QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR CAPITAL GOODS INDUSTRY

Contents

What are Occupational Standards(OS)?

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

Contact Us:
Capital Goods Skill Council, FICCI,
Federation House,
Tansen Marg,
New Delhi 110 001

E-mail:
inder.gahlaut@ficci.com

Introduction

Qualifications Pack: Operator – Conventional Turning

SECTOR: CAPITAL GOODS

SUB-SECTOR:

1. Machine Tools
2. Tools Dies and Press Tools
3. Plastics Manufacturing Machinery
4. Textile Manufacturing Machinery
5. Process Plant Machinery
6. Electrical and Power Machinery
7. Light Engineering Goods

OCCUPATION: Machining

REFERENCE ID: CSC/ Q 0110

Aligned to: NCO-2004/8211.15

Operator – Conventional Turning: Produce a range of components that combine different features by carrying out turning operations on different turning machines.

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 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/ Q 0110**		
Job Role	**Operator – Conventional Turning**		
Credits (NSQF)	**TBD**	**Version number**	**1.0**
Sector	**CAPITAL GOODS**	**Drafted on**	**24/03/14**
Sub-sector	1. Machine Tools 2. Tools Dies 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**	
Occupation	**MACHINING**	**Next review date**	**30/08/16**

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	10th Standard
Maximum Educational Qualifications	N.A.
Training (Suggested but not mandatory)	No Previous Training Required
Experience	No Previous Experience Required
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. CSC/ N 0110 (Operate conventional turning machines 2. CSC/ N 1335 (Use basic health and safety practices at the workplace) 3. CSC/ N 1336 (Work effectively with others) **Optional:** N.A.
Performance Criteria	As described in the relevant OS units

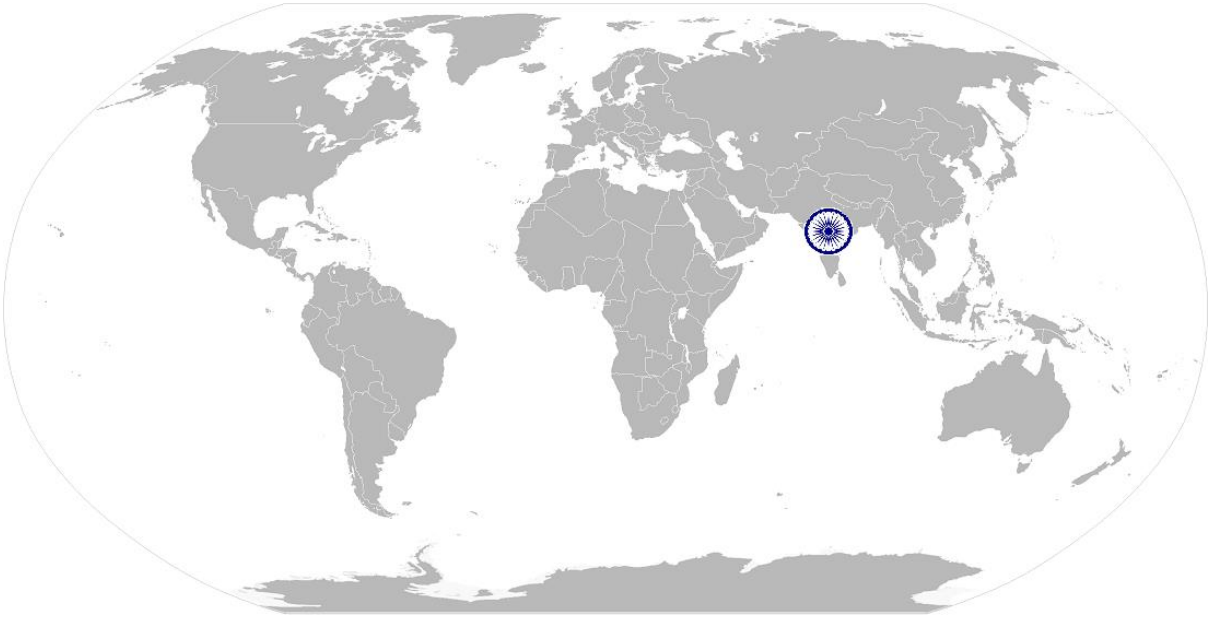
Definitions

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	Organisational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.

Acronyms

Keywords /Terms	Description
CO2	Carbon dIoxide
CPR	Cardiac Pulmonary Resuscitation
PPE	Personal Protective Equipment
CMM	Coordinate Measuring Machine
ISO	International Organization for Standardization
DTI	Dial Test Indicators

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.

CSC/ N 0110: Operate conventional turning machines

National Occupational Standard

Unit Code	**CSC/ N 0110**
Unit Title (Task)	**Operate conventional turning machines**
Description	This unit is 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). The candidate will be expected to work under supervision, as per instructions given.
Scope	This unit/task covers the following: • Working safely • Preparing for operating conventional turning machine • Carrying out operations on conventional turning machine

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working safely	The user/individual on the job should be able to: PC1. comply with health and safety, environmental and other relevant regulations and guidelines at work 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 PC3. ensure work area is clean and safe from hazards PC4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition PC5. ensure that machine guards are in place and are correctly adjusted PC6. read and understand safety instructions, warning signs on the machine
Preparing for operating conventional turning machine	The user/individual on the job should be able to: PC7. check that all measuring equipment is within calibration date 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 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) **Job specifications documents:** instructions from supervisor/person-incharge, operational drawings; approved sketches/illustrations PC10. ensure that the incoming components used are free from foreign objects, dirt or other contamination PC11. prepare and maintain the work area as per procedure or operation specification

CSC/ N 0110: Operate conventional turning machines

	PC12. plan to carry out the required turning activities and the sequence of operations as per specifications PC13. apply safe working practices and procedures at all times PC14. obtain all the appropriate materials, tools and equipment required for the turning operation PC15. confirm with the machine setter that the machine is ready for production PC16. prepare for the turning activities by mounting, positioning and correctly setting a range of workholding devices and cutting tools **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 **Cutting tools**: turning, facing, boring, knurling, parting off, forming, recessing/grooving, chamfering, centre drills, twist/core drills, reamers, thread tools and dies PC17. seek any necessary instruction/training on the operation of the machine, where required PC18. hold components securely, without distortion PC19. ensure that machine settings are adjusted as and when required to maintain the required accuracy
Carrying out operations on conventional turning machine	The user/individual on the job should be able to: PC20. set and adjust the machine tool speeds and feeds to achieve the component specification PC21. mount and set the required workholding devices, workpiece and cutting tools PC22. operate the machine tool controls safely and correctly, in line with operational procedures PC23. control the machine in both hand and power modes for normal operations PC24. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency 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 PC26. position and secure workholding devices to the machine spindle PC27. perform turning operations using various equipments to produce components with various features **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 PC28. produce components as per given quality standards **Components quality standards as per the process**: e.g. components to be free from false tool cuts, burrs and sharp edges, general dimensional tolerance +/- 0.05mm, there must be one or more specific dimensional tolerances within +/- 0.1mm, surface finish 1.6µm, reamed holes within H7,

	screw threads medium fit (to suit mating part / gauge), angles within +/- 0.5 degree, etc. PC29. achieve given production targets PC30. overcome the effects of backlash in machine slides and screws PC31. perform the technique of trial cut for checking dimensional accuracy PC32. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy PC33. use cutting fluids for different materials **Different materials**: steel/stainless steel, aluminum/aluminum alloys, copper/copper alloys, cast iron, plastic PC34. report any difficulties or problems that may arise with the turning activities, and carry out any agreed actions PC35. shut down the equipment to a safe condition on completion of the turning activities **Safe conditions:** correctly isolated; cleaning the machine; removing and disposing of waste correctly PC36. use range of equipment to check critical 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 PC37. clamp the work piece in a chuck/work holding device PC38. perform the checks to be carried out on the components before removing them from the machine, and the equipment needed for this activity PC39. ensure that the quality control procedures are used while operating the equipment
Handling of unresolved problems	The user/individual on the job should be able to: PC40. refer the problem to a competent internal specialist if it cannot be resolved PC41. obtain help or advice from specialist if the problem is outside his/her area of competence or experience
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. relevant health and safety requirements applicable in the work place KA3. importance of working in clean and safe environment KA4. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities KA5. reporting structure, inter-dependent functions, lines and procedures in the work area KA6. relevant people and their responsibilities within the work area

CSC/ N 0110: Operate conventional turning machines

	KA7. escalation matrix and procedures for reporting work and employment related issues KA8. documentation and related procedures applicable in the context of employment and work KA9. importance and purpose of documentation in context of employment and work
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. where personal protective equipment to be worn can be obtained KB2. where to obtain the component drawings, specifications and/or job instructions required for them components to be machined KB3. hazards associated with the turning operations and how they can be minimized KB4. meaning and purpose of turning KB5. safety mechanisms on the machine, and the procedure for checking that they function correctly KB6. how to tighten all the bolts, cam locks or other securing devices securely KB7. importance of keeping the work area clean and tidy KB8. how to use metric systems of measurement 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. KB10. classification and purpose of various accessories 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
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Communication** The user/ individual on the job needs to know and understand how to: SA1. read and interpret information correctly from various job specification documents, manuals, health and safety instructions, memos, etc. applicable to the job in English and/or local language SA2. fill up appropriate technical forms, process charts, activity logs as per organizational format in English and/or local language SA3. convey and share technical information clearly using appropriate language SA4. check and clarify task-related information SA5. liaise with appropriate authorities using correct protocol SA6. communicate with people in respectful form and manner in line with organizational protocol
	Numerical and computational skills The user/individual on the job needs to know and understand how to: SA1. 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) SA2. identify various basic, compound and solid shapes as per dimensions given **Basic shapes:** square, rectangle, triangle, circle **Compound shapes:** involving squares, rectangles, triangles, circles, semi-circles, quadrants of a circle **Solid shapes:** cube, rectangular prism, cylinder SA3. use appropriate measuring techniques and units of measurement SA4. use appropriate units and number systems to express degree of accuracy **Units and number systems representing degree of accuracy**: decimals places, significant figures, fractions as a decimal quantity
	Learning

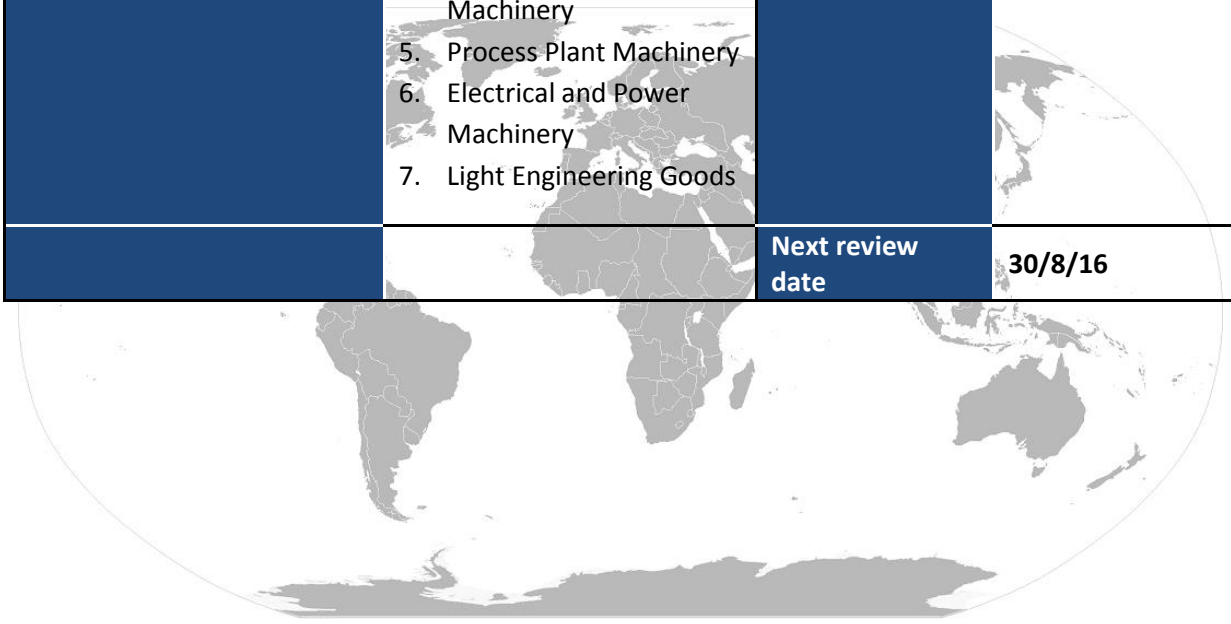
CSC/ N 0110: Operate conventional turning machines

	The user/individual on the job needs to know and understand how to: SA5. participate in on-the-job and other learning, training and development interventions and assessments SA6. clarify task related information with appropriate personnel or technical adviser SA7. seek to improve and modify own work practices SA8. maintain current knowledge of application standards, legislation, codes of practice and product/process developments
B. Professional Skills	**Problem Solving**
	The user/individual on the job needs to know and understand how to: SB1. identify problems with work planning, procedures, output and behavior and their implications SB2. prioritize and plan for problem solving SB3. communicate problems appropriately to others SB4. identify sources of information and support for problem solving SB5. seek assistance and support from other sources to solve problems SB6. identify effective resolution techniques SB7. select and apply resolution techniques SB8. seek evidence for problem resolution
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB9. plan, prioritize and sequence work operations as per job requirements SB10. organize and analyze information relevant to work SB11. basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time
	Initiative and Enterprise
	The user/individual on the job needs to know and understand how to: SB12. undertake and express new ideas and initiatives to others SB13. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB14. participate in improvement procedures including process, quality and internal/external customer/supplier relationships SB15. one's competencies in new and different situations and contexts to achieve more
	Self-Management
	The user/individual on the job needs to know and understand how to: SB16. exercise restraint while expressing dissent and during conflict situations SB17. avoid and manage distractions to be disciplined at work SB18. manage own time for achieving better results
	Teamwork
	The user/individual on the job needs to know and understand how to: SB19. work in a team in order to achieve better results SB20. identify and clarify work roles within a team SB21. communicate and cooperate with others in the team for better results SB22. seek assistance from fellow team members

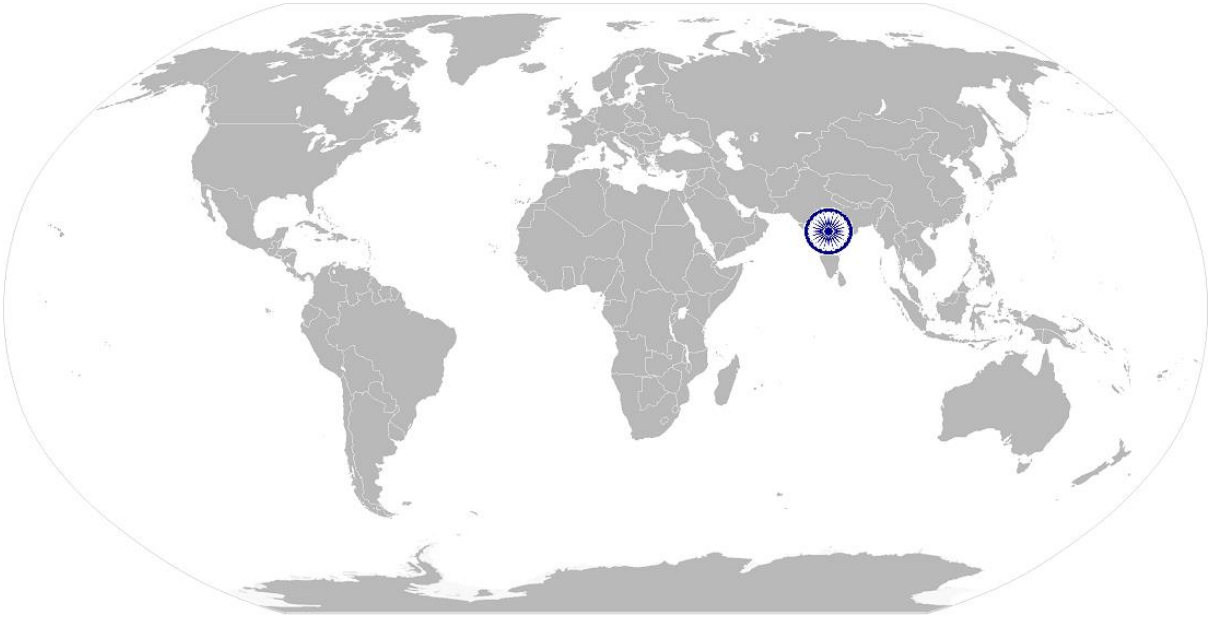
CSC/ N 0110: Operate conventional turning machines

NOS Version Control

NOS Code	CSC/ N 0110		
Credits (NSQF)	TBD	Version number	1.0
Industry	Capital Markets	Drafted on	10/4/14
Industry Sub-sector	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	
		Next review date	30/8/16



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/ N 1335: Use basic health and safety practices at the workplace

National Occupational Standard

Unit Code	CSC / N 1335
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. It includes understanding of risks and hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies, etc. It covers knowledge of fire safety, common first aid applications, safe practices and emergency procedures.
Scope	This unit/task covers the following: • Health and safety • Fire safety • Emergencies, rescue and first-aid procedures
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Health and safety	The user/individual on the job should be able to: 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 PC2. state the name and location of people responsible for health and safety in the workplace PC3. state the names and location of documents that refer to health and safety in the workplace 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.)

CSC/ N 1335: Use basic health and safety practices at the workplace

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

	Documents: fire notices, accident reports, safety instructions for equipment and procedures, company notices and documents, legal documents (eg government notices)
Fire safety	The user/individual on the job should be able to: PC14. use the various appropriate fire extinguishers on different types of fires correctly **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) PC15. demonstrate rescue techniques applied during fire hazard PC16. demonstrate good housekeeping in order to prevent fire hazards PC17. demonstrate the correct use of a fire extinguisher
Emergencies, rescue and first-aid procedures	The user/individual on the job should be able to: PC18. demonstrate how to free a person from electrocution PC19. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc. PC20. demonstrate basic techniques of bandaging PC21. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments PC22. perform and organize loss minimization or rescue activity during an accident in real or simulated environments 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 PC24. demonstrate the artificial respiration and the CPR Process PC25. participate in emergency procedures **Emergency procedures**: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work PC26. complete a written accident/incident report or dictate a report to another person, and send report to person responsible **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 PC27. demonstrate correct method to move injured people and others during an emergency
Knowledge and Understanding (K)	

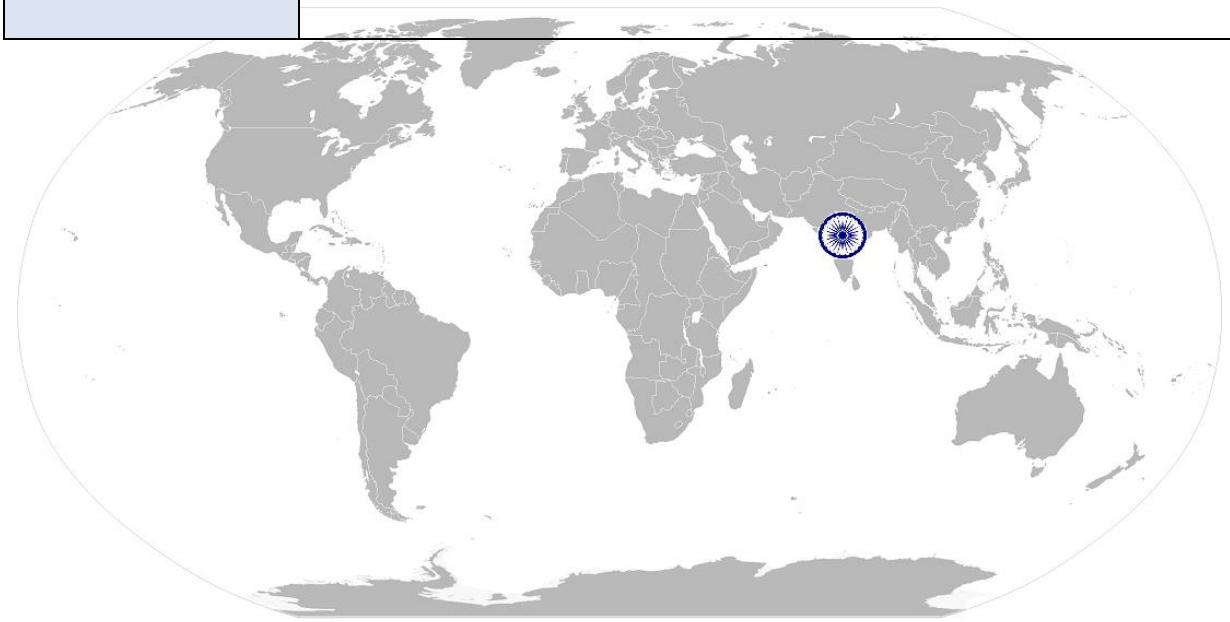
CSC/ N 1335: Use basic health and safety practices at the workplace

A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. names (and job titles if applicable), and where to find, all the people responsible for health and safety in a workplace. KA2. names and location of documents that refer to health and safety in the workplace.
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. meaning of "hazards" and "risks" KB2. health and safety hazards commonly present in the work environment and related precautions KB3. possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible 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) 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 KB6. safe working practices when working with tools and machines KB7. safe working practices while working at various hazardous sites KB8. where to find all the general health and safety equipment in the workplace KB9. various dangers associated with the use of electrical equipment 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 KB11. importance of using protective clothing/equipment while working KB12. precautionary activities to prevent the fire accident KB13. various causes of fire **Causes of fires**: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc. KB14. techniques of using the different fire extinguishers KB15. different methods of extinguishing fire KB16. different materials used for extinguishing fire **Materials**: sand, water, foam, CO2, dry powder KB17. rescue techniques applied during a fire hazard KB18. various types of safety signs and what they mean

	KB19. appropriate basic first aid treatment relevant to the condition eg. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries KB20. content of written accident report KB21. potential injuries and ill health associated with incorrect manual handing KB22. safe lifting and carrying practices KB23. personal safety, health and dignity issues relating to the movement of a person by others KB24. potential impact to a person who is moved incorrectly
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Reading and Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. read and comprehend basic content to read labels, charts, signages SA2. read and comprehend basic English to read manuals of operations SA3. read and write an accident/incident report in local language or English
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. question coworkers appropriately in order to clarify instructions and other issues SA5. give clear instructions to coworkers, subordinates others
	Decision Making
	The user/individual on the job needs to know and understand how to: SA6. 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: SB1. plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Working with others
	The user/individual on the job needs to know and understand how to: SB2. remain congenial while discussing and debating issues with co-workers SB3. follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB4. ask for, provide and receive required assistance where possible to ensure achievement of work related objectives SB5. thank coworkers for any assistance received SB6. offer appropriate respect based on mutuality and respect for fellow worksmanship and authority

CSC/ N 1335: Use basic health and safety practices at the workplace

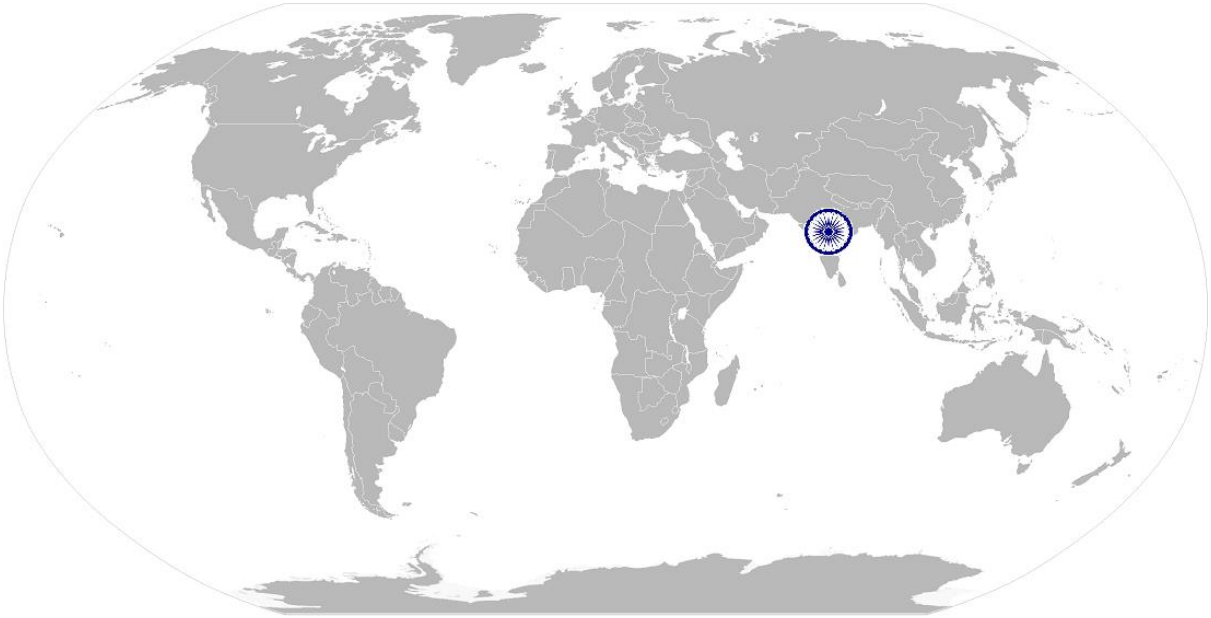
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB7. think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB8. identify immediate or temporary solutions to resolve delays SB9. identify sources of support that can be availed of for problem solving for various kind of problems SB10. seek appropriate assistance from other sources to resolve problems SB11. report problems that you cannot resolve to appropriate authority
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. identify cause and effect relations in their area of work SB13. use cause and effect relations to anticipate potential problems and their solution



NOS Version Control

NOS Code	CSC / N 1335		
Credits (NSQF)	TBD	Version number	1.0
Industry	Capital Goods	Drafted on	10/04/14
Industry Sub-sector	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 Generation Machinery 7. Light Engineering Goods	Last reviewed on	
		Next review date	30/08/16

National Occupational Standard



Overview

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

CSC/ N 1336: Work effectively with others

National Occupational Standard

Unit Code	**CSC / N 1336**
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, handling conflict and grievances.
Scope	This unit/task covers the following: • Working with others

Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working with others	The user/individual on the job should be able to: PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required PC2. accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt PC3. give information to others clearly, at a pace and in a manner that helps them to understand PC4. display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible PC5. consult with and assist others to maximize effectiveness and efficiency in carrying out tasks 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. PC7. display active listening skills while interacting with others at work PC8. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism 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. PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict

Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. reporting structure, inter-dependent functions, lines and procedures in the work area KA3. relevant people and their responsibilities within the work area KA4. escalation matrix and procedures for reporting work and employment related issues

CSC/ N 1336: Work effectively with others

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. various categories of people that one is required to communicate and co-ordinate with in the organization KB2. importance of effective communication in the workplace KB3. importance of teamwork in organizational and individual success KB4. various components of effective communication KB5. key elements of active listening KB6. value and importance of active listening and assertive communication KB7. barriers to effective communication KB8. importance of tone and pitch in effective communication KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB11. importance of ethics for professional success KB12. importance of discipline for professional success KB13. what constitutes disciplined behavior for a working professional KB14. common reasons for interpersonal conflict KB15. importance of developing effective working relationships for professional success KB16. expressing and addressing grievances appropriately and effectively KB17. importance and ways of managing interpersonal conflict effectively
Skills (S) [Optional]	

CSC/ N 1336: Work effectively with others

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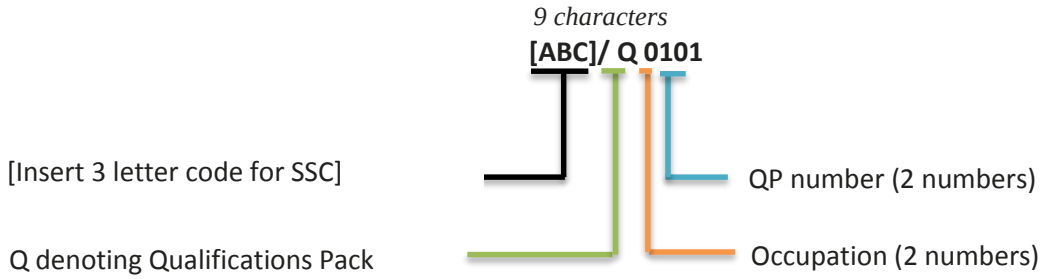
		Next review date	30/08/16

Annexure

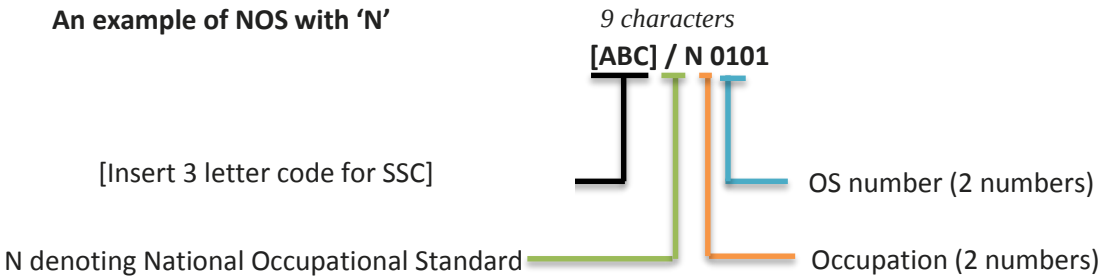
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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 **Q**P or **N**OS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

PERFORMANCE CRITERIA

Job Role: Operator – Conventional Turning

Qualification Pack: CSC/ Q Q 0110

Sector Skill Council: Capital Goods Sector Skills Council

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/training center.
4. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Assessment Strategy Marks Allocation		
NOS CODE	**NOS TITLE**	**Weightage**
CSC/ N 0110	Operating conventional turning machines	70
CSC/ N 1335	Use basic health and safety practices at the workplace	20
CSC/ N 1336	Work effectively with others	10
		100

CSC/ N 0108	**Operating conventional turning machines**		
Elements	Performance criteria	**Theory**	**Practical**
Working safely	PC1. comply with health and safety, environmental and other relevant regulations and guidelines at work	1	2
	PC2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing turning operations	1	2
	PC3. ensure work area is clean and safe from hazards	0	2
	PC4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0	2
	PC5. ensure that machine guards are in place and are correctly adjusted	0	2
	PC6. read and understand safety instructions, warning signs on the machine	1	2
		3	**12**
Preparing for operating	PC7. check that all measuring equipment is within calibration date	0	2

conventional turning machine	PC8. ensure availability of job specification from a valid source	0	2
	PC9. read and establish job requirements from the job specification document	1	2
	PC10. ensure that the incoming components used are free from foreign objects, dirt or other contamination	0	2
	PC11. prepare and maintain the work area as per procedure or operation specification	1	2
	PC12. plan to carry out the required turning activities and the sequence of operations as per specifications	1	2
	PC13. apply safe working practices and procedures at all times	1	2
	PC14. obtain all the appropriate materials, tools and equipment required for the turning operation	0	2
	PC15. confirm with the machine setter that the machine is ready for production	0	2
	PC16. prepare for the turning activities by mounting, positioning and correctly setting a range of workholding devices and cutting tools	1	2
	PC17. seek any necessary instruction/training on the operation of the machine, where required	0	2
	PC18. hold components securely, without distortion	0	2
	PC19. ensure that machine settings are adjusted as and when required to maintain the required accuracy	1	2
		6	**26**

Carrying out operations on conventional turning machine	PC20. set and adjust the machine tool speeds and feeds to achieve the component specification	1	2
	PC21. mount and set the required workholding devices, workpiece and cutting tools	1	2
	PC22. operate the machine tool controls safely and correctly, in line with operational procedures	1	2
	PC23. control the machine in both hand and power modes for normal operations	1	2
	PC24. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency	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	0	1
	PC26. position and secure workholding devices to the machine spindle	0	2
	PC27. perform turning operations using various equipments to produce components with various features	2	3
	PC28. produce components as per given quality standards	0	2

	PC29. achieve given production targets	0	2
	PC30. overcome the effects of backlash in machine slides and screws	1	2
	PC31. perform the technique of trial cut for checking dimensional accuracy	0	2
	PC32. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy	1	1
	PC33. use cutting fluids for different materials	1	2
	PC34. report any difficulties or problems that may arise with the turning activities, and carry out any agreed actions	1	2
	PC35. shut down the equipment to a safe condition on completion of the turning activities	0	1
	PC36. use range of equipment to check critical parameters	0	2
	PC37. clamp the work piece in a chuck/work holding device	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	0	1
	PC39. ensure that the quality control procedures are used while operating the equipment	0	2
Handling of unresolved problems	PC40. refer the problem to a competent internal specialist if it cannot be resolved	1	1
	PC41. obtain help or advice from specialist if the problem is outside his/her area of competence or experience	0	1
		12	**41**
		21	**79**
		100	

CSC/ N 1335	Use basic health and safety practices at the workplace		
Elements	Performance criteria	**Theory**	**Practical**
Health and safety	PC1. use protective clothing/equipment for specific tasks and work conditions	2	3
	PC2. state the name and location of people responsible for health and safety in the workplace	1	2
	PC3. state the names and location of documents that refer to health and safety in the workplace	1	2
	PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace	2	3
	PC5. carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role	2	2
	PC6. state location of general health and safety equipment in the workplace	2	1
	PC7. inspect for faults, set up and safely use steps and ladders in general use	2	3
	PC8. work safely in and around trenches, elevated places and confined areas	2	3
	PC9. lift heavy objects safely using correct procedures	2	3
	PC10. apply good housekeeping practices at all times	2	2
	PC11. identify common hazard signs displayed in various areas	2	3
	PC12. retrieve and/or point out documents that refer to health and safety in the workplace	1	2
		21	**29**
Fire safety	PC13. use the various appropriate fire extinguishers on different types of fires correctly	1	3
	PC14. demonstrate rescue techniques applied during fire hazard	1	3
	PC15. demonstrate good housekeeping in order to prevent fire hazards	1	2
	PC16. demonstrate the correct use of a fire extinguisher	1	3
		4	**11**
Emergencies, rescue and first-aid procedures	PC17. demonstrate how to free a person from electrocution	1	3
	PC18. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3
	PC19. demonstrate basic techniques of bandaging	1	2

	PC20. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments	1	3
	PC21. perform and organize loss minimization or rescue activity during an accident in real or simulated environments	1	2
	PC22. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases	1	2
	PC23. demonstrate the artificial respiration and the CPR Process	1	2
	PC24. participate in emergency procedures	2	1
	PC25. complete a written accident/incident report or dictate a report to another person, and send report to person responsible	1	3
	PC26. demonstrate correct method to move injured people and others during an emergency	1	3
		11	**24**
		36	**64**
		100	

CSC/ N 1336	**Work effectively with others**		
Elements	Performance criteria	**Theory**	**Practical**
Work effectively with others	PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	3	7
	PC2. accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt	3	7
	PC3. give information to others clearly, at a pace and in a manner that helps them to understand	3	7
	PC4. display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible	3	7
	PC5. consult with and assist others to maximize effectiveness and efficiency in carrying out tasks	3	7
	PC6. display appropriate communication etiquette while working	3	7
	PC7. display active listening skills while interacting with others at work	3	7
	PC8. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism	3	7
	PC9. demonstrate responsible and disciplined behaviors at the workplace	3	7

	PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict	3	7
		30	**70**
		100	