

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR CAPITAL GOODS 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- Production Engineer

SECTOR/S: CAPITAL GOODS

SUB-SECTOR:

- | | |
|-------------------------------------|------------------------------------|
| 1. Machine Tools | 2. Dies, Moulds and Press Tools |
| 3. Plastics Manufacturing Machinery | 4. Textile Manufacturing Machinery |

OCCUPATION: Shop Floor Management

REFERENCE ID: CSC/Q1201

ALIGNED TO: NCO-2004/NIL

Brief Job Description: It involves the application of skills and knowledge at a specialist level. The range of production processes could include manufacturing operations such as machining, fabrication, welding, material finishing or manufacture, assembly, joining or other activities, such as performance and process improvement.

Personal Attributes: Basic communication, numerical and computational abilities. Openness to learning, ability to plan and organize own work and identify and solve problems in the course of working. Understanding the need to take initiative and manage self and work to improve efficiency and effectiveness.

Job Details	Qualifications Pack Code	CSC/Q1201		
	Job Role	Production Engineer [Applicable for National Scenarios]		
	Credits	TBD	Version number	1.0
	Sector	Capital Goods	Drafted on	24/04/2014
	Sub-sector	<ol style="list-style-type: none"> 1. Machine Tools 2. Dies, Moulds And Press Tools 3. Plastics Manufacturing Machinery 4. Textile Manufacturing Machinery 	Last reviewed on	24/11/2017
	Occupation	Shop Floor Management	Next review date	24/11/2021
	NSQC Clearance on	18/06/2015		

Job Role	Production Engineer
Role Description	Plan and organise workplace, resources and processes required for the production and assembly of machinery and components in accordance with approved procedures.
NSQF level	5
Minimum Educational Qualifications	Diploma - Mechanical/Production, Degree preferred
Maximum Educational Qualifications	Not Applicable
Prerequisite License or Training	No Previous Training Required
Minimum Job Entry Age	18 Years
Experience	Minimum 1 year work/apprenticeship in production
Applicable National Occupational Standards (NOS)	Compulsory: <ol style="list-style-type: none"> CSC/N1201 Plan and organize machinery production and assembly processes CSC/N1335 Use basic health and safety practices at the workplace CSC/N1336 Work effectively with others
Performance Criteria	As described in the relevant OS units

Definitions

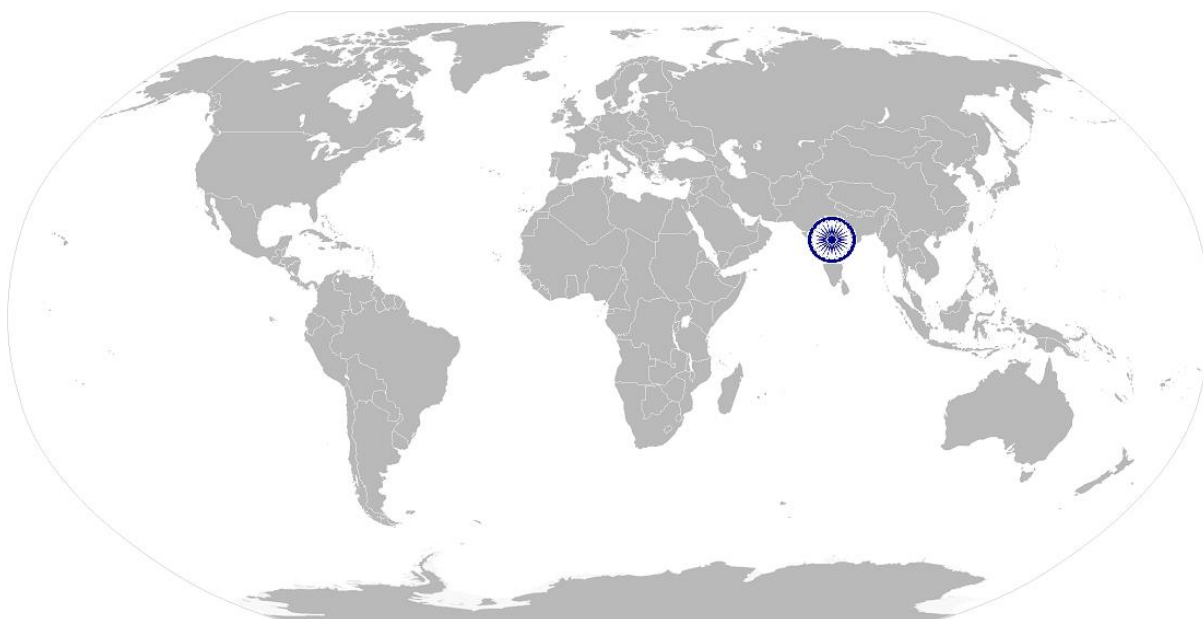
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further 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.
Jobrole	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 they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria 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 OSs, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
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.
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	Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual need 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

Acronyms

	specific designated responsibilities.
Core Skills/ Generic Skills	Core skills or generic skills 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. In the context of the OS, these include communication related skills that are applicable to most job roles.
Keywords/Terms	Description
CO ₂	Carbon Dioxide
CPR	Cardiac Pulmonary Resuscitation
PPE	Personal Protective Equipment

CSC/N1201 Plan and organize machinery production and assembly processes

National Occupational Standard



Overview

This unit covers the planning and organizing of workplace, resources and processes required for the production and assembly of machinery and components in accordance with approved procedures.

CSC/N1201

Plan and organize machinery production and assembly processes

National Occupational Standard	Unit Code	CSC/N1201
	Unit Title (Task)	Plan and organize machinery production and assembly processes
	Description	This unit covers the planning and organizing of workplace, resources and processes required for the production and assembly of machinery and components, in accordance with approved procedures.
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Preparation for production and assembly • Resource • Develop production plan, schedule and job cards • Confirm that conditions are suitable for production • Implement production processes and activities • Monitor and review the plan
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Preparation for production and assembly	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. obtain specification of the product to be produced from an appropriate authority</p> <p>PC2. obtain details of the required production and assembly activities review the critical production requirements and quality criteria for each production and assembly activity Critical production requirements: specifications of the product to be produced, manpower requirements, material requirement, processes to be run, outsourcing requirements, equipment/component/system performance & life cycle, maintenance and repair, product or process quality</p> <p>PC3. obtain clarification from relevant people on any aspects of the activities that are unclear</p> <p>PC4. discuss and facilitate any changes needed to suit the operational requirements with the relevant people</p> <p>PC5. ensure that methods and procedures used meet relevant regulations and guidelines</p> <p>PC6. define the production requirements and communicate them to the relevant people</p> <p>PC7. record the requirements in the appropriate information systems</p>
	Resource	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC8. identify production team personnel and contractors required and check for their availability</p> <p>PC9. obtain the resources, based on required skills, using the appropriate</p>

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	<p>organizational procedures and authorizations</p> <p>Resources: materials, equipment, information, costing, people, facilities</p> <p>PC10. identify materials, tools, equipment, jigs and other resources required using workplace job information</p> <p>PC11. resolve any resource supply or control issues</p> <p>Issues: e.g. availability (materials, equipment, information, finance, people, facilities); quality (materials, equipment, information, facilities); skills (personnel); time; budgets; safety & environment; etc.</p> <p>PC12. inspect and prepare the materials, tools, equipment, jigs for safe operation</p> <p>PC13. identify and report faulty material, tools, equipment and jigs to appropriate personnel</p> <p>PC14. record all resource data on the appropriate company information system</p>
Develop production plan, schedule and job cards	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC15. develop job cards showing personnel, consumables and resource costs</p> <p>PC16. develop production schedules showing job sequence and estimated start and completion dates</p> <p>PC17. submit job cards and production schedules to the appropriate personnel for approval</p>
Confirm that conditions are suitable for production	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC18. confirm that appropriate authorization is obtained</p> <p>PC19. confirm the availability of resources to relevant team members</p> <p>PC20. confirm to appropriate personnel that materials, processes and the site are duly prepared</p> <p>PC21. confirm that the health, safety and environmental requirements applicable to the production activities are being adhered to</p>
Implement production processes and activities	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC22. provide clear and accurate instructions to all the relevant people</p> <p>PC23. listen to and provide information to answer queries and doubts with respect to work related processes, operations as well as materials and equipment</p> <p>PC24. ensure that all support and control systems operate effectively</p> <p>Support and control systems: quality assurance systems; transport; logistics; procurement; supervision or leadership structures; utilities; resource supply (such as materials, equipment, personnel); other technical support requirements</p> <p>PC25. ensure that quality assurance systems are correctly implemented</p> <p>PC26. ensure that engineering support systems are operating correctly</p> <p>PC27. control the use of resources to achieve the most effective results</p> <p>PC28. implement production processes that comply with organizational guidelines and procedures, customer standards and requirements or national and international standards or directives</p>

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	<p>Production processes: procurement and production planning; raw material processing (cleaning, greasing, heat treatment, etc.); fitting and fabrication of components; subassembly; assembly; trial and testing; finishing; coordination</p> <p>PC29. identify opportunities to improve the production processes and activities and forward to relevant authorities</p> <p>PC30. report and communicate production processes and activities implemented through various company media</p> <p>Media for reporting and communication: e.g. verbal report, electronic mail, computer generated report, specific company form, visual display system, etc.</p> <p>PC31. record the implementation process on appropriate company media</p> <p>Media for recording the process: e.g. verbal report, electronic mail, computer generated report, specific company forms, visual display system, etc.</p> <p>PC32. conduct an evaluation of the effectiveness of the implementation process</p> <p>PC33. identify and record any deviations from specifications of the implemented activity</p> <p>PC34. ensure that the implementation of production processes and activities complies with all relevant regulations, directives and guidelines</p>
<p>Monitor and review the plan</p>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC35. inspect personnel, resources and timelines for production and confirm according to workplace procedures and requirements</p> <p>PC36. identify potential production problems and action required to resolve the problems according to workplace procedures</p> <p>PC37. put permanent corrective action in place to resolve production problems as per organizational procedure</p> <p>PC38. enhance productivity by adopting a number of appropriate measures (eg. automation, motivation, process planning, resource planning)</p> <p>PC39. inform appropriate personnel of production progress in a timely manner</p> <p>PC40. monitor production for quality, budget and time schedule</p> <p>PC41. ensure that work area and tools are cleaned and inspected according to workplace procedures</p> <p>PC42. complete job documentation according to workplace procedures</p>
<p>Knowledge and Understanding (K)</p>	
<p>A. Organizational Context (Knowledge of the company / organization and</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. relevant health and safety requirements applicable in the work place</p> <p>KA3. importance of working in clean and safe environment</p> <p>KA4. own job role and responsibilities and sources for information pertaining to</p>

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its processes)	<p>employment terms, entitlements, job role and responsibilities</p> <p>KA5. reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA6. relevant people and their responsibilities within the work area</p> <p>KA7. escalation matrix and procedures for reporting work and employment related issues</p> <p>KA8. documentation and related procedures applicable in the context of employment and work</p> <p>KA9. importance and purpose of documentation in context of employment and work</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. knowledge of standards, legislative or regulatory requirements applicable to the measuring equipment and/or its calibration</p> <p>KB2. standard operating procedures for calibrating the measuring equipment and the tools and equipment required to do so</p> <p>KB3. standard operating procedures for commissioning the measuring equipment</p> <p>KB4. calibration records to be kept/maintained in accordance with standard operating procedures</p> <p>KB5. measuring equipment specifications, operation, wearing parts, connections and components</p> <p>KB6. using appropriate tools and equipment to check measuring equipment for faults</p> <p>KB7. using appropriate techniques to check the calibration of the measuring equipment for conformance to specifications</p> <p>KB8. calibrating the measuring equipment against the appropriate physical standard</p> <p>KB9. re-commissioning the measuring equipment</p> <p>KB10. checks that are to be made of the measuring equipment and the tools and equipment to be used when checking the measuring equipment</p> <p>KB11. common fault(s) that may be found in the measuring equipment</p> <p>KB12. effects of faults on the performance/accuracy of the measuring equipment</p> <p>KB13. hazards and controls associated with calibrating measuring equipment</p> <p>KB14. functionality of the equipment and tolerance levels for calibration</p> <p>KB15. instrumentation principles (eg. controlling density, level, flow, temperature, composition of a range of materials)</p> <p>KB16. principles of hydraulic and pneumatic flow</p> <p>KB17. application principles in assessing operation of instrumentation systems, equipment/components</p> <p>KB18. procedures and equipment for inspecting and testing instrumentation system</p> <p>KB19. calibration procedures of instrumentation systems and equipment/</p>

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	<p>components</p> <p>KB20. purpose/operational function of instrumentation system</p> <p>KB21. specifications of each instrumentation system and acceptable deviations from specifications</p> <p>KB22. procedures for repairing faulty instrumentation system</p> <p>KB23. dismantling, reassembly and testing techniques</p> <p>KB24. correct operation of the instrumentation system including the procedures for isolating instrumentation systems</p> <p>KB25. range of faults in instrumentation system/equipment components</p> <p>KB26. procedures for checking and verifying the operational function of the instrumentation system/equipment</p> <p>KB27. procedures for recording and completing service reports</p> <p>KB28. operational specifications of the instrumentation system/equipment</p> <p>KB29. variations between test results and operational specifications</p> <p>KB30. probable causes of faults in instrumentation system/equipment components</p> <p>KB31. action to be taken to rectify the causes of faults in instrumentation systems/equipment</p> <p>KB32. sequence of events to be undertaken to correct faults in the instrumentation system/equipment components</p> <p>KB33. methods of determining procedures</p> <p>KB34. procedures for reporting faults</p> <p>KB35. difference between real and potential faults</p> <p>KB36. procedures for recording/documenting test and calibration results</p> <p>KB37. function and procedures for zero, span and range checks on instrumentation systems/equipment</p> <p>KB38. equipment required to carry out the calibration of instrumentation systems/equipment</p>
Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read, interpret, follow and communicate information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents</p>
	Writing Skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. produce sketches, diagrams, charts or graphs undertake numerical operations, and calculations/ formulae</p> <p>SA3. undertake numerical operations, geometry and calculations/ formulae Arithmetic: addition, subtraction, multiplication, division, fractions and</p>

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	<p>decimals, percentages and proportions, simple ratios and averages</p> <p>SA4. use appropriate measuring techniques</p> <p>SA5. express numerical solutions to a degree of accuracy that is appropriate to the value being calculated</p> <p>Degree of accuracy: correct to three significant figures, correct to two decimal places, express a decimal fraction in standard form, express tolerance in terms of limits of size</p> <p>SA6. use a calculator to raise a number to a power and determine square roots</p> <p>SA7. use formulae to complete transpositions and solve problems</p> <p>Transpositions: involving addition, subtraction, multiplication and division in any combination using a maximum of three terms, for example Ohm's Law, substitution of known values</p> <p>SA8. use algebraic expressions to solve linear equations</p> <p>SA9. plot and interpret straight line graphs</p> <p>SA10. apply Pythagoras' theorem to perform calculations</p> <p>SA11. explain how to use sine, cosine and tangent to solve typical engineering problems Sine, Cosine and Tangent: state their ratios for angles up to 90°, determine their values for given angles up to 90°, solve simple problems</p> <p>SA12. define density and relative density and solve related problems using formula</p> <p>SA13. define moments of a force and solve related problems using formula</p> <p>Moments of a force: define and apply the 'Principle of Moments', define the meanings of the terms 'torque' & 'couple'</p> <p>SA14. define work, power and energy and solve related problems using formula</p> <p>Work, Power and Energy: explain what is meant by energy; state that the unit of energy is the joule (J), the unit of power is the watt (W) and the unit of work is the joule (J); define power in terms of voltage/current and work done per second, perform calculations for work, power and energy, levers and couples work, power and energy, define work done in terms of force and distance moved</p> <p>SA16. define friction and solve related problems using formula</p> <p>Friction: definition, explain coefficient of friction, explain how friction can be reduced, select materials that will rotate, or slide together with low frictional value, perform calculations for friction</p> <p>SA17. describe the relationship between temperature changes and changes in Length Temperature: define coefficient of expansion, solve numerical problems to</p> <p>SA18. determine the change in length due to temperature</p> <p>SA19. define types of heat and solve related problems using formula</p> <p>Heat: define specific heat capacity, specific latent heat (fusion, evaporation)</p> <p>SA20. solve numerical problems associated with specific heat capacity, specific</p>
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	latent heat of fusion, specific latent heat of evaporation
	Oral Communication (Listening and Speaking skills)
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA21. check and clarify task-related information</p> <p>SA22. recognize and use common mechanical engineering terminology and symbols</p> <p>SA23. liaise with appropriate authorities</p> <p>SA24. convey information in a clear, precise manner</p> <p>SA25. organizational protocols for communication between and with different personnel</p>
B. Professional Skills	Decision Making
	NA
	Plan and Organize
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan, prioritize and sequence work operations/ complete activities/ scheduled production</p> <p>SB2. allocate and agree responsibilities with team members</p> <p>SB3. monitor the progress and quality of work in own area of responsibility and provide feedback</p> <p>SB4. review and amend plans of work for own area of responsibility and communicate changes</p>
	CustomerCentricity
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. obtain information about legal requirements, industry regulations, organisational policies, professional codes concerning performance and standards of performance required for team members</p> <p>SB6. identify performance problems of team members</p> <p>SB7. communicate and address the performance development needs for the individual</p> <p>SB8. use available options to support an individual in meeting desired standards of performance</p> <p>SB9. work with an individual to create a development plan</p> <p>SB10. monitor and evaluate an individual's progress against their development plan</p> <p>SB11. incorporate feedback to make development plan revisions</p> <p>SB12. encourage individuals to take responsibility for continuing their performance Development</p> <p>SB13. understand the purpose and required attributes of a team and select those that match the team's requirements</p> <p>SB14. be able to induct team members and communicate their roles and</p>

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	responsibilities
	SB15. understand how to support team development
	SB16. manage team performance using a range of methods
	Problem Solving
	The user/individual on the job needs to know and understand how to:
	SB17. identify problems with work planning, procedures, output and behavior and their implications
	SB18. prioritize and plan for problem solving
	SB19. communicate problems appropriately to others
	SB20. identify sources of information and support for problem solving
	SB21. seek assistance and support from other sources to solve problems
	SB22. identify effective resolution techniques
	SB23. select and apply resolution techniques
	SB24. seek evidence for problem resolution
	Analytical Thinking
	NA
	Critical Thinking
	The user/individual on the job needs to know and understand how to:
	SB25. check and clarify task related information with appropriate personnel or technical adviser
	SB26. identify customers' requirements with respect to the operation or quality of the product or service
	SB27. assess and modify own work practices
	SB28. use manuals, online help and other reference materials such as catalogues/ lists as required
	SB29. maintain current knowledge of applicable standards, legislation, codes of practice and product/process developments
	SB30. assist with on the job training and assessment

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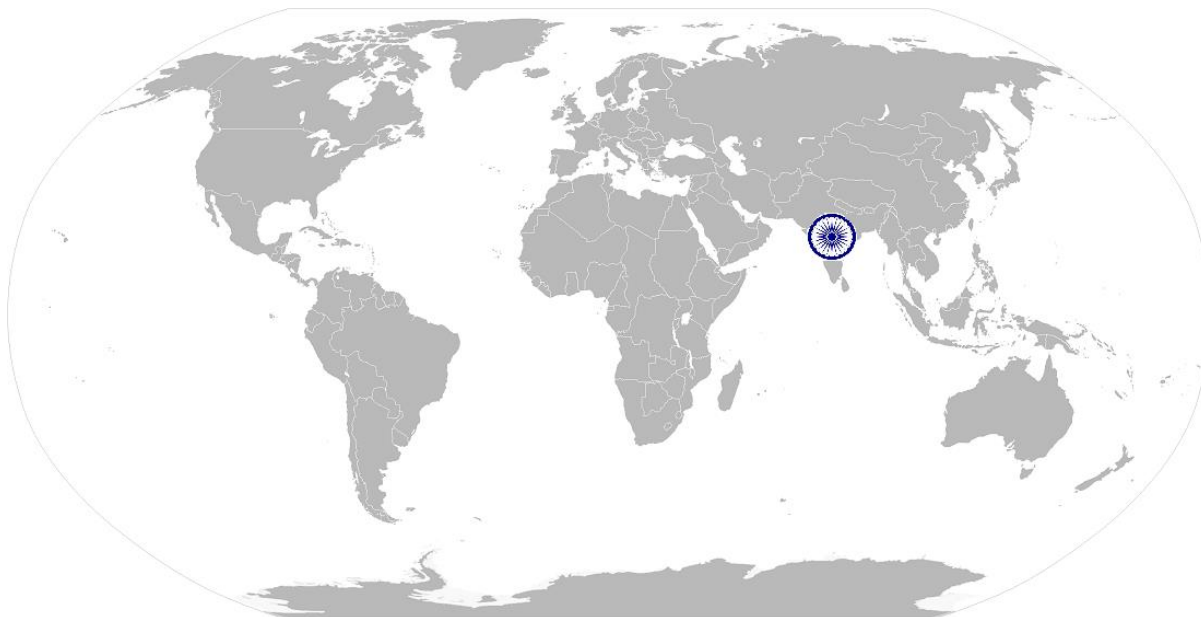
NOS Version Control

NOS Code	CSC/N1201		
Credits	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	24/04/2014
Industry Sub-sector	<ol style="list-style-type: none"> 1. Machine Tools 2. Dies, Moulds and Press Tools 3. Plastics Manufacturing Machinery 4. Textile Manufacturing Machinery 	Last reviewed on	24/11/2017
Occupation	Shop Floor Management	Next review date	24/11/2021

CSC/N1335

Use basic health and safety practices at the workplace

National Occupational Standard



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.

CSC/N1335

Use basic health and safety practices at the workplace

National Occupational Standard

Unit Code	CSC/N1335
Unit Title (Task)	Use basic health and safety practices at the workplace
Description	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.
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Health and safety • Fire safety • Emergencies, rescue and first-aid procedure
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Health and safety	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. use protective clothing/equipment for specific tasks and work conditions Protective clothing: 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 Equipment: hand shields, machine guards, residual current devices, shields, dust sheets, respirator</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 Hazards: sharp edged and heavy tools; heated metals; oxyfuel and gas cylinders; welding radiation; hazardous surfaces(sharp, slippery, uneven, chipped, broken, etc.); hazardous substances(chemicals, gas, oxy-fuel, fumes, dust, etc.); physical hazards(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 packages, etc.) electrical hazards (power supply and points, loose and naked cables and wires, electrical machines and appliances, etc.) Possible causes of risk and accident: physical actions; reading; listening to and giving instructions; inattention; sickness and incapacity (such as drunkenness); health hazards (such as untreated injuries and contagious</p>

CSC/N1335

Use basic health and safety practices at the workplace

	<p>illness)</p> <p>PC5. carry out safe working practices while dealing with hazards to ensure the safety of self and others</p> <p>Safe working practices: 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> <p>PC6. state methods of accident prevention in the work environment of the job role</p> <p>Methods of accident prevention: 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> <p>PC7. state location of general health and safety equipment in the workplace</p> <p>General health and safety equipment: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations(eg fire exits, exhaust fans)</p> <p>PC8. inspect for faults, set up and safely use steps and ladders in general use</p> <p>Ladder faults: corrosion of metal components, deterioration, splits and cracks timber components, imbalance, loose rungs, missing/ unfixed nuts or bolts, etc.</p> <p>Ladders set up: firm/level base, clip/lash down, leaning at the correct angle, etc.</p> <p>PC9. work safely in and around trenches, elevated places and confined areas</p> <p>PC10. lift heavy objects safely using correct procedures</p> <p>PC11. apply good housekeeping practices at all times</p> <p>Good housekeeping practices: clean/tidy work areas, removal/disposal of waste products, protect surfaces</p> <p>PC12. identify common hazard signs displayed in various areas</p> <p>Various areas: on chemical containers; equipment; packages; inside buildings; in open areas and public spaces, etc.</p> <p>PC13. retrieve and/or point out documents that refer to health and safety in the workplace</p> <p>Documents: fire notices, accident reports, safety instructions for equipment and procedures, company notices and documents, legal documents (eg</p>
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CSC/N1335 Use basic health and safety practices at the workplace

	government notices)
Fire safety	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC14. use the various appropriate fire extinguishers on different types of fires correctly</p> <p>Types of fires: Class A: eg. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: eg. electrical equipment such as 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> <p>PC15. demonstrate rescue techniques applied during fire hazard</p> <p>PC16. demonstrate good housekeeping in order to prevent fire hazards</p> <p>PC17. demonstrate the correct use of a fire extinguisher</p>
Emergencies, rescue and first-aid procedures	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC18. demonstrate how to free a person from electrocution</p> <p>PC19. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.</p> <p>PC20. demonstrate basic techniques of bandaging</p> <p>PC21. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments</p> <p>PC22. perform and organize loss minimization or rescue activity during an accident in real or simulated environments</p> <p>PC23. 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>PC24. demonstrate the artificial respiration and the CPR Process</p> <p>PC25. participate in emergency procedures</p> <p>Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work</p> <p>PC26. complete a written accident/incident report or dictate a report to another person, and send report to person responsible</p> <p>Incident Report includes details of: 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> <p>PC27. demonstrate correct method to move injured people and others during an emergency</p>
Knowledge and Understanding (K)	

CSC/N1335 Use basic health and safety practices at the workplace

<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. names (and job titles if applicable), and where to find, all the people responsible for health and safety in a workplace</p> <p>KA2. 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. possible causes of risk and accident</p> <p>Possible causes of risk and accident: physical actions; reading; listening to and giving instructions; inattention; sickness and incapacity (such as drunkenness); health hazards (such as untreated injuries and contagious illness)</p> <p>KB5. methods of accident prevention</p> <p>Methods of accident prevention: 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> <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> <p>Exposure: ingested, contact with skin, inhaled</p> <p>Preventative action: ventilation, masks, protective clothing/ equipment);</p> <p>Remedial action: immediate first aid, report to supervisor</p> <p>Toxic materials: solvents, flux, lead</p> <p>KB11. importance of using protective clothing/equipment while working</p> <p>KB12. precautionary activities to prevent the fire accident</p> <p>KB13. various causes of fire</p> <p>Causes of fires: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc.</p> <p>KB14. techniques of using the different fire extinguishers</p> <p>KB15. different methods of extinguishing fire</p> <p>KB16. different materials used for extinguishing fire</p>

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	<p>Materials: sand, water, foam, CO₂, dry powder</p> <p>KB17. rescue techniques applied during a fire hazard</p> <p>KB18. various types of safety signs and what they mean</p> <p>KB19. appropriate basic first aid treatment relevant to the condition eg. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries</p> <p>KB20. content of written accident report</p> <p>KB21. potential injuries and ill health associated with incorrect manual handling</p> <p>KB22. safe lifting and carrying practices</p> <p>KB23. personal safety, health and dignity issues relating to the movement of a person by others</p> <p>KB24. potential impact to a person who is moved incorrectly</p>
Skills (S)	
A. Core Skills/ Generic Skills	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 an accident/incident report in local language or English
	Writing Skills
B. Professional Skills	The user/individual on the job needs to know and understand how to:
	SA4. 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:
	SA5. question coworkers appropriately in order to clarify instructions and other issues
	SA6. give clear instructions to coworkers, 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
B. Professional Skills	CustomerCentricity
	The user/individual on the job needs to know and understand how to:
B. Professional Skills	SB3. remain congenial while discussing and debating issues with co-workers

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	<p>SB4. follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice</p> <p>SB5. provide and receive required assistance where possible to ensure achievement of work related objectives</p> <p>SB6. thank coworkers for any assistance received</p> <p>SB7. offer appropriate respect based on mutuality and respect for fellow workmanship and authority</p>
	Problem Solving
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB8. think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)</p> <p>SB9. identify immediate or temporary solutions to resolve delays</p> <p>SB10. identify sources of support that can be availed of for problem solving for various kind of problems</p> <p>SB11. seek appropriate assistance from other sources to resolve problems</p> <p>SB12. report problems that you cannot resolve to appropriate authority</p>
	Analytical Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB13. identify cause and effect relations in their area of work</p> <p>SB14. use cause and effect relations to anticipate potential problems and their solution</p>
	Critical Thinking
	NA

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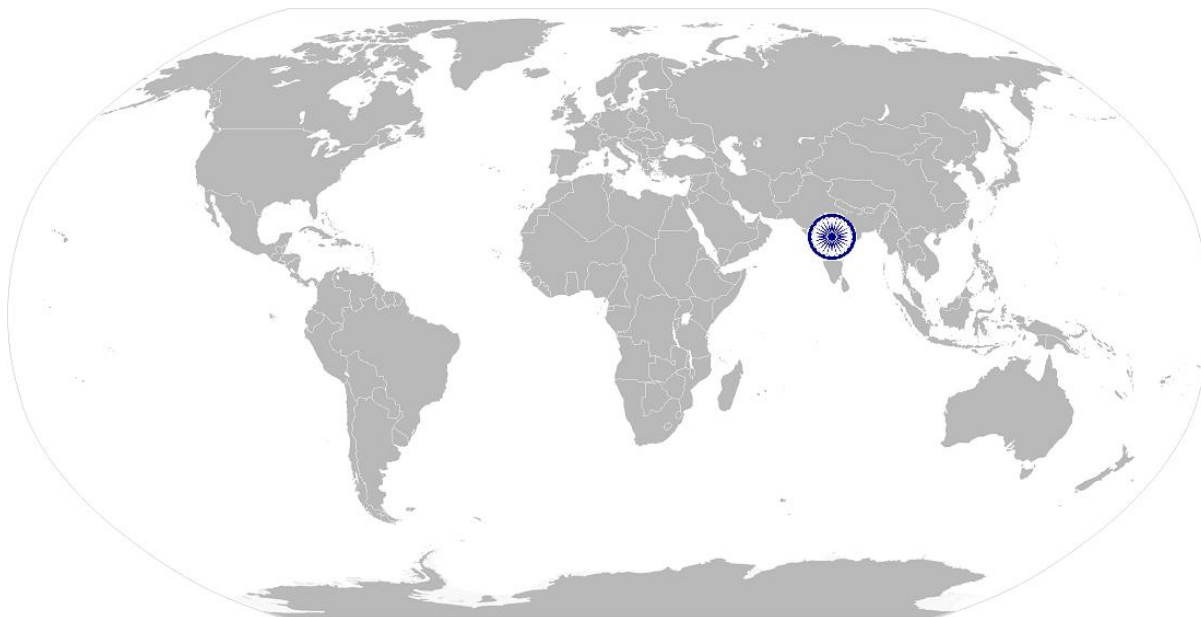
NOS Version Control

NOS Code	CSC/N1335		
Credits	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	24/04/2014
Industry Sub-sector	<ol style="list-style-type: none"> 1. Machine Tools 2. Dies, Moulds and Press Tools 3. Plastics Manufacturing Machinery 4. Textile Manufacturing Machinery 	Last reviewed on	24/11/2017
Occupation	Shop Floor Management	Next review date	24/11/2021

CSC/N1336

Work effectively with others

National Occupational Standard



Overview

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

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Work effectively with others

National Occupational Standard	Unit Code	CSC/N1336
	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 behavior and interactions with others at the workplace. These cover areas such as communication etiquette, discipline, listening etc.
	Scope	This unit/task covers the following: <ul style="list-style-type: none"> Work effectively with others
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Work effectively with others	<p>To be competent, the user/individual on the job must 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 behavior 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 Communication etiquette: do not use abusive language; use appropriate titles and terms of respect; do not eat or chew while talking (vice versa)etc.</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 behaviors at the workplace Disciplined behaviors: e.g. punctuality; completing tasks as per given time and standards; not gossiping and idling time; eliminating waste, honesty, etc.</p> <p>PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict</p>
	Knowledge and Understanding (K)	
	A. Organizational 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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organization and its processes)	<p>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 issues</p>
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 behavior 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)	
A. Core Skills/ Generic Skills	<p>Reading Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read basic terms and terminologies to accurately interpret work related documents, labels, supervisor instructions in the local language</p> <p>SA2. read and interpret accurate information from various relevant work instructions and records</p> <p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA3. write clear and legible notes to self, colleagues and seniors to pass messages, keep records, prepare to-do lists, take down instructions</p> <p>SA4. write basic numbers, quantities and work related terminology for operational requirements in the local language</p>

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B. Professional Skills	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA5. interact with the supervisor appropriately (correct protocol and manner of speaking) in order to understand the basic requirements of the product, production plans and other associated requirements
	SA6. give clear instructions to co-workers about the type of output required and answer queries
	SA7. display active listening skills while interacting with co-workers and other in the workplace
	Decision Making
	NA
	Plan and organize
	The user/individual on the job needs to know and understand how to:
	SB1. use appropriate planning to maintain a smooth relationship with fellow team members
	SB2. take steps within one's limits of authority to initiate modification in plan if the circumstances require it
	Customer centricity
	The user/individual on the job needs to know and understand how to:
	SB3. check that work meets customer requirements
	SB4. deliver consistent and reliable service to internal and external customers
	Problem Solving
	The user/individual on the job needs to know and understand how to:
	SB5. work with co-workers and supervisor to resolve any issues that threaten disruption, increase risk, cause delays or under-achievement of quality and targets as per the planned schedule
	Analytical Thinking
	NA
	Critical Thinking
	NA

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Work effectively with others

NOS Version Control

NOS Code	CSC/N1336		
Credits	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	24/04/2014
Industry Sub-sector	<ol style="list-style-type: none"> Machine Tools Dies, Moulds and Press Tools Plastics Manufacturing Machinery Textile Manufacturing Machinery 	Last reviewed on	24/11/2017
Occupation	Shop Floor Management	Next review date	24/11/2021

Annexure

Nomenclature for QP and NOS

Qualifications Pack

9 characters

[ABC]/ Q 0101

[Insert 3 letter codes for SSC]

Q denoting Qualifications Pack



QP number (2 numbers)

Occupation (2 numbers)

Occupational Standard

An example of NOS with 'N'

9 characters

[ABC] / N 0101

[Insert 3 letter codes for SSC]

N denoting National Occupational Standard



OS number (2 numbers)

Occupation (2 numbers)

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The following acronyms/ codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Machine Tools	01-13
Dies, Moulds and Press Tools	01-13
Plastic Manufacturing Machinery	01-13
Textile Manufacturing Machinery	01-13
Process Plant Machinery	01-13
Electrical and Power Machinery	01-13
Light Engineering Goods	01-13

Sequence	Description	Example
Three letters	Capital Goods	CSC
Slash	/	/
Next letter	Whether QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

Criteria For Assessment Of Trainees

Job Role: Production Engineer

Qualification Pack: CSC/Q1201

Sector Skill Council: Capital Goods 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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS				Marks Allocation	
Total Marks: 300					
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
CSC/N1201 Plan and organize machinery production and assembly processes	PC1.obtain specification of the product to be produced from an appropriate authority	100	1	0	1
	PC2.obtain details of the required production and assembly activities review the critical production requirements and quality criteria for each production and assembly activity		1	0	1
	PC3.obtain clarification from relevant people on any aspects of the activities that are unclear		2	0	2
	PC4.discuss and facilitate any changes needed to suit the operational requirements with the relevant people		4	1	3
	PC5.ensure that methods and procedures used meet relevant regulations and guidelines		2	0	2

PC6.define the production requirements and communicate them to the relevant people	2	0	2
PC7.record the requirements in the appropriate information systems	2	0	2
PC8.identify production team personnel and contractors required and check for their availability	2	0	2
PC9.obtain the resources, based on required skills, using the appropriate organizational procedures and authorizations	2	0	2
PC10.identify materials, tools, equipment, jigs and other resources required using workplace job information	2	0	2
PC11.resolve any resource supply or control issues	2	0	2
PC12.inspect and prepare the materials, tools, equipment, jigs for safe operation	3	0	3
PC13.identify and report faulty material, tools, equipment and jigs to appropriate personnel	2	0	2
PC14.record all resource data on the appropriate company information system	2	1	1
PC15.develop job cards showing personnel, consumables and resource costs	2	0	2
PC16.develop production schedules showing job sequence and estimated start and completion dates	3	1	2
PC17.submit job cards and production schedules to the appropriate personnel for approval	2	0	2
PC18.confirm that appropriate authorization is obtained	1	0	1
PC19.confirm the availability of resources to relevant team members	2	0	2
PC20.confirm to appropriate personnel that materials, processes and the site are duly prepared	2	0	2
PC21.confirm that the health, safety and environmental requirements applicable to the production activities are being adhered to	3	1	2
PC22.provide clear and accurate instructions to all the relevant people	3	1	2
PC23.listen to and provide information to answer queries and doubts with respect to work related processes, operations as well as materials and equipment	3	1	2
PC24.ensure that all support and control systems operate effectively	2	0	2

PC25.ensure that quality assurance systems are correctly implemented	2	0	2
PC26.ensure that engineering support systems are operating correctly	2	0	2
PC27.control the use of resources to achieve the most effective results	3	1	2
PC28.implement production processes that comply with organizational guidelines and procedures, customer standards and requirements or national and international standards or directives	2	1	1
PC29.identify opportunities to improve the production processes and activities and forward to relevant authorities	2	0	2
PC30.report and communicate production processes and activities implemented through various company media	3	1	2
PC31.record the implementation process on appropriate company media	3	1	2
PC32.conduct an evaluation of the effectiveness of the implementation process	3	1	2
PC33.identify and record any deviations from specifications of the implemented activity	3	1	2
PC34.ensure that the implementation of production processes and activities complies with all relevant regulations, directives and guidelines	2	1	1
PC35.inspect personnel, resources and timelines for production and confirm according to workplace procedures and requirements	3	1	2
PC36.identify potential production problems and action required to resolve the problems according to workplace procedures	3	1	2
PC37.put permanent corrective action in place to resolve production problems as per organizational procedure	4	1	3
PC38.enhance productivity by adopting a number of appropriate measures (eg. automation, motivation, process planning, resource planning)	4	1	3
PC39.inform appropriate personnel of production progress in a timely manner	2	0	2
PC40.monitor production for quality, budget and time schedule	2	0	2

	PC41.ensure that work area and tools are cleaned and inspected according to workplace procedures		2	1	1
	PC42.complete job documentation according to workplace procedures		3	1	2
		Total	100	19	81
CSC/N1335 Use basic health and safety practices at the workplace	PC1.use protective clothing/equipment for specific tasks and work conditions	100	5	2	3
	PC2.state the name and location of people responsible for health and safety in the workplace		3	1	2
	PC3.state the names and location of documents that refer to health and safety in the workplace		3	1	2
	PC4.identify job-site hazardous work and state possible causes of risk or accident in the workplace		5	2	3
	PC5.carry out safe working practices while dealing with hazards to ensure the safety of self and others		4	2	2
	PC6.state methods of accident prevention in the work environment of the job role		3	2	1
	PC7.state location of general health and safety equipment in the workplace		5	2	3
	PC8.inspect for faults, set up and safely use steps and ladders in general use		5	2	3
	PC9.work safely in and around trenches, elevated places and confined areas		5	2	3
	PC10.lift heavy objects safely using correct procedures		4	2	2
	PC11.apply good housekeeping practices at all times		5	2	3
	PC12.identify common hazard signs displayed in various areas		3	1	2
	PC13.retrieve and/or point out documents that refer to health and safety in the workplace		4	1	3
	PC14.use the various appropriate fire extinguishers on different types of fires correctly		4	1	3
	PC15.demonstrate rescue techniques applied during fire hazard		3	1	2
	PC16.demonstrate good housekeeping in order to prevent fire hazards		4	1	3
	PC17.demonstrate the correct use of a fire extinguisher		4	1	3
	PC18.demonstrate how to free a person from electrocution		4	1	3

	PC19.administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.		3	1	2
	PC20.demonstrate basic techniques of bandaging		4	1	3
	PC21.respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		3	1	2
	PC22.perform and organize loss minimization or rescue activity during an accident in real or simulated environments		3	1	2
	PC23.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		3	1	2
	PC24.demonstrate the artificial respiration and the CPR Process		3	2	1
	PC25.participate in emergency procedures		2	1	1
	PC26.complete a written accident/incident report or dictate a report to another person, and send report to person responsible		3	1	2
	PC27.demonstrate correct method to move injured people and others during an emergency		3	1	2
		Total	100	37	63
CSC/N1336 Work effectively with others	PC1.accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	100	10	3	7
	PC2.accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt		10	3	7
	PC3.give information to others clearly, at a pace and in a manner that helps them to understand		10	3	7
	PC4.display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible		10	3	7
	PC5.consult with and assist others to maximize effectiveness and efficiency in carrying out tasks		10	3	7
	PC6.display appropriate communication etiquette while working		10	3	7
	PC7.display active listening skills while interacting with others at work		10	3	7
	PC8.use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		10	3	7

	PC9.demonstrate responsible and disciplined behaviors at the workplace		10	3	7
	PC10.escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict		10	3	7
		Total	100	30	70