Model Curriculum

Draughtsman-Mechanical

SECTOR:	**CGSC**
SUB-SECTOR:	**MACHINE TOOLS** **DIES,MOULDS AND PRESS TOOLS** **PLASTICS MANUFACTURING MACHINERY** **TEXTILE MANUFACTURING MACHINERY** **PROCESS PLANT MACHINERY** **ELECTRICAL AND POWER MACHINERY** **LIGHT ENGINEERING GOODS**
OCCUPATION:	**DESIGN**
REF. ID:	**CSC/Q 0402 / VERSION -1.0**
NSQF LEVEL:	**4**

Skill India

CGSC
CAPITAL GOODS SKILL COUNCIL

N·S·D·C National Skill Development Corporation
Transforming the skill landscape

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

CAPITAL GOODS SKILL COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: '**Draughtsman – Mechanical**' QP No. '**CSC/ Q 0402 NSQF Level 4**'

Date of Issuance: **November 4th, 2015**

Valid up to: **November 3rd, 2016**

** Valid up to the next review date of the Qualification Pack*

Authorised Signatory
(Capital Goods Skill Council)

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Draughtsman-Mechanical

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Draughtsman-Mechanical", in the "Capital Goods" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Draughtsman-Mechanical**		
Qualification Pack Name & Reference ID.	CSC/Q 0402		
Version No.	1.0	**Version Update Date**	25 – 12 – 2015
Pre-requisites to Training	Minimum qualification – 10th Standard		
Training Outcomes	**After completing this programme, participants will be able to:** • **Carry out preparations for making 2D mechanical drawings**: read and establish requirements of standard dimensions, limits & tolerances, finish requirements etc. Be able to perform modification & making of new and drawings. • **Make new drawings and modify 2D mechanical drawings using CAD system:** 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:** read and understand the safety signs and instructions on the welding machines, 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 0402" Qualification Pack issued by "Capital Goods Skill Council".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Make or modify 2D mechanical engineering drawings using CAD system.** **Theory Duration** (hh:mm) 80:00 **Practical Duration** (hh:mm) 170:00 **Corresponding NOS Code** CSC/N 0402	• Understand main features and working methods of CAD and modification of 2D mechanical engineering designs. • Identify and obtain job specifications from valid sources like CAD software's , drawing tools , existing drawings/designs, approved sketches / illustrations, and identify raw material, measuring 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 ,standards reference documents from limits and fits , tapping drills chart , contraction allowances . • Preparation of work areas for make & modification of 2D engineering drawings • Basic daily maintenance of work area and good housekeeping activities like removing and disposing swarf, keeping work areas free from foreign objects and dirt, waste papers , drawings tools etc generators; invertors; consumables – electrodes, dyes; Hard drive , CD/DVD, External storage device , holders, cables and accessories. • Understand the different work holding devices like other tools like Measuring tools like steel rulers, micrometers, Vernier, gauges, dial test indicators, surface finish equipment and height masters. • Produce drawings method combining different drafting principles/methods, relevant changes /modifications, regulations, Design features, first angle, Third angle. • Preform Design/Drawings using different devices like Keyboard, Mouse , light pen , Digitizer/Table , scanner , printer , plotter etc) • Draughtsman Practices/ methods using detail drawing, sub-assembly drawings, installation drawings , exploded views /drawings , CAD software standards, national / International standards, codes of practice, customer standards / requirements, following different types of drawings layers for detaining dimensions/geometrical tolerances, elevation/plan/side/sectional and details views , adding of line types , dimension styles , title,	CAD/CAM Software's (Auto CAD,PRO-E, CATIA, NX, SOLIDWORKS, INVENTOR etc) ,measuring tools , Drawing Tools , Grinders , GD&T , Etc.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		text styles, color codes , scale etc	
2	**Use basic health and safety practices at the workplace** **Theory Duration** (hh:mm) 30:00 **Practical Duration** (hh:mm) 70:00 **Corresponding NOS Code** CSC/ N 1335	• Understand importance of complying health safety and environmental regulation at work place. • Understand hazards associated, revolving and moving parts, hot metal particles, sharp cutting tools, lifting and holding work holding devises, burrs and sharp edges on the component. • 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 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.	Helmet, gloves, earplugs, goggles, Shoes, node mask, Apron Etc.
3	**Work effectively with others** **Theory Duration** (hh:mm) 40:00 **Practical Duration** (hh:mm) 60:00 **Corresponding NOS Code** CSC/N 1336	• 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.	
	Total Duration **450** **Theory Duration** **140** **Practical Duration** **260**	**Unique Equipment Required:** CAD/CAM Software's (Auto CAD, PRO-E, CATIA, NX, SOLIDWORKS, INVENTOR etc) ,measuring tools , Drawing Tools , Grinders , GD&T , Etc. Helmet, gloves, earplugs, goggles, Shoes, node mask, Apron Etc.	

Grand Total Course Duration: 450 Hours 00 Minutes
(This syllabus/ curriculum has been approved by Capital Goods Sector Skill Council).

Trainer Prerequisites for Job role: "Draughtsman Mechanical " mapped to Qualification Pack: "CSC /Q 0402"

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 0402".
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**	Minimum - Diploma/Degree in Mechanical Engineering
4a	**Domain Certification**	Certified for Job Role: "Draughtsman Mechanical" mapped to QP: "CSC /Q 0402" 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 2 to 3 years and Training experience in relevant job role.

Annexure: Assessment Criteria

Assessment Criteria for Draughtsman Mechanical	
Job Role	Draughtsman Mechanical
Qualification Pack	CSC/Q 0402
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.

Sr. No.	NOS No.	NOS Name	Total Marks	Marks Allocation: Skills	Marks Allocation: Knowledge	Marks Allocation: Behavior
1	CSC/ N 0402	Make or modify 2D mechanical engineering drawings using CAD system	100	70	30	..
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**	**134**	**96**	**70**
	Percentage Weightage:			**70**	**20**	**10**
	Minimum Pass% to qualify:			**70**	**60**	**60**

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