

Model Curriculum

Grinder-Hand and hand held Power Tools

Grinder-Hand and hand held Power Tools

SECTOR: **CGSC**
SUB-SECTOR: **Machine Tools**
Dies, Moulds and Press Tools
Process Plant Machinery
Plastics Manufacturing Machinery
Textile Manufacturing Machinery
Electrical and Power Machinery
Light Engineering Goods
OCCUPATION: **Fitter and Assembly**
REFERENCE ID: **CSC/Q 0302**
NSQF LEVEL: **2**



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Grinder-Hand and hand held power tools

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Grinder-Hand and hand held power tools”, in the “Capital Goods” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Grinder-Hand and hand held power tools		
Qualification Pack Name & Reference ID.	CSC/Q 0302		
Version No.	1.0	Version Update Date	25 – 12 – 2015
Pre-requisites to Training	Minimum qualification –8 th Standard		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Carry out preparations for performing operations using Grinding Machine: read and establish requirements of raw material, dimensions, limits & tolerances, finish requirements etc. Be able to perform daily maintenance, carry out preliminary checks, obtain and identify correct and calibrated tools. • Carry out Grinding operations : use and extract information from engineering drawings, labelling data etc, fixing and unfixing components, produce machined components, measure critical parameters of machined components, observe inconsistencies, replace worn out tools and store finished products etc • Work safely following health and safety standards: comply with procedures or systems and ensure that all tools, equipment, power tool cable, extension leads are in a safe and usable condition and comply by good housekeeping practices. 		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “CSC/Q 0302” 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	Grind surface using hand and hand-held power tools	40:00	110:00	<ul style="list-style-type: none"> • Understand main features and Grinding Components and accessories that can be used. • Identify and obtain job specifications from valid sources like approved sketches / illustrations, and 	CSC/N 0302	Grinders , Power tools ,Cutting tools measuring tools , Hand Tools , Marking tools , repairing tools stones, wheels, files or other abrasives chisels, scrapers grinding discs ,



				<p>identify raw material/components, measuring and cutting tools and their calibration, dimensions, limits and tolerances, surface finish, shapes, cycle time and production rates. Understand types of measurements and dimensions like lengths, depths, flatness, surface finish, squareness,, parallelism, hole size/fit, angles And recesses, runout and roundness .</p> <ul style="list-style-type: none"> • Preparation of materials and work areas for Stones , wheels , files , work pieces , chisels , scrapers, power tools , grinders , work holding devices etc , metals like ferrous metals: e.g. carbon steels, stainless steels, cast iron, tool steel, hard metals, etc.; non-ferrous metals: e.g. bronze, bronze alloys, copper and copper alloys, following shapes like square , rectangle , triangle , circle , semi-circle , quadrants , cube , prism, cylinder etc . • Basic daily maintenance of machine and good housekeeping activities like removing and disposing swarf, 		<p>wire brush wheels , grinding stones , dressing tools , PPE , etc.</p>
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				<p>keeping work areas free from foreign objects and dirt, machine lubrication , transformers; rectifiers; generators; invertors .</p> <ul style="list-style-type: none"> • Understand the different work holding devices & grinding operations like electric, pneumatic, liquid fuel, hydraulic , cut-off discs (diamond blade), abrasive grinding discs, grinding stones, wire brush wheels , work tables , marking tools: rules/tapes, dividers/trammels, scribes, punches, scribing blocks, squares, protractor, depth/internal/external micrometers, calipers (vernier, inside and outside, depth), gauges (height Vernier, feeler, bore/hole, slip, radius/profile, thread, plug), stick micrometers, dial stand and comparator, vee block with u-clamp, optical instruments .wheel dressing using diamond cutter , Calculations/formulae like : addition, subtraction, multiplication, division fractions and decimals, percentages and proportions, simple ratios and averages 		
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				<ul style="list-style-type: none"> • Fixing and unfixing the job piece using predetermined fixtures or work holding devises and measure the critical parameters of component after trial run. Correct the adjustment.(hacksaws; hammers; punches; screwdrivers; sockets; wrenches; spanners; scrapers; chisels; gouges; files; taps; vices and clamps etc) • Finishing Parameters like texture , roughness, standards, policies , codes of process development, accuracy like (decimals places, significant figures, fractions as a decimal quantity),symbols etc 		
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 the importance and ensure that all tools, equipment, power tools cables, extension leads are in safe and usable condition. • Be able to identify job site hazards like sharp edged heavy tools, gas cylinders, welding radiations, chemicals, 	CSC/ N 1335	Sample Helmet, gloves, earplugs, goggles, Shoes, node mask, Apron Etc.



				<p>fumes, obstructions in corridors, naked wires / cables etc</p> <ul style="list-style-type: none"> • Understand: Different types of fire; use of appropriate fire extinguishers risk and accidents; safe working practices and methods of accident prevention at work place • 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 	CSC/N 1336	



				completing given task in time, avoiding gossip and avoid conflict.		
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Total Duration: 350	Theory 110	Practical 240	Unique Equipment Required: Grinders , Power tools ,Cutting tools measuring tools , Hand Tools , Marking tools , repairing tools stones, wheels, files or other abrasives chisels, scrapers Grinding discs, wire brush wheels , grinding stones , dressing tools , PPE , etc.. Sample Helmet, gloves, earplugs, goggles, Shoes, node mask, Apron Etc.
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Grand Total Course Duration: **350 Hours 00 Minutes**

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



Annexure1: Assessment Criteria

Assessment Criteria for Grinder-Hand and hand held power tools	
Job Role	Grinder-Hand and hand held power tools
Qualification Pack	CSC/Q 0302
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: Behavior
1	CSC/ N 0302	Grind surface using hand and hand-held power tools	100	85	15	..
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	149	81	70
Percentage Weightage:				70	20	10
Minimum Pass% to qualify:				70	60	60



Annexure2: Trainer Prerequisites for Job role: “Grinder-Hand and hand held power tools ” mapped to Qualification Pack: “CSC /Q 0302”

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 0302”.
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: “Grinder-Hand and hand held power tools” mapped to QP: “CSC /Q 0302” 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 2 to 3 years of industry experience in relevant job role and a Minimum of 1 to 3 years and Training experience in relevant job role.



Capital Goods Skill Council

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