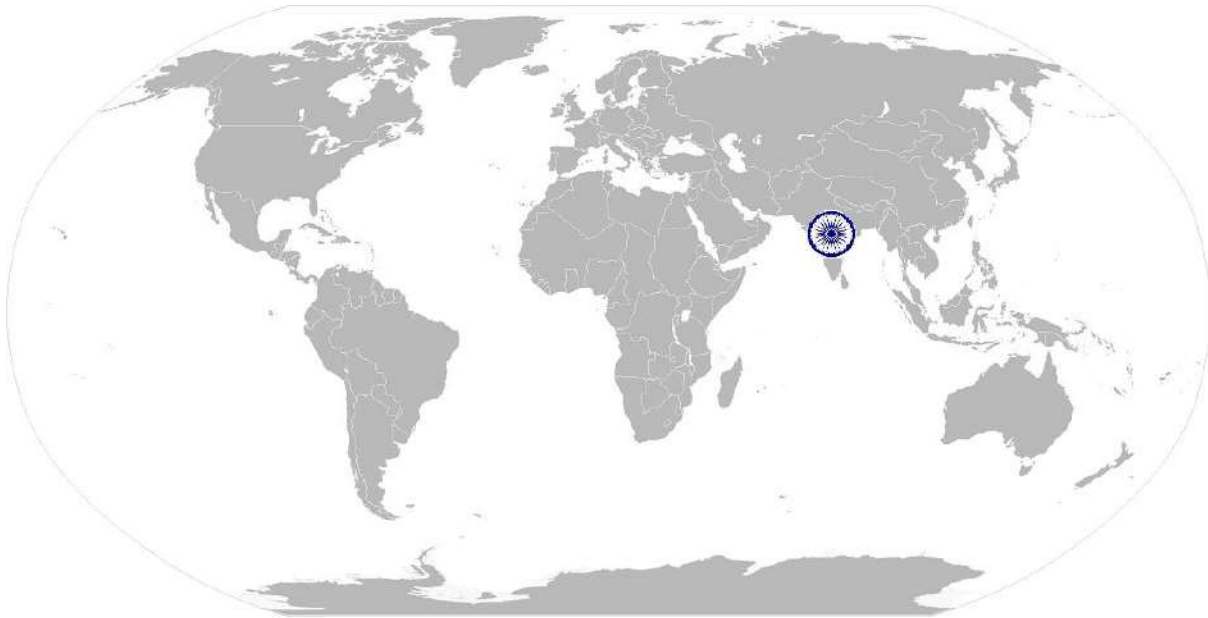
NOS Version Control

NOS Code	ISC/N0306		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and steel	Drafted on	20/02/2015
Industry Sub-sector	Iron Making/Steel Making	Last reviewed on	25/03/2015
Occupation	Operations	Next review date	1/04/2017





National Occupational Standards



Overview

This unit is about scarfing operation in a steel plant, as and when required.



ISC/N0307

Carry out scarfing operations

National Occupational Standard

Unit Code	ISC/N0307
Unit Title (Task)	Carry out scarfing operations
Description	This unit is about -scarfing operation for cast steel surfaces in a steel plant
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> • Understand the scarfing job from the supervisor • Ensure availability of the required tools & equipment & check their readiness for scarfing • Carry out scarfing operations • Ensure completion of scarfing operations
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Understand the scarfing job from the supervisor	<p>To be a competent scarfing operator, the user/individual on the job must be able to:</p> <p>PC1. Understand the job from the concerned Supervisor PC2. Inspect the site & the surface, where scarfing activity is to be carried out</p>
Ensure availability of the required tools & equipment & check their readiness for scarfing	<p>PC3. Ensure availability and readiness of equipment (like scarfing rod /torch, hose pipe & fittings, torch nozzle, Oxygen+ Propane/fuel gas line, regulator and valve for Oxygen & Propane and all related safety gadgets) at site PC4. Keep sand buckets & water supply ready to fight any accidental fire hazard PC5. Wear all the required safety PPE like fire retardant Jeans, Jacket, safety shoes, Hand gloves, Visor helmet with blue glasses</p>
Carry out scarfing operations	<p>PC6. Obtain clearance signal from the supervisor to start scarfing operation PC7. Connect one end of the fuel gas (propane) hose pipe to the fuel (propane) regulator & other end with the torch's gas (propane) valve PC 8. Connect one end of the Oxygen hose pipe to the O₂ regulator & other end with the torch's O₂ valve. Propane & Oxygen to be kept at a safe distance. PC 9. Open the isolation valves slowly & safely and ignite a flame in the tip of the torch by using a safety match and a combustible material PC10. Clean the surface to be scarfed by blowing compressed air PC11. Decide with the help of the Supervisor, or the Technical Services representative the type of scarfing to be done, depending on the ID of the slab/job and the kind of defects to look for e.g. longitudinal/transverse cracks, pin holes etc. PC12. Proceed with the scarfing flame burning the surface, pushing the melt zone forward and also ensuring that the flame does not burn deep into the surface PC13. Inspect the job & the torch flame from time to time & maintain a safe distance from the scarfed surface PC14. Take fresh air & drink water from time to time</p>
Ensure completion of scarfing operations	<p>PC15. Ensure that the flame is fully extinguished and the scarfing torch is safely stacked up for next use PC16. Arrange to remove the scales generated from the surface, once scarfing is over, using compressed air/iron sweeper/grinding wheel; clean up all the debris in the area PC17. Get the job inspected & certified by Supervisor PC18. Understand hazards related to scarfing operation and take mitigation action</p>
Element	Knowledge and Understanding



ISC/N0307

Carry out scarfing operations

A. Organisational Context (Knowledge of the Company/ Organisation & its processes)	The user/individual on the job needs to know and understand: KA1. Risk and impact of not following defined procedures/work instructions KA2. Fundamental concepts of 1S & 2S & apply them in practice
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The operation of the equipment, different tools & tackles to be used in scarfing. KB2. The role of oxygen, ignition probe, fuel gas/propane, pressure of gas etc. in scarfing KB3. Understand hazards related to scarfing operation and necessary mitigation action plan to be taken
Skills (S) [Optional]	
Element	Skills
A. Core Skills/ Generic Skills	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA1. Read all visual displays & warnings on the shop floor
	Writing skills
	N.A
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA2. Answer the queries raised by the Supervisor or colleagues in English, Hindi and Local Language (E/H/LL) SA3. Discuss task & schedule with supervisor/ others in E/H/LL
B. Professional Skills	Decision Making
	N.A
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB1. Prioritize and execute tasks within the scheduled time limits
	Customer Centricity
	N.A
	Problem Solving
	N.A
	Analytical Thinking
	N.A
Critical Thinking	
N.A	

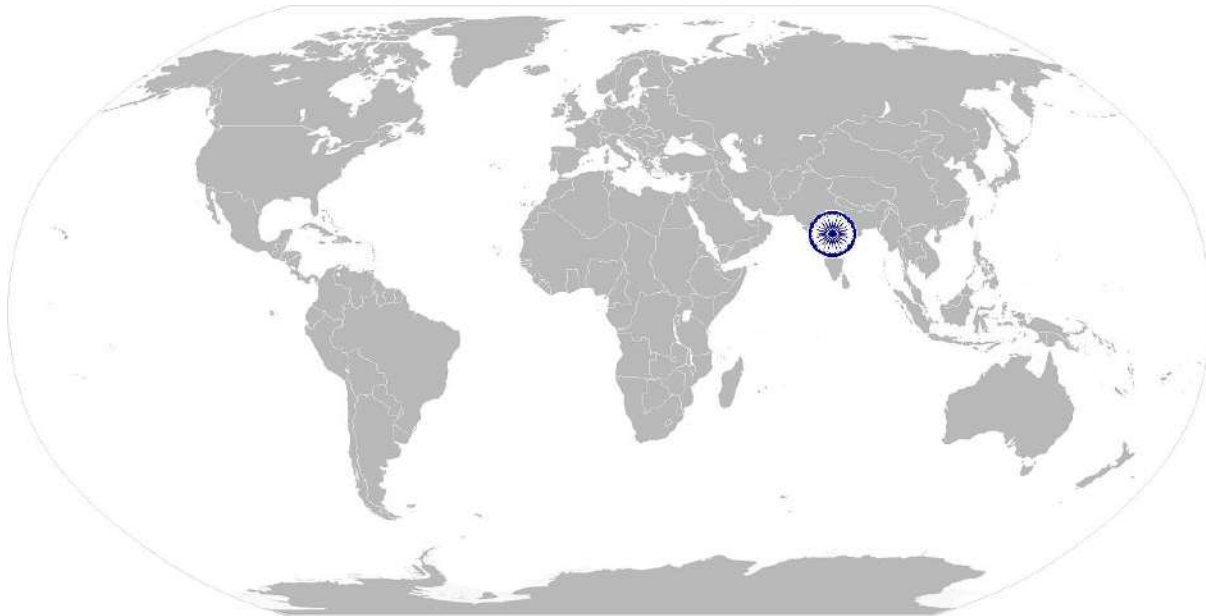


ISC/N0307

Carry out scarfing operations

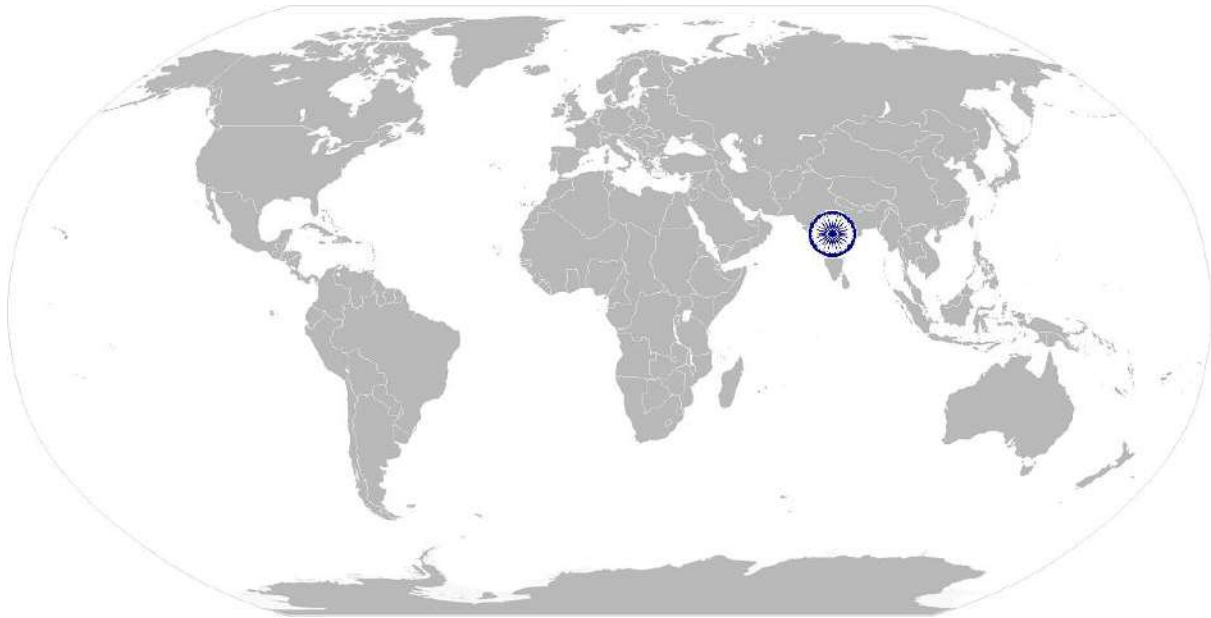
NOS Version Control

NOS Code	ISC/N0307		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and steel	Drafted on	20/02/2015
Industry Sub-sector	Iron Making	Last reviewed on	25/03/2015
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National Occupational Standards



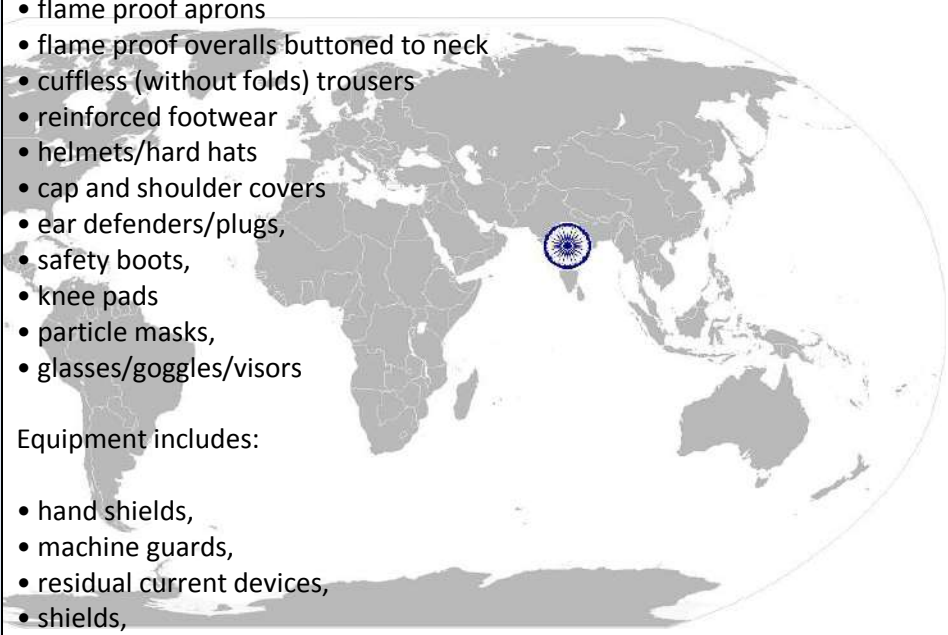
Overview

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> <p>It covers knowledge of fire safety, common first aid applications, safe practices and emergency procedures.</p>
Scope	<p>This unit/task covers the following:</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 • cuffless (without folds) trousers • reinforced footwear • helmets/hard hats • cap and shoulder covers • ear defenders/plugs, • safety boots, • knee pads • particle masks, • glasses/goggles/visors <p>Equipment includes:</p> <ul style="list-style-type: none"> • hand shields, • machine guards, • residual current devices, • shields, • dust sheets, • respirator <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 other 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, tolls and machines, intense light, load noise, obstructions in corridors, by doors, blind turns, noise, over stacked shelves and 

ISC/N0008

Use basic health and safety practices at the workplace

	<p>packages, etc.</p> <ul style="list-style-type: none">• Electrical: power supply and points, loose and naked cables and wires, electrical machines and appliances, etc. <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.• proper waste disposal• Display of National Safety Councils Hoarding. <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>Ladders:</p> <p>Faults :</p> <ul style="list-style-type: none">• corrosion of metal components• deterioration• splits and cracks timber components (for wooden ladders)• 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>Good housekeeping practices:</p> <ul style="list-style-type: none">• clean/tidy work areas• removal/disposal of waste products
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ISC/N0008

Use basic health and safety practices at the workplace

	<ul style="list-style-type: none">• protect surfaces <p>Emergency procedures:</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>Various areas:</p> <ul style="list-style-type: none">• on chemical containers• equipment• packages• inside buildings• open areas and public spaces, etc. <p>General health and safety equipment:</p> <ul style="list-style-type: none">• fire extinguishers,• first aid equipment,• safety instruments and clothing,• safety installations, eg. fire exits, exhaust fans <p>Incident Report:</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• Issue of memo <p>Job titles:</p> <ul style="list-style-type: none">• health and safety officer• first aid officer• fire officer <p>Documents:</p> <ul style="list-style-type: none">• fire notices
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ISC/N0008

Use basic health and safety practices at the workplace

	<ul style="list-style-type: none">• accident reports• safety instructions for equipment and procedures• company notices and documents• legal documents (eg. government notices) <p>Activities and causes:</p> <ul style="list-style-type: none">• physical actions,• reading,• listening to and giving instructions,• inattention,• sickness and incapacity (eg. drunkenness),• health hazards (eg. untreated injuries and contagious illness) <p>Adherence to Environmental regulations</p> <p>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>Fires:</p> <ul style="list-style-type: none">• Class A: ordinary solid combustibles, eg. wood, paper, cloth, plastic, charcoal, etc.• Class B: flammable liquids and gases, eg. gasoline, propane, diesel fuel, tar, cooking oil, and similar substances• Class C: electrical equipment eg. 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 (eg. smoking, welding, etc.),• chemical fires, etc. <p>Fire extinguishers:</p> <ul style="list-style-type: none">• sand,• water• foam• CO₂
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ISC/N0008

Use basic health and safety practices at the workplace

	<ul style="list-style-type: none"> • dry powder
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Health and safety	<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>PC2. state the name and location of people responsible for health and safety in the workplace.</p> <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>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>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>PC8. work safely in and around trenches, elevated places and confined areas</p> <p>PC9. lift heavy objects safely using correct procedures</p> <p>PC10. apply good housekeeping practices at all times</p> <p>PC11. identify common hazard signs displayed in various areas</p> <p>PC12. retrieve and/or point out documents that refer to health and safety in the workplace depending on work activities</p>
Fire safety	<p>PC13. use the various appropriate fire extinguishers on different types of fires correctly</p> <p>PC14. demonstrate rescue techniques applied during fire hazard</p> <p>PC15. demonstrate good housekeeping in order to prevent fire hazards</p> <p>PC16. demonstrate the correct use of a fire extinguisher.</p>
Emergencies, rescue and first-aid procedures	<p>PC17. demonstrate how to free a person from electrocution</p> <p>PC18. administer appropriate first aid to victims where required eg. 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</p> <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.</p> <p>PC25. complete a written accident/incident report or dictate a report to another person, and send report to person responsible</p> <p>PC26. demonstrate correct method to move injured people and others during an emergency</p>
Element	Knowledge and Understanding
A. Organisational	The user/individual on the job needs to know and understand:



ISC/N0008

Use basic health and safety practices at the workplace

<p>Context (Knowledge of the Company/ Organisation and its processes)</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. KA2. State the names and location of documents that refer to health and safety in the workplace. KA3. Display and use of first aid box</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand: KB4. meaning of “hazards” and “risks” KB5. health and safety hazards commonly present in the work environment and related precautions KB6. possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible. KB7. activities and causes of risk and accident KB8. methods of accident prevention KB9. safe working practices when working with tools and machines KB10. safe working practices while working at various hazardous sites KB11. where to find all the general health and safety equipment in the workplace KB12. various dangers associated with the use of electrical equipment KB13. preventative and remedial actions to be taken in the case of exposure to toxic materials. KB14. importance of using protective clothing/equipment while working KB15. precautionary activities to prevent the fire accident KB16. various causes of fire KB17. techniques of using the different fire extinguishers KB18. different methods of extinguishing fire KB19. rescue techniques applied during a fire hazard KB20. various types of safety signs and what they mean KB21. appropriate basic first aid treatment relevant to the condition eg. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries KB22. content of written accident report. KB23. potential injuries and ill health associated with incorrect manual handling KB24. safe lifting and carrying practices KB25. personal safety, health and dignity issues relating to the movement of a person by others. KB26. potential impact to a person who is moved incorrectly & attracts accident</p>
<p>Skills (S) [Optional]</p>	
<p>Element</p>	<p>Skills</p>
<p>A. Core Skills/ Generic Skills</p>	<p>Reading Skills The user/individual on the job needs to know and understand how to: SA1. Read and comprehend basic content to read labels, charts, signages SA2. Read and comprehend basic English to read manuals of operations SA3. Read and write an accident/incident report in local language or English</p> <p>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</p>



ISC/N0008

Use basic health and safety practices at the workplace

	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 how to: SB2. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB3. Remain congenial while discussing and debating issues with co-workers SB4. Follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB5. Ask for, provide and receive required assistance where possible to ensure achievement of work related objectives SB6. Thank co-workers for any assistance received SB7. Offer appropriate respect based on mutuality and respect for fellow workmanship and authority
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB9. Identify immediate or temporary solutions to resolve delays SB10. Identify sources of support that can be availed of for problem solving for various kind of problems SB11. Seek appropriate assistance from other sources to resolve problems SB12. Report problems that you cannot resolve to appropriate authority
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB13. Identify cause and effect relations in their area of work SB14. Use cause and effect relations to anticipate potential problems and their solution
	Critical Thinking
	N.A



ISC/N0008

Use basic health and safety practices at the workplace

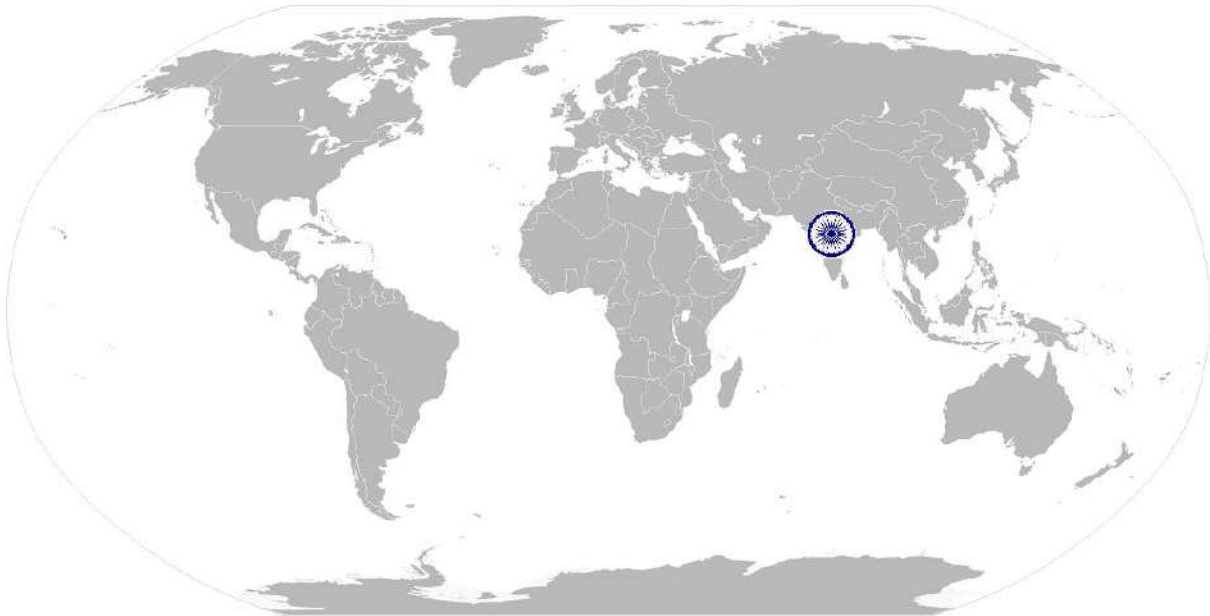
NOS Version Control

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





National Occupational Standards



Overview

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



ISC/N0009

Works effectively with others

Unit Code	ISC/N0009
Unit Title (Task)	Works effectively with others
Description	<p>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.</p> <p>These cover areas such as communication etiquette, discipline, listening, handling conflict and grievances.</p>
Scope	<p>This unit/task covers the following:</p> <p>Etiquette includes:</p> <ul style="list-style-type: none"> • do not use abusive language • use appropriate titles and terms of respect • do not eat or chew while talking (vice versa)etc. <p>Behaviours include:</p> <ul style="list-style-type: none"> • punctuality • completing tasks as per given time and standards • not gossiping and idling time • eliminating waste • honesty, etc.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
	<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. give information to others clearly, at a pace and in a manner that helps them to understand</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/	<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</p>



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<p>Organisation and its processes)</p>	<p>work area KA3. relevant people and their responsibilities within the work area KA4. escalation matrix and procedures for reporting work and employment related issues</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand: KB1. various categories of people that one is required to communicate and co-ordinate with in the organization KB2. importance of effective communication in the workplace KB3. importance of teamwork in organizational and individual success KB4. various components of effective communication KB5. key elements of active listening KB6. value and importance of active listening and assertive communication KB7. barriers to effective communication KB8. importance of tone and pitch in effective communication KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB11. importance of ethics for professional success KB12. importance of discipline for professional success KB13. what constitutes disciplined behavior for a working professional KB14. common reasons for interpersonal conflict KB15. importance of developing effective working relationships for professional success KB16. Expressing and addressing grievances appropriately and effectively KB17. importance and ways of managing interpersonal conflict effectively</p>
<p>Skills (S) [Optional]</p>	
<p>Element</p>	<p>Skills</p>
<p>A. Core Skills/ Generic Skills</p>	<p>Writing skills The user/individual on the job needs to know and understand how to: SA1. Write notes in log books etc.</p> <p>Reading skills The user/individual on the job needs to know and understand how to: SA2. Read and comprehend basic content to read instructions, labels, charts, signage's</p> <p>Oral Communication (Listening and Speaking skills) The user/individual on the job needs to know and understand how to: SA3. Interact with co-workers in order to clarify instructions and other work related issues SA4. Communicate with co-workers to share and receive information, instruction SA5. Share & receive information from Supervisors</p>
<p>B. Professional Skills</p>	<p>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</p>



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	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB2. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB3. Remain congenial while discussing and debating issues with co-workers SB4. Follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB5. Ask for, provide and receive required assistance where possible to ensure achievement of work related objectives SB6. Thank co-workers for any assistance received SB7. Offer appropriate respect based on mutuality and respect for fellow workmanship and authority
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB9. Identify immediate or temporary solutions to resolve delays SB10. Identify sources of support that can be availed of for problem solving for various kind of problems SB11. Seek appropriate assistance from other sources to resolve problems SB12. Report problems that you cannot resolve to appropriate authority
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB13. Identify cause and effect relations in their area of work SB14. Use cause and effect relations to anticipate potential problems and their solution
	Critical Thinking
	N.A

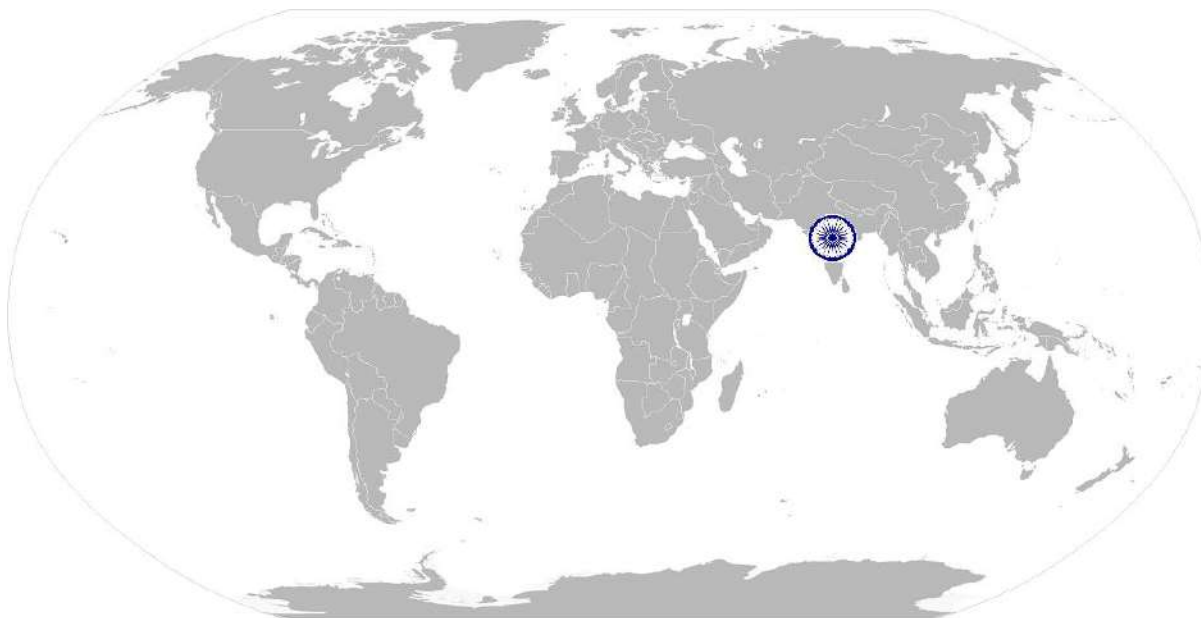


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NOS Version Control

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





CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role: Lancing & Scarfing Operator

Qualification Pack: ISC/Q0304

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 70% 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	Marks Allocation			
		Total Marks (1000)	Out Of	Theory	Skills Practical
ISC/N0306: Carry out lancing operations	PC1. Understand the job from the concerned Supervisor	375	21	20	1
	PC2. Inspect the job at the site, where lancing has to be done		19	0	19
	PC3. Ensure all required equipment[like the main Lance/Pipe, Ignition probe, Oxygen hose, Hose Pipe & fittings, Control valve, O ₂ -regulator and all related safety gadgets are available on site and are in operational condition		50	0	50
	PC4. Check the adequacy of length of the lance in respect of the distance from the job		20	0	20
	PC5. Wear all the required safety PPE like fire retardant Jeans, Jacket, safety shoes, Hand gloves, Visor helmet with blue glasses		30	0	30



	PC6. Keep sand buckets & water supply ready to fight any accidental fire hazard		20	0	20
	PC7. Handle any emergency situation involving fire hazard		15	5	10
	PC8. Connect Oxygen line to the lance		20	0	20
	PC9. Bring the ignition probe near the lance tip to ignite		25	5	20
	PC10. Proceed with the ignited lance slowly through the job, ensuring that the spatters do not travel to any other combustible material nearby		100	0	100
	PC11. Take fresh air & drink water from time to time		10	0	10
	PC12. Understand hazards of lancing operation and take necessary mitigation action		10	5	5
	PC13. Ensure there is no trace of fire remaining anywhere		10	0	10
	PC14. Clean up the debris in the area		4	0	4
	PC15. Get the job inspected & certified by the Supervisor		21	20	1
		Total	375	55	320
ISC/N0307: Carry out scarfing operations	PC1. Understand the job from the concerned Supervisor	375	11	10	1
	PC2. Inspect the site & the surface, where scarfing activity is to be carried out		14	0	14
	PC3. Ensure availability and readiness of equipment (like scarfing rod /torch, hose pipe & fittings, torch nozzle, Oxygen+ Propane/fuel gas line, regulator and valve for Oxygen & Propane and all related safety gadgets) at site		50	0	50
	PC4. Keep sand buckets & water supply ready to fight any accidental fire hazard		20	0	20
	PC5. Wear all the required safety PPE like fire retardant Jeans, Jacket, safety shoes, Hand gloves, Visor helmet with blue glasses		30	0	30
	PC6. Obtain clearance signal from the supervisor to start scarfing operation		20	0	20
	PC7. Connect one end of the fuel gas (propane) hose pipe to the fuel (propane) regulator & other end with the torch's gas (propane) valve		15	5	10



	PC 8. Connect one end of the Oxygen hose pipe to the O ₂ regulator & other end with the torch's O ₂ valve. Propane and oxygen to be kept at a safe distance.		20	0	20
	PC 9. Open the isolation valves slowly & safely and ignite a flame in the tip of the torch by using a safety match and a combustible material		25	5	20
	PC10. Clean the surface to be scarfed by blowing compressed air		100	0	100
	PC11. Decide with the help of the Supervisor, or the Technical Services representative the type of scarfing to be done, depending on the ID of the slab/job and the kind of defects to look for e.g. longitudinal/transverse cracks, pin holes etc.		10	0	10
	PC12. Proceed with the scarfing flame burning the surface, pushing the melt zone forward and also ensuring that the flame does not burn deep into the surface		10	5	5
	PC13. Inspect the job & the torch flame from time to time & maintain a safe distance from the scarfed surface		10	0	10
	PC14. Take fresh air & drink water from time to time		4	0	4
	PC15. Ensure that the flame is fully extinguished and the scarfing torch is safely stacked up for next use		21	20	1
	PC16. Arrange to remove the scales generated from the surface, once scarfing is over, using compressed air/iron sweeper/grinding wheel; clean up all the debris in the area		375	55	320
	PC17. Get the job inspected & certified by Supervisor		20	0	20
	PC18. Understand hazards related to scarfing operation and take mitigation action		25	5	20
		Total	100	0	100
ISC/N0008: Use basic health and safety practices at	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		4	0	4



the workplace	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	10	5	5
	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	4	0	4
	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	10	5	5
	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
	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		4	0	4
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		10	5	5
	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



	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