

Model Curriculum

OPERATOR – CONVENTIONAL TURNING

Operator-Conventional Turning

SECTOR: **CGSC**
SUB-SECTOR: **Machine Tools**
Tools Dies and Press tools
Plastics Manufacturing Machinery
Textile Manufacturing Machinery
Process Plant Machinery
Electrical And Power Machinery
Light Engineering Goods
OCCUPATION: **Machining**
REFERENCE ID: **CSC/Q 0110**
NSQF LEVEL: **2**



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Operator-Conventional Turning

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Operator-Conventional Turning”, in the “Capital Goods” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Operator-Conventional Turning		
Qualification Pack Name & Reference ID.	CSC/Q 0110		
Version No.	1.0	Version Update Date	12 – 12 – 2015
Pre-requisites to Training	Minimum qualification – (as specified in the QP)		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Carry out preparations for operating conventional turning machine: read and establish job requirements from job specifications. Check components are free from foreign objects, dirt or contamination and prepare machine by mounting, positioning and correctly setting a range of work holding devices and cutting tools. • Carry out operations on conventional turning machine: mount and set required work holding devices, set and adjust speeds to produce components with various features and different materials as per given quality standards. • Handle of unresolved problems: identify and refer unresolved problems to internal specialists. • Working safely: read and understand the safety signs and instructions on the machine, use of PPE, identify job –site hazards and apply good housekeeping practices etc 		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “CSC/Q 0110” Qualification Pack issued by “Capital Goods Skill Council”.

Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipment Required
1	Operate conventional turning machines	50:00	200:00	<ul style="list-style-type: none"> • Understand the meaning of turning and main features of the lathes and accessories of the machine; tightening of bolts, cam locks or other securing devices; classification of 	CSC/N 0110	Lathe Machines , Cutting tools measuring tools , Hand Tools , Power tools , PPE , Drawing Tools



				<p>accessories, factors that affect the selection of cutting feeds and speeds and depths; equipment (solid high speed tooling, brazed tip tools, interchangeable tipped tools etc and component features and critical parameters like flat faces, diameters (parallel, stepped, tapered, eccentric), holes (drilled, reamed, bored), chamfers, profile forms, threads (internal, external), parting off, knurls or special finishes, linear dimensions (length, depths) groves /undercuts (position, width, depth) concentricity, ovality, thread fits, straightness, squareness.</p> <ul style="list-style-type: none"> • Understand the range of equipment to checking quality parameters like external micrometers, venires/digital/dial calipers, dial test indicators (DTI), surface finish equipment, steel rules, micrometers (internal ,depth) depth Vernier, gauges(slip/bore/hole) thread gauges (ring/plug/profiles), gauges (plug, ring, radius /profile) protractors etc. • Read and establish job requirements from job 	<p>, Drilling Machines , Cutting Machines , Hand Grinders , GD&T , Etc.</p>
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				<p>specifications documents / instructions and prepare for turning activities by mounting, positioning and correctly setting range of clean and dust free work holding devices like chucks (three –jaw chucks with hard / soft paws, four jaw chucks, collet chucks), drive plate and centres, fixtures, faceplates, magnetic or pneumatic devices, fixed steadies or travelling steadies, special purpose work holding devices etc. and clean and dust free cutting tools like turning, facing, boring, knurling, parting off, forming recessing /grooving, chamfering, centre drills, twist / core drills, reamers, thread tools and dies etc</p> <ul style="list-style-type: none"> • Produce machined components of given quality standards which are free from false tool cuts, burrs and sharp edges, conforming to general dimensional tolerance $\pm 0.05\text{mm}$, specific dimensional tolerances within $\pm 0.1\text{mm}$, surface finish $1.6\mu\text{m}$, reamed holes within H7, screw thread medium fit (to suit mating part/gauge),angles within ± 0.5 degree etc in time to meet production targets using 		
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				<p>correct cutting fluids for different materials like steel/stainless steel, aluminum / aluminum alloys, copper / copper alloys, cast iron, plastic etc</p> <ul style="list-style-type: none"> • Measure the quality of machines components using range of equipment to check critical parameters. 		
2	Use basic health and safety practices at the workplace	30	70	<ul style="list-style-type: none"> • Understand importance of complying health safety and environmental regulation at work place. • Understand hazards associated with lathe machines operations, revolving and moving parts, hot metal particles, sharp cutting tools, lifting and holding work holding devises, burrs and sharp edges on the component and use of machine guards. • Be able to identify job site hazards like sharp edged heavy tools, gas cylinders, welding radiations, chemicals, fumes, obstructions in corridors, naked wires / cables etc • Understand: Different types of fire; use of appropriate fire extinguishers risk and accidents; safe working practices and methods of accident prevention 	CSC/ N 1335	<p>Helmet, gloves, earplugs, goggles, Shoes, node mask, Apron Etc.</p>



				<p>at work place</p> <ul style="list-style-type: none"> • Importance of using protective clothing like 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 ,hand shields, machine guards, residual current devices, shields, dust sheets, respirator etc. 		
3	Work effectively with others	40	60	<ul style="list-style-type: none"> • Able to receive and pass information from and to authorised persons and seeking clarification from authorized persons where required. • Able to communicate by avoiding use of abusive language; display respect to others. • Respect others time by completing given task in time, avoiding gossip and avoid conflict. • Understand and practices active listening, teamwork, effective communication; understands the barriers to effective communication and common reasons for interpersonal conflict. 	CSC/N 1336	



Total Duration: 450	Theory 120	Practical 330	Unique Equipment Required: Lathe Machines , Cutting tools measuring tools , Hand Tools , Power tools , PPE , Drawing Tools , Drilling Machines , Cutting Machines , Hand Grinders , GD&T , Etc. Helmet, gloves, earplugs, goggles, Shoes, nose mask, Apron Etc.
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Grand Total Course Duration: **450 Hours 00 Minutes**

(This syllabus/ curriculum has been approved by Capital Goods Skill Council)



Annexure1: Assessment Criteria

Assessment Criteria for Operator – Conventional Turning	
Job Role	Operator – Conventional Turning
Qualification Pack	CSC/Q 0110
Sector Skill Council	Capital Goods Skill Council (CGSC)

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for Qualification Pack has been created based on the NOSs and performance criteria by CGSC. Each Performance Criteria (PC) has been assigned marks proportional to its importance within NOS and weightages have also been given among the NOSs accordingly. CGSC has laid down the proportion of marks for Skills (Practical), Theory/Knowledge and Behaviour for each PC.
2	The assessment of the theory/knowledge will be based on written test/viva-voce or both while skill test shall be hands on practical.
3	The assessment shall be done as per the assessment guides devised by CGSC in coordination with the assessment agencies. Assessment guides consists of a unique question papers for theory/knowledge and the method of assessments and evidence collection and detailed marking.
4	To pass the Qualification Pack, every trainee should score a minimum of 70% in Skill, 60% in Knowledge OR as per guidelines applicable from time to time.
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Sr. No.	NOS No.	NOS Name	Total Marks	Marks Allocation: Skills	Marks Allocation: Knowledge	Marks Allocation: Behaviour
1	CSC/ N 0108	Operating conventional turning machines	100	79	21	..
2	CSC/N 1335	Use basic health and safety practices at the workplace	100	64	36	..
3	CSC/N 1336	Work effectively with others	100		30	70
Total:			300	143	87	70
Percentage Weightage:				70%	20%	10%
Minimum Pass% to qualify:				70%	60%	60%



Annexure2: Trainer Prerequisites for Job role: “Operator-Conventional Turning ” mapped to Qualification Pack: “CSC /Q 0110”

Sr. No.	Area	Details
1	Job Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CSC/Q 0110”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Preferably Diploma/Degree in Mechanical Engineering
4a	Domain Certification	Certified for Job Role: “CNC Operator Turning” mapped to QP: “CSC /Q 0110” with Minimum acceptance score of 85 %.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/1402” with Minimum accepted score of 85%. Alternatively, must have successfully undergone a CGSC organized TOT workshop on “How to Trainer”.
5	Experience	Minimum 3 to 4 years of industry experience in relevant job role and a Minimum of 3 to 4 years and Training experience in relevant job role.



Capital Goods Skill Council

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