

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- Operator - Conventional Turning

SECTOR/S: CAPITAL GOODS

SUB-SECTOR:

- | | |
|------------------------------------|-----------------------------------|
| 1. Machine Tools | 5. Process Plant Machinery |
| 2. Dies, Moulds and Press Tools | 6. Electrical and Power Machinery |
| 3. Plastic Manufacturing Machinery | 7. Light Engineering Goods |
| 4. Textile Manufacturing Machinery | |

OCCUPATION: Machining

REFERENCE ID: CSC/Q0110

ALIGNED TO: NCO-2004/8211.15

Brief Job Description: Production of a range of components that combine a number of different features (eg. parallel, stepped and tapered diameters, drilled, bored and reamed holes, internal and external threads and special forms/profiles) and continuously monitor the machining operations and make minor adjustments to settings if required.

Personal Attributes: Basic communication, numerical and computational abilities. Openness to learning, ability to plan and organise 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/Q0110		
	Job Role	Operator - Conventional Turning [Applicable for National Scenarios]		
	Credits	TBD	Version number	1.0
	Sector	Capital Goods	Drafted on	24/03/2014
	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 5. Process Plant Machinery 6. Electrical and Power Machinery 7. Light Engineering Goods 	Last reviewed on	24/11/2017
	Occupation	Machining	Next review date	24/11/2021
	NSQC Clearance on	26/03/2015		

Job Role	Operator - Conventional Turning
Role Description	Produce a range of components that combine different features by carrying out turning operations on different turning machines.
NSQF level	2
Minimum Educational Qualifications	10 th Standard pass, preferably
Maximum Educational Qualifications	Not Applicable
Prerequisite License or Training	No Previous Training Required
Minimum Job Entry Age	18 Years
Experience	No Previous Experience Required
Applicable National Occupational Standards (NOS)	Compulsory: <ol style="list-style-type: none"> 1. CSC/N0110 Operate conventional turning machines 2. CSC/N1335 Use basic health and safety practices at the workplace 3. 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 specific designated responsibilities.

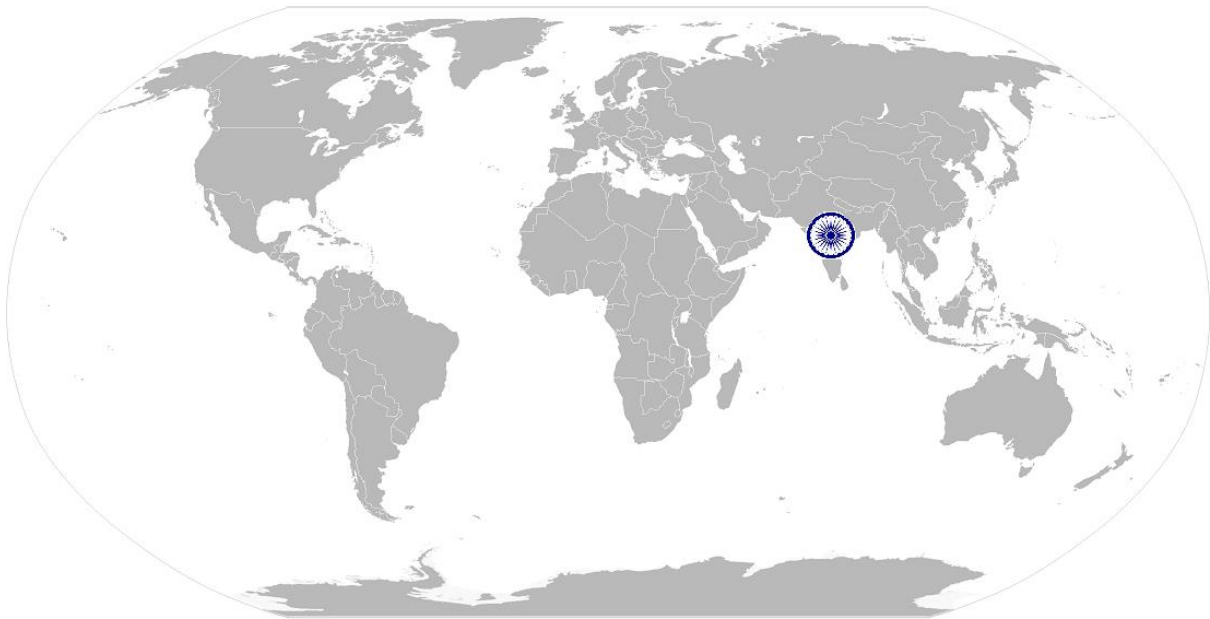
Acronyms

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
CMM	Coordinate Measuring Machine
ISO	International Organization For Standardization
DTI	Dial Test Indicators

CSC/N0110

Operate conventional turning machines

National Occupational Standard



Overview

This unit covers producing a range of metal and plastic components that combine different features by carrying out turning operations on turning machines such as centre lathes.

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Operate conventional turning machines

National Occupational Standard

Unit Code	CSC/N0110
Unit Title (Task)	Operate conventional turning machines
Description	This unit covers performing turning operations on machines such as centre lathes to produce a range of metal and plastic components that combine a number of different features (eg. parallel, stepped and tapered diameters, drilled, bored and reamed holes, internal and external threads, and special forms/profiles).
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Work safely • Prepare for operating conventional turning machine • Carry out operations on conventional turning machine • Handle of unresolved problems
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Work safely	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. comply with health and safety, environmental and other relevant regulations and guidelines at work</p> <p>PC2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing turning operations Personal protective equipment: correctly fitting overalls; safety glasses; long hair is tied back or netted; removing any jewelry or other items that can become entangled in the machinery; covered shoes; face mask</p> <p>PC3. ensure work area is clean and safe from hazards</p> <p>PC4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition</p> <p>PC5. ensure that machine guards are in place and are correctly adjusted</p> <p>PC6. read and understand safety instructions, warning signs on the machine</p>
Prepare for operating conventional turning machine	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC7. check that all measuring equipment is within calibration date</p> <p>PC8. ensure availability of job specification from a valid source Job specifications: instructions from supervisor/person-incharge, operational drawings; approved sketches/illustrations Valid sources: supervisor, job instruction sheet/job card; work drawings and instructions</p> <p>PC9. read and establish job requirements from the job specification document (to include symbols and conventions to appropriate ISO standards in relation to work undertaken)</p>

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	<p>Job specifications documents: instructions from supervisor/person-incharge, operational drawings; approved sketches/illustrations</p> <p>PC10. ensure that the incoming components used are free from foreign objects, dirt or other contamination</p> <p>PC11. prepare and maintain the work area as per procedure or operation specification</p> <p>PC12. plan to carry out the required turning activities and the sequence of operations as per specifications</p> <p>PC13. apply safe working practices and procedures at all times</p> <p>PC14. obtain all the appropriate materials, tools and equipment required for the turning operation</p> <p>PC15. confirm with the machine setter that the machine is ready for production</p> <p>PC16. prepare for the turning activities by mounting, positioning and correctly setting a range of workholding devices and cutting tools</p> <p>Workholding devices: chucks (three-jaw chucks with hard & soft jaws, four jaw chucks, collet chucks), drive plate and centres, fixtures, faceplates, magnetic or pneumatic devices, fixed steadies or travelling steadies, special purpose workholding devices (eg. wax chucks), tailstock, center and carrier</p> <p>Cutting tools: turning, facing, boring, knurling, parting off, forming, recessing/grooving, chamfering, centre drills, twist/core drills, reamers, thread tools and dies</p> <p>PC17. seek any necessary instruction/training on the operation of the machine, where required</p> <p>PC18. hold components securely, without distortion</p> <p>PC19. ensure that machine settings are adjusted as and when required to maintain the required accuracy</p>
<p>Carry out operations on conventional turning machine</p>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC20. set and adjust the machine tool speeds and feeds to achieve the component specification</p> <p>PC21. mount and set the required workholding devices, workpiece and cutting tools</p> <p>PC22. operate the machine tool controls safely and correctly, in line with operational procedures</p> <p>PC23. control the machine in both hand and power modes for normal operations</p> <p>PC24. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency</p> <p>PC25. use lathes and the accessories that consists of saddle, capstan/turret head, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling steadies</p> <p>PC26. position and secure workholding devices to the machine spindle</p> <p>PC27. perform turning operations using various equipments to produce</p>

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Operate conventional turning machines

	<p>components with various features</p> <p>Equipment: solid high-speed tooling, brazed tip tooling, interchangeable tipped tooling, indexable insert tooling</p> <p>Component features: flat faces, diameters (parallel, stepped, tapered, eccentric), holes (drilled, reamed, bored), chamfers, grooves/undercuts, profile forms, threads (internal, external), parting off, knurls or special finishes</p> <p>PC28. produce components as per given quality standards</p> <p>Components quality standards as per the process: e.g. components to be free from false tool cuts, burrs and sharp edges, general dimensional tolerance $\pm 0.05\text{mm}$, there must be one or more specific dimensional tolerances within $\pm 0.1\text{mm}$, surface finish $1.6\mu\text{m}$, reamed holes within H7, screw threads medium fit (to suit mating part / gauge), angles within ± 0.5 degree, etc.</p> <p>PC29. achieve given production targets</p> <p>PC30. overcome the effects of backlash in machine slides and screws</p> <p>PC31. perform the technique of trial cut for checking dimensional accuracy</p> <p>PC32. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy</p> <p>PC33. use cutting fluids for different materials</p> <p>Different materials: steel/stainless steel, aluminum/aluminum alloys, copper/copper alloys, cast iron, plastic</p> <p>PC34. report any difficulties or problems that may arise with the turning activities, and carry out any agreed actions</p> <p>PC35. shut down the equipment to a safe condition on completion of the turning activities</p> <p>Safe conditions: correctly isolated; cleaning the machine; removing and disposing of waste correctly</p> <p>PC36. use range of equipment to check critical parameters</p> <p>Range of checking equipment: e.g. external micrometers, vernier/digital/dial calipers, dial test indicators (DTI), surface finish equipment (eg. comparison plates), steel rules, micrometers (internal, depth), depth verniers, gauges (slip, bore/hole), thread gauges (eg. ring, plug, profile), gauges (plug, ring, radius/profile), protractors, etc.</p> <p>Critical parameters: diameters (external, internal, eccentricity), parallelism, bore/hole size/fit, angle/taper, surface finish, linear dimensions (eg. lengths, depths), grooves/undercuts (eg. position, width, depth), concentricity, ovality, thread fit, straightness, squareness</p> <p>PC37. clamp the work piece in a chuck/work holding device</p> <p>PC38. perform the checks to be carried out on the components before removing</p>
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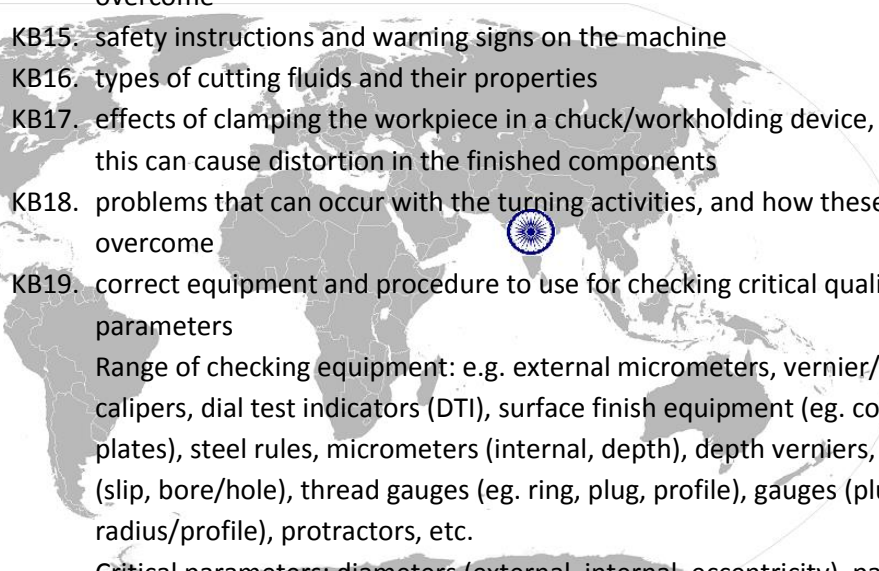
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	<p>them from the machine, and the equipment needed for this activity</p> <p>PC39. ensure that the quality control procedures are used while operating the equipment</p>
Handle of unresolved problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC40. refer the problem to a competent internal specialist if it cannot be resolved</p> <p>PC41. obtain help or advice from specialist if the problem is outside his/her area of competence or experience</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. 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 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. where personal protective equipment to be worn can be obtained</p> <p>KB2. where to obtain the component drawings, specifications and/or job instructions required for them components to be machined</p> <p>KB3. hazards associated with the turning operations and how they can be minimized</p> <p>KB4. meaning and purpose of turning</p> <p>KB5. safety mechanisms on the machine, and the procedure for checking that they function correctly</p> <p>KB6. how to tighten all the bolts, cam locks or other securing devices securely</p> <p>KB7. importance of keeping the work area clean and tidy</p> <p>KB8. how to use metric systems of measurement</p> <p>KB9. main features of the lathes and the accessories that can be used Accessories: e.g. saddle, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling stays, etc.</p> <p>KB10. classification and purpose of various accessories</p>

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Operate conventional turning machines

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- KB11. tool materials (classification, properties and use)
 - KB12. how to identify the factors that affect the selection of cutting feeds and speeds, and the depth of cut that can be taken
 - KB13. turning operations that can be performed using various equipment, and the component features produced on metal and non-metal components
Equipment: solid high-speed tooling, brazed tip tooling, interchangeable tipped tooling, indexable insert tooling
Component features: flat faces, diameters (parallel, stepped, tapered, eccentric), holes (drilled, reamed, bored), chamfers, grooves/undercuts, profile forms, threads (internal, external), parting off, knurls or special finishes
 - KB14. effects of backlash in machine slides and screws, and how this can be overcome
 - KB15. safety instructions and warning signs on the machine
 - KB16. types of cutting fluids and their properties
 - KB17. effects of clamping the workpiece in a chuck/workholding device, and how this can cause distortion in the finished components
 - KB18. problems that can occur with the turning activities, and how these can be overcome
 - KB19. correct equipment and procedure to use for checking critical quality parameters
Range of checking equipment: e.g. external micrometers, vernier/digital/dial calipers, dial test indicators (DTI), surface finish equipment (eg. comparison plates), steel rules, micrometers (internal, depth), depth verniers, gauges (slip, bore/hole), thread gauges (eg. ring, plug, profile), gauges (plug, ring, radius/profile), protractors, etc.
Critical parameters: diameters (external, internal, eccentricity), parallelism, bore/hole size/fit, angle/taper, surface finish, linear dimensions (eg. lengths, depths), grooves/undercuts (eg. position, width, depth), concentricity, ovality, thread fit, straightness, squareness
 - KB20. production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost
 - KB21. selection of cutting tools, tool materials, chip breaker geometry, selecting cutting parameters from tool catalogues, selecting coolant
 - KB22. relationship between surface finish, tool nose radius, speed and feed rate
 - KB23. impact of depth of cut on chatter, surface finish
 - KB24. extent of their own authority and to whom they should report if they have problems that they cannot resolve
 - KB25. safe working practices and environmental regulations that must be observed
 - KB26. importance of reporting problems in a timely manner

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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 interpret information correctly from various job specification documents, health and safety instructions, memos, etc. applicable to the job in English and/or local language
	Writing Skills
	The user/individual on the job needs to know and understand how to: SA2. fill up appropriate technical forms, process charts, activity logs as per organizational format in English and/or local language SA3. undertake numerical operations, and calculations/ formulae Numerical computations: addition, subtraction, multiplication, division, fractions and decimals, percentages and proportions, simple ratios and averages Algebraic expressions: represent numerical quantities using symbols, apply laws of precedence in the use of precedence (BODMAS) SA4. identify various basic, compound and solid shapes as per dimensions given Basic shapes: square, rectangle, triangle, circle Compound shapes: involving squares, rectangles, triangles, circles, semicircles, quadrants of a circle Solid shapes: cube, rectangular prism, cylinder SA5. use appropriate measuring techniques and units of measurement SA6. use appropriate units and number systems to express degree of accuracy Units and number systems representing degree of accuracy: decimals places, SA7. significant figures, fractions as a decimal quantity
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA8. convey and share technical information clearly using appropriate language SA9. check and clarify task-related information SA10. liaise with appropriate authorities using correct protocol SA11. communicate with people in respectful form and manner in line with organizational protocol
B. Professional Skills	Decision Making
	NA
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB1. plan, prioritize and sequence work operations as per job requirements SB2. organize and analyze information relevant to work SB3. basic concepts of shop-floor work productivity including waste reduction,

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	efficient material usage and optimization of time
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB4. exercise restraint while expressing dissent and during conflict situations SB5. avoid and manage distractions to be disciplined at work SB6. manage own time for achieving better results SB7. work in a team in order to achieve better results SB8. identify and clarify work roles within a team SB9. communicate and cooperate with others in the team for better results SB10. seek assistance from fellow team members
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB11. identify problems with work planning, procedures, output and behavior and their implications SB12. prioritize and plan for problem solving SB13. communicate problems appropriately to others SB14. identify sources of information and support for problem solving SB15. seek assistance and support from other sources to solve problems SB16. identify effective resolution techniques SB17. select and apply resolution techniques SB18. seek evidence for problem resolution
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB19. undertake and express new ideas and initiatives to others SB20. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB21. participate in improvement procedures including process, quality and internal/external customer/supplier relationships SB22. enhance one's competencies in new and different situations and contexts to achieve more
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB23. participate in on-the-job and other learning, training and development interventions and assessments SB24. clarify task related information with appropriate personnel or technical adviser SB25. seek to improve and modify own work practices SB26. maintain current knowledge of application standards, legislation, codes of practice and product/process developments

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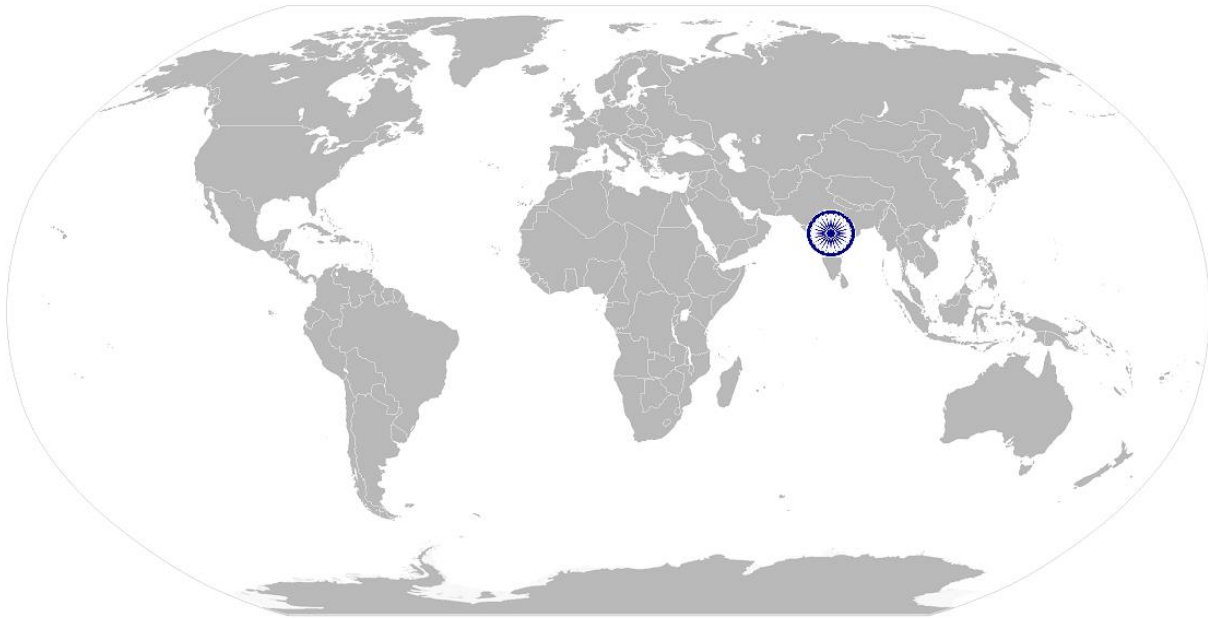
NOS Version Control

NOS Code	CSC/N0110		
Credits	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	24/03/2014
Industry Sub-sector	<ol style="list-style-type: none"> 1. Machine Tools 2. Dies, Moulds and PressTools 3. Plastics Manufacturing Machinery 4. Textile Manufacturing Machinery 5. Process Plant Machinery 6. Electrical and Power Machinery 7. Light Engineering Goods 	Last reviewed on	24/11/2017
Occupation	Machining	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.

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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</p>

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Use basic health and safety practices at the workplace

	<p>drunkenness); health hazards (such as untreated injuries and contagious 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>
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CSC/N1335

Use basic health and safety practices at the workplace

	Documents: fire notices, accident reports, safety instructions for equipment and procedures, company notices and documents, legal documents (eg 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</p>

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

	emergency
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<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>
B. Technical Knowledge	<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 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 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 Exposure: ingested, contact with skin, inhaled Preventative action: ventilation, masks, protective clothing/ equipment); Remedial action: immediate first aid, report to supervisor 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 Causes of fires: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc.</p>

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Use basic health and safety practices at the workplace

	<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 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
A. Core Skills/ Generic 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
B. Professional Skills	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

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Use basic health and safety practices at the workplace

	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 coworkers 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
	NA

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

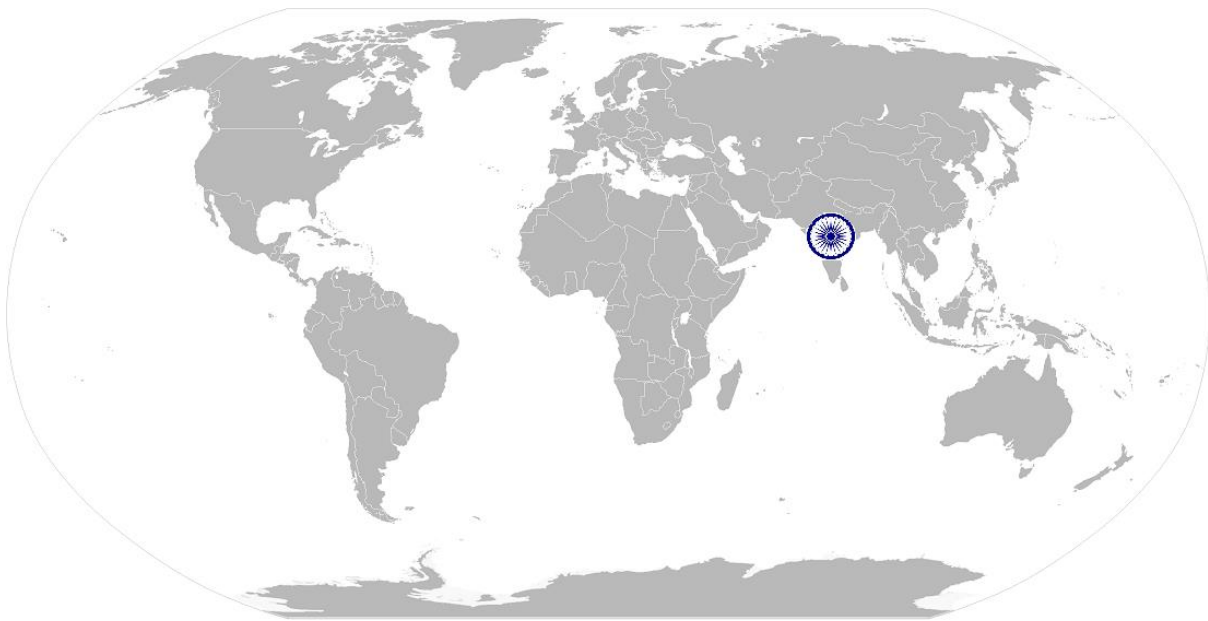
NOS Version Control

NOS Code	CSC/N1335		
Credits	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	24/03/2014
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 5. Process Plant Machinery 6. Electrical and Power Machinery 7. Light Engineering Goods 	Last reviewed on	24/11/2017
Occupation	Machining	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. receive information accurately and instructions from the supervisor and fellow workers, getting clarification where required</p> <p>PC2. pass information accurately 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	Reading Skills
	<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>
	Writing Skills
	<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		
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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 5. Process Plant Machinery 6. Electrical and Power Machinery 7. Light Engineering Goods 	Last reviewed on	24/11/2017
Occupation	Machining	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 orNOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

Criteria For Assessment Of Trainees

Job Role: Operator - Conventional Turning

Qualification Pack: CSC/Q0110

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/N0110 Operate conventional turning machines	PC1.comply with health and safety, environmental and other relevant regulations and guidelines at work	100	3	1	2
	PC2.adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing turning operations		3	1	2
	PC3.ensure work area is clean and safe from hazards		2	0	2
	PC4.ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition		2	0	2
	PC5.ensure that machine guards are in place and are correctly adjusted		2	0	2
	PC6.read and understand safety instructions, warning signs on the machine		3	1	2
	PC7.check that all measuring equipment is within calibration date		2	0	2
	PC8.ensure availability of job specification from a valid source		2	0	2

PC9.read and establish job requirements from the job specification document (to include symbols and conventions to appropriate ISO standards in relation to work undertaken)	3	1	2
PC10.ensure that the incoming components used are free from foreign objects, dirt or other contamination	2	0	2
PC11.prepare and maintain the work area as per procedure or operation specification	3	1	2
PC12.plan to carry out the required turning activities and the sequence of operations as per specifications	3	1	2
PC13.apply safe working practices and procedures at all times	3	1	2
PC14.obtain all the appropriate materials, tools and equipment required for the turning operation	2	0	2
PC15.confirm with the machine setter that the machine is ready for production	2	0	2
PC16.prepare for the turning activities by mounting, positioning and correctly setting a range of workholding devices and cutting tools	3	1	2
PC17.seek any necessary instruction/training on the operation of the machine, where required	2	0	2
PC18.hold components securely, without distortion	2	0	2
PC19.ensure that machine settings are adjusted as and when required to maintain the required accuracy	3	1	2
PC20.set and adjust the machine tool speeds and feeds to achieve the component specification	3	1	2
PC21.mount and set the required workholding devices, workpiece and cutting tools	3	1	2
PC22.operate the machine tool controls safely and correctly, in line with operational procedures	3	1	2
PC23.control the machine in both hand and power modes for normal operations	3	1	2
PC24.stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency	3	1	2
PC25.use lathes and the accessories that consists of saddle, capstan/turret head, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling steadies	1	0	1
PC26.position and secure workholding devices to the machine spindle	2	0	2
PC27.perform turning operations using various equipments to produce components with various features	5	2	3
PC28.produce components as per given quality standards	2	0	2
PC29.achieve given production targets	2	0	2

	PC30.overcome the effects of backlash in machine slides and screws		3	1	2
	PC31.perform the technique of trial cut for checking dimensional accuracy		2	0	2
	PC32.apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy		2	1	1
	PC33.use cutting fluids for different materials		3	1	2
	PC34.report any difficulties or problems that may arise with the turning activities, and carry out any agreed actions		3	1	2
	PC35.shut down the equipment to a safe condition on completion of the turning activities		1	0	1
	PC36.use range of equipment to check critical parameters		2	0	2
	PC37.clamp the work piece in a chuck/work holding device		2	0	2
	PC38.perform the checks to be carried out on the components before removing them from the machine, and the equipment needed for this activity		2	0	2
	PC39.ensure that the quality control procedures are used while operating the equipment		2	0	2
	PC40.refer the problem to a competent internal specialist if it cannot be resolved		3	1	2
	PC41.obtain help or advice from specialist if the problem is outside his/her area of competence or experience		1	0	1
		Total	100	21	79
CSC/N1335 Use basic health and safety practices at the workplace	PC1.use protective clothing/equipment for specific tasks and work conditions	100	4	1	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		3	1	2
	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		3	1	2
	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	1	2
	PC25.participate in emergency procedures		4	1	3
	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		4	2	2
			Total	100	36
CSC/N1336 Work effectively with others	PC1.receive information accurately and instructions from the supervisor and fellow workers, getting clarification where required	100	10	3	7
	PC2.pass information accurately 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