



*National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”*



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



**National Vocational and Technical Training Commission (NAVTTTC),
Government of Pakistan**



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



ACKNOWLEDGEMENTS

National Vocational and Technical Training Commission (NAVTTTC) extends its gratitude and appreciation to representatives of business, industry, academia, government agencies, provincial TEVTAs, sector skill councils and trade associations who spared time and extended their expertise for the development of National Vocational Qualification for the trade of **Level-4 for Woodworks “Carpentry Supervisor/ Foreman”**. This work would not have been possible without the technical support of the above personnel.

NAVTTTC initiated development of CBT&A-based qualifications for 200 traditional/hi-tech trades under the Prime **Minister’s Hunarmand Pakistan Program**, focusing on Development & Standardization of 200 Technical & Vocational Education & Training (TVET) Qualifications. NAVTTTC efforts have received full support from the Ministry of Federal Education and Professional Training which highly facilitated progress under this initiative.

It may not be out of place to mention here that all the experts of Industry, Academia and TVET experts of TEVTAs, BTEs and PVTTC work diligently for making this qualification worthy and error-free for which all credit goes to them. However, NAVTTTC accepts the responsibility of all the errors and omissions still prevailing in the Qualification document.

It is also noteworthy that development of Skill Standards is a dynamic and ongoing process, and the developed skill standards need periodic review and updating owing to the constant technological advancements, development in scientific knowledge, and growing experience of implementation at the grass-root level as well as the demand of industry. NAVTTTC will ensure to keep the qualifications abreast with the changing demands of both national and international job markets.

**Engr. Sajid Baloch
Executive Director (NAVTTTC)**



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



Table of Contents

1. Introduction	5
2. Purpose of the Qualification.....	6
3. Date of Validation	7
4. Date of Review.....	7
5. Codes of Qualifications	7
6. Members of Qualification Development Committee	8
7. Qualification Validation Committee	9
8. Entry Requirements	10
9. Regulation of the qualification and schedule of units	10
10. Generic Modules with respective levels	11
11. Summary of competencies	12
12. Qualification Levelling and Packaging	15
13. Detail of Qualifications and its Competency Standards	16
0722-W&C-19 Specify job routing.....	16
0722-W&C-20 Operate Advance woodwork machinery.....	21
0722-W&C-21 Perform CAD/CAM operations.....	26
0722-W&C-22 Operate Computer Aided Machines (CNC/NC).....	30



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



0722-W&C-23 Handle the material.....	34
0722-W&C-24 Estimate the material cost.....	37
0722-W&C-25 Increase the Productivity at workplace	39
0099-G-01 Perform Basic Green Skills for Carpentry Works	40
0031-CS-01 Communicate at Workplace	42
0413-E-01 Develop Entrepreneurial Skills.....	45



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



1. Introduction

A Carpenter is almost indispensable as far as the construction industry goes. Their expertise and talents cover a multitude of different areas with an open canvas, be it commercial or residential. It encompasses everyone's daily life. Woodworks Industry is one of the booming industries and has huge demand in local as well as international market.

More than 96 % of the Pakistani manpower is working in GCC countries where Saudi Arabia (50.90%) and UAE (33.10%) are the largest destination countries followed by Oman (7.26%), Kuwait (1.90%), Bahrain (1.58%), and Qatar (1.41%). The overseas Pakistanis are playing a pivotal role to support the economy in the form of remittances. According to new labour laws, a large number of skilled labour is demanded by Saudian Government especially for the construction sector. For this purpose, new qualifications have been developed by NAVTTC on CBT&A mode in order to train the unskilled human resource with employable skills and cater the demand of Saudi Government.

Being conscious of the emerging trends in the market, National Vocational & Technical Training Commission (NAVTTTC) has developed competency standards in consultation with the stakeholders including academia, researchers, industry, chambers and TEVTAs for **level-4 for Woodworks “Carpentry Supervisor/ Foreman”** under National Vocational Qualifications Framework (NVQF). The competency standards document has been designed in such a way that helps trainees develop professional skills and facilitates them in targeting job market on national and international level especially Middle East.

The National Competency Standards could be used as a referral document for the development of curriculum to be used by training institutions.



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



2. Purpose of the Qualification

The purpose of this qualification is to set the highest professional standards for “Carpentry Supervisor/ Foreman” in order to compete in local and international job markets. The specific objectives of developing these qualifications are as under:

- Empower the youth with globally required employable skills
- Cater the immediate need of skilled workers in GCC countries
- Produce competitive “Carpentry Supervisor/ Foreman”
- Improve the quality and effectiveness of the training and assessment for woodworks Industry



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



3. Date of Validation

The National Competency Standards Level-4 for Woodworks “Carpentry Supervisor/ Foreman” has been validated by the Qualifications Validation Committee (QVC) members on 5th November, 2021 and will remain valid for ten years i.e. 4th November, 2031.

4. Date of Review

The National Competency Standards Level-4 for Woodworks “Carpentry Supervisor/ Foreman” has been validated by the Qualifications Validation Committee (QVC) members on 5th November, 2021 and shall be reviewed after three years 5th November, 2024.

5. Codes of Qualifications

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analyzing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:

ISCED Classification	
Code	Description
0722-W&C	National Competency Standards Level-4 for Woodworks “Carpentry Supervisor/ Foreman”



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



6. Members of Qualification Development Committee

The following members participated in the qualification development process at PITAC, Lahore.

Date: 9th to 13th Aug'2021

S#	Name	Designation	Organization
1.	Syed Asif Muneer	Principal	GSTC Mughalpura
2.	Mr. Arshad Baig	Training Incharge/Trade Expert	DESCON Technical Institute Lahore
3.	Mr. Jafar Hussain	R&D Executive	Interwood Lahore
4.	Engr. Zuneera Ashfaq	Assistant Director (Civil)	PITAC Lahore
5.	Engr. Ayesha Ramzan	Instructor	GCT Railway Road
6.	Mr. Muhammad Razzaq	Instructor	GTTI Mughalpura Lahore
7.	Engr. Abdul Basit Mansoor	Assistant Foreman	PITAC Lahore
8.	Engr. Arslan Hameed Khan	Assistant Manager (Projects)	Lahore Waste Management Company
9.	Engr. Waleed Rashid	Architect	Space Designs Lahore
10.	Engr. Salman Haider	Jr. Architect	Scale Architects Lahore
11.	Mr. Aijaz Ahmed Zia	DACUM Facilitator	POINTIVO (USA)
12.	Mr. Muhammad Aasim	AD, SS&C	NAVTTTC HQ



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



7. Qualification Validation Committee

The following members participated in the qualification development process at PITAC, Lahore.
Date: 1ST-5th Nov'2021

S#	Name	Status in Committee	Organization
1.	Mr. Muhammad Aasim	Assistant Director, Coordinator	NAVTTC HQ
2.	Engr. Aijaz Ahmed Zia	DACUM Facilitator	POINTIVO (USA)
3.	Dr. Iftikhar Hussain Shah	Principal Representative P-TEVTA	GCT Faisalabad
4.	Mr. Syed Asif Munir	Principal GSTC Mughalpura Lahore Representative P-TEVTA	GSTC Mughalpura Lahore
5.	Miss. Farukh Naz	Lecturer Architecture Representative KP-TEVTA	COE Hayatabad Peshawar
6.	Shoaib Anwar Sherazi	Principal, Representative KP BTE	TTC Quetta
7.	Mr. Shoukat Ali Rana	Deputy Controller Examination, Representative PBTE	PBTE Lahore
8.	Engr. Israr Ahmed	Secretary Representative KP BTE	KP BTE
9.	Engr. Liaqat Jarmro	Director Academics Representative of S-TEVTA	S- TEVTA
10.	Ms. Afshan Mansoor	Instructor architecture Representative P-TEVTA	GCT, Railway road Lahore.
11.	Mr. Muhammad Razzaq	Instructor (Civil) Representative P-TEVTA	GTTI Mughalpura Lahore
12.	Ms. Anum Fayaz	Architect, Industry Expert	Leader Architects Engineers Lahore
13.	Mr. Gohar Ali	Senior Teacher Woodworks Academic Expert	IMSB Islamabad
14.	Muhammad Azam Babar	Process / Operations Engineer Industry Expert	Petroleum Exploration Pvt. Ltd
15.	Engr. Abdul Basit Mansoor	Assistant Forman , Industry Expert	PITAC Lahore



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



8. Entry Requirements

The entry for National Competency Standards Level-4 for Woodworks “Carpentry Supervisor/ Foreman” is:

1. Level 3 certificate in woodworks “Carpentry Technician”

9. Regulation of the qualification and schedule of units

Not Applicable



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



10. Generic Modules with respective levels

Health and Safety

LEVEL 2

Digital Skills

LEVEL 3

Soft Skills and Green Skills

LEVEL 4



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



11. Summary of competencies

Sr No	Competency Standards	Occupation	NVQF Level	Category	Estimated Contact Hours			Cr Hr
					Th	Pr	Total	
Level 4								
1	Specify job routing	<i>Carpentry Supervisor/ Foreman</i>	4	Technical	20	150	170	17
2	Operate Advance woodwork machinery		4	Technical	30	240	270	27
3	Perform CAD/CAM operations		4	Technical	30	150	180	18
4	Operate Computer Aided Machines (CNC/NC)		4	Technical	30	180	210	21
5	Handle the material		4	Technical	20	90	110	11
6	Estimate the material cost		4	Technical	21	69	90	9
7	Increase the Productivity at workplace		4	Technical	20	60	80	8
8	Develop		4	Generic	24	6	30	3



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



	Entrepreneurial Skills							
9	Perform Basic Green Skills for Carpentry Works	4	Generic	21	9	30	3	
10	Communicate at workplace	4	Generic	24	6	30	3	
	Total			240	960	1200	120	
	Percentage (%)			20	80			

Proposed Course Duration: 12Months

Estimated Contact Hours: 1200 Hours

Estimated Credit Hours: 120 Hours



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



OCCUPATIONS AND LEVELS DESCRIPTOR

Level 2 Level 3 Level 4
  

S #	Occupations	No of Modules/CS	Level	Occupation Credit Hours	Training duration
1.	Carpentry Helper	8	2	60	6 Months
2.	Carpentry Technician	12	3	60	6 Months
3.	Carpentry Supervisor/Foreman	10	4	120	12 Months



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



12. Qualification Levelling and Packaging

Level 4

(Carpentry Supervisor/Foreman)

1. Specify job routing
2. Operate advanced woodwork machinery
3. Perform CAD/CAM operations
4. Operate Computer-Aided Machines (CNC/NC)
5. Handle the material
6. Estimate the material cost
7. Increase the Productivity at workplace
8. Develop Entrepreneurial Skills
9. Perform Basic Green Skills for Carpentry Works
10. Communicate at workplace



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



13. Detail of Qualifications and its Competency Standards

A. Technical Competencies

0722-W&C-19 Specify job routing

Overview

This competency standard will provide skills and knowledge related to job sequence and candidate will be able to use the appropriate tool and machinery at different conditions and also able to maintain the safety and environmental protocols at workshop.

Competency Units	Performance Criteria
CU1. Access the job requirements	<p>P1. Identify and report the physical hazards at workplace, if any</p> <p>P2. Install barricades hoardings, signage in the hazardous areas</p> <p>P3. Remove obstacles from work area</p> <p>P4. Check all tools and accessories are fit for the purpose.</p> <p>P5. Select appropriate PPEs for the purpose</p>
CU2. Plan the job	<p>P1. Prepare the list of components and accessories as per job requirement</p> <p>P2. Read job order</p> <p>P3. Interpret drawings</p> <p>P4. Plan the transportation and manpower requirement in accordance with job</p>



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



CU3. Arrange the required material as per specification	P1. Identify the material as per job demand P2. Collect the required material P3. Arrange the materials in sequence
CU.4 Arrange the required tool/machinery for the required operation	P1. Collect the tools for the required job P2. Organize the tool on your workspace P3. Identify hand tools P4. Identify required machinery P5. Check working condition of Tools & Equipment before use
CU.5 Perform cutting operation	P1. Select the required machine as per job P2. Set the fence at required angle P3. Adjust the blade for required height P4. Perform first end cut in required angle P5. Set stopper for the required length P6. Cut the job as per desired length P7. Shift the items for further processing
CU.6 Perform planing operation	P1. Select planer as per job P2. Adjust the out-feed table according to cutting edge of the cutter P3. Set the required cut-off in feed table P4. Feed the piece manually or by feeder P5. Plane the surface P6. Shift the items for further processing
CU.7 Perform sizing as per drawing	P1. Collect the drawing/cutting list P2. Interpret drawing/cutting list P3. Collect the required items P4. Mark the items as per requirement of job



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



	<p>P5. Shift the items for further processing</p>
<p>CU.8 Perform profiling operations</p>	<p>P1. Mark the job for profile P2. Select the machine P3. Install the required accessories (Cutters/Jigs/Fixtures) P4. Set machine as per operation P5. Perform test cut P6. Perform profiling P7. Shift the items for further processing</p>
<p>CU.9 Perform boring operations</p>	<p>P1. Mark center point of the job for boring P2. Select the machine/hand tools P3. Install the required Bit P4. Set machine as per operation P5. Ensure center marking on the job P6. Perform boring P7. Shift the items for further processing</p>
<p>CU.10 Perform assembling process</p>	<p>P1. Collect the parts for assembling P2. Arrange the parts in sequence P3. Assemble the job to ensure accuracy P4. Adjust the clamps according to job</p>
<p>CU.11 Perform fixing process</p>	<p>P1. Identify the required fastener P2. Collect the nails or any other adhesive material for fixing P3. Mount fastener to enhance firmness P4. Remove the clamps after adhesive setting</p>



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



CU.12 Perform excesses removal	P1. Remove the excess adhesive at the time of joining before it gets dry P2. Remove the excess adhesive with scribe if it dries P3. Use sandpaper for smoothness of joints and surface
CU.13 Perform sanding process	P1. Select the appropriate machine for sanding P2. Install the required sandpaper P3. Set machine as per operation P4. Perform sanding of job
CU.14 Perform finishing process	P1. Select the appropriate tools for surface preparation P2. Use the required tools for the finishing process P3. Punch the nails for surface smoothing P4. Check for surface dents P5. Fill up the cracks/minute holes P6. Remove the extra adhesive P7. Apply sandpaper for edge/surface smoothing
CU.15 Check the quality of product	P1. Ensure product specification P2. Check the product before polishing on it P3. Check the product for hardware installation P4. Mark the defected area (if any) P5. Check quality of finished product P6. Ensure safe packing of product before delivery

Knowledge & Understanding

This competency standard will provide knowledge related to:

- Uses of different tools and equipment
- Preventive and corrective measures for tools and equipment



***National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”***



- Cleaning techniques of various tools and equipment



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



- Preparation of tools for job
- Quality of product

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify Tools and Equipment
- Perform sizing as per drawing, planning operation, cutting operation, boring operations, fixing process, assembling process, sanding process and finishing process.

Tools and Equipment Required

- Cutting machine
- Surface planner
- Edging machine
- Boring machine
- Sanding machine
- Sandpaper
- Nail punch
- Bits
- Nails
- Adhesive materials
- clamps



National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”



0722-W&C-20 Operate Advance woodwork machinery

Overview

This competency standard will provide skills and knowledge related to a Woodworking machine that is intended to process wood. These machines are usually powered by electric motors and are used extensively in woodworking.

Competency Units	Performance Criteria
CU.1 Operate high-speed router	P1. Follow the safety precautions of machines P2. Fix the safety guard before starting operation P3. Set the tools in machine for required profile P4. Set the sharpness of tools P5. Set the templates as per job P6. Place the workpiece on the machine P7. Adjust the cutter depth P8. Perform the routing process
CU.2 Operate chain mortiser	P1. Follow the safety precautions of machines P2. Select the chain as per required mortise P3. Fixed the chain in the machine P4. Select the depth of chain P5. Clamp workpiece on machine table P6. Perform the mortise process
CU.3 Operate double end cutter machine	P1. Follow the safety precautions of machines P2. Select the saw blade as per job material P3. Fix the saw blade with riving knives P4. Set the machine for the required measurement P5. Perform the cutting process



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



	<p>P6. Check the size of workpiece after cutting</p>
<p>CU.4 Operate pendulum saw</p>	<p>P1. Follow the safety precautions of machines P2. Select and fix the blade P3. Adjust the stopper as per required length P4. Place the planks on the machine track bars P5. Cut the end of the planks P6. Place stopper and cut planks as per requirement</p>
<p>CU.5 Operate multiple rips saw</p>	<p>P1. Follow the safety precautions of machines P2. Select the saw blades for job P3. Adjust the fence as per required width P4. Adjust the machine for planks thickness P5. Perform cutting process</p>
<p>CU.6 Operate cross-cut saw machine</p>	<p>P1. Follow the safety precautions of machines P2. Select the saw blades P3. Place workpiece on machine table P4. Adjust the stopper as per required length P5. Perform cutting process</p>
<p>CU.7 Operate trolley saw</p>	<p>P1. Follow the safety precautions of machines P2. Check the sharpness and joint of the blade P3. Adjust the log on the trolley machine track P4. Clamp the log</p>



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



	<p>P5. Adjust the blade as per required thickness</p> <p>P6. Perform cutting operation</p>
CU.8 Operate multi-head boring machine	<p>P1. Follow the safety precautions of machines</p> <p>P2. Select the bits as per required diameter</p> <p>P3. Set the boring head as per drawing</p> <p>P4. Adjust the machine bed as per workpiece</p> <p>P5. Perform boring</p> <p>P6. Check the workpiece after prefixing</p>
CU.9 Operate woodturning lathe	<p>P1. Follow the safety precautions of machines</p> <p>P2. Select the gouge chisels as per job requirement.</p> <p>P3. Set the machine chuck/faceplate/center as per job requirement to hold the workpiece.</p> <p>P4. Adjust the tool post for turning.</p> <p>P5. Start woodturning as per sequence P6.</p> <p>Perform the woodturning as per design</p>
CU.10 Operate surface Sanding Machine	<p>P1. Follow the safety precautions of machines</p> <p>P2. Select the sanding belt/grid as per requirement P3.</p> <p>Adjust the machine bed as per required thickness P4.</p> <p>Perform sanding</p>
CU.11 Operate edge sanding	<p>P1. Follow the safety precautions of machines</p> <p>P2. Select the sanding belt/grid as per requirement</p>



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



machine	P3. Adjust the machine bed as per required thickness P4. Perform edge sanding P5. Check the workpiece edge after sanding
----------------	---

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Specifications (shape, types and sizes) of belts/ chains
- Replacement techniques of belt/ chain/blades
- Types and uses of blades
- Nature of cutting materials
- Alignment/adjustment techniques of profile cutters/ bits jigs & fixture
- Importance of lubrication

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- perform the grooving process on the high-speed router

Tools and Equipment Required

- Measuring tape
- Spanner Set
- Screw Wrench



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



- Screw Driver Set
- L-key Set
- Saw Blade
- Cutter blade.
- Profile Knives
- Jig and fixture
- Cutter head
- Chain
- Sanding Belts
- Bits
- Grease
- Lubricating oil
- Wood/lamination sheets
- Dowels of different sizes (For Pre-Assembly)



National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"



0722-W&C-21 Perform CAD/CAM operations

Overview: This competency standard covers the skills and knowledge required to interpret, draw and design using CAD, desired tool selection, simulation, material loading and CAM operations.

Competency Units	Performance Criteria
CU1. Draw 2D shapes	P1. Setup user interface settings for required drawing P2. Create different 2D shapes with given measurements P3. Edit different 2D shapes to meet requirement P4. Insert dimensions and symbols as per requirement P5. Save the file in different drawing formats
CU2. Prepare final sets of 2D drawings	P1. Develop 2D Drawing with given project specification and measurements P2. Plot drawing on scale according to required size & orientation
CU3. Develop 3D Objects	P1. Setup 3D user interface settings for required drawing P2. Create different 3D objects with given measurements
CU4. Manipulate 3D objects using 3D Editing Tools	P1. Modify 3D objects in line with the requirements P2. Make customized 3D models according to the requirement of given job P3. Generate orthographic views from 3D model P4. Generate sectional/auxiliary views from 3D model as per requirement



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



CU5. Render 3D Model	P1. Apply material to required 3D Model as per given specification P2. Render and print the 3D model according to required size & orientation P3. Apply texture to 3D model as per requirement
CU6. Perform Simulation	P1. Convert CAD to CAM codes using the software P2. Operate simulation to check accuracy of process
CU7. Perform Material Loading	P1. Identify required parts of the job P2. Set the clamping/ vacuum sucking units as per parts of the job P3. Load the job parts on the machine bed
CU8. Perform CAM Operations	P1. Ensure the loading of desired tools/ bits in Automatic tool changer (ATC) P2. Calibrate the machine P3. Execute the machine(CNC lathe) to complete the process P4. Take out the completed part

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Understanding of CAD software
- 3D Drawings



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



- Surfaces
- Meshes
- Wireframe objects
- Difference between Surface Modelling and Solid Modelling.
- Boolean operation on 3D solid model
 - Subtraction
 - Intersection
 - Union
- 3D Navigate control
 - Pre-set views such as isometric, top, bottom, front, left, etc.
 - Perspective projection and parallel projection
 - Constrained Orbit
- Describe the tools/ Commands for drawing in CAD software
- Knowledge of specific bits/ cutters/ aggregates of CNC machine
- Knowledge of various CAM software
- Understanding of various CAM operations
- Knowledge of simulation process
- Knowledge of material loading
- Describe the vacuum system
- Describe the automatic tool changer



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Set Interface in CAD software
- Make Multi-view drawings & design of the job
- Make 3D drawing & design of the job/ part
- Render the job as per client’s demand
- Load the job parts on the machine bed
- Execute the machine to complete the process

Tools and Equipment Required

- CAD/CAM software
- Operating System
- PC
- Printer/Plotter
- Job Material



National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”



0722-W&C-22 Operate Computer Aided Machines (CNC/NC)

Overview:

This competency standard covers the skills and knowledge required to Operate Computer-Aided Machines (CNC/NC)

Competency Units	Performance Criteria
CU.1 Operate CNC panel saw	<p>P1. Follow the safety precautions of machines</p> <p>P2. Check the cutting tools as per job requirement</p> <p>P3. Load the sheets on machine and set the clamp device</p> <p>P4. Verify the job order</p> <p>P5. Check the optimization of sheets on control panel</p> <p>P6. Cut the workpieces and check as per drawing dimensions</p> <p>P7. Check the proper fixing of dust collector hose</p> <p>P8. Check the sheet cutting (Splitting)</p>
CU.2 Operate NC Edging machine	<p>P1. Follow the safety precautions of machines</p> <p>P2. Measure the temperature of the rubber coating wheel</p> <p>P3. Check if there is any precipitation at the bottom of the glue tank (normal heating)</p> <p>P4. Check whether the heating tube is working normally (normal heating)</p> <p>P5. Check that the temperature is increased by 10°C-200°C</p> <p>P6. Increase gluing volume</p> <p>P7. Increase the pressure</p> <p>P8. Improve the working speed of the edge banding machine</p> <p>P9. Check the edge-sealing</p>



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



	P10. Check the Edging quality (Radius, adhesive, Buffing)
CU.3 Operate CNC Engraver machine	P1. Follow the safety precautions of machines P2. Check the drawing as per design P3. Set the tools as per job P4. Set the jigs and fixture as per job requirement P5. Check the proper working of dust collector P6. Set the workpiece on machine bed P7. Operate the machine P8. Check the workpiece carving quality
CU.4 Operate NC boring machine	P1. Follow the safety precautions of machines P2. Select the boring bit size P3. Fix the bit in boring head P4. Put the workpiece in machine table P5. Set the machine bed as per workpiece requirement P6. Start the machine and complete the operation
CU.5 Operate NC Surface sanding machine	P1. Follow the safety precautions of machines P2. Select the sanding belts/ grit P3. Mount the sanding belts in the machine rollers P4. Set the feeding roller speed as per chart. (Already display on machine)



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



Knowledge & Understanding

The candidate must be able to demonstrate the underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Types of CNC/NC Machines
- Different parts of CNC/NC Machines
- Working principle of different machines
- Safety precautions involved during different operations

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify Tools and Equipment
- Check Physical Condition of Tools & Equipment before use
- Perform preventive maintenance as per standards
- Perform corrective maintenance
- Maintain record of all tools and equipment

Computer numerical control (CNC) is a method for automating control of machine tools through the use of software embedded.

NC machine tool is also known as the Numerical Control Machine tool and is defined as "If each axis of a machine tool is controlled by using numbers

Tools and Equipment required

- Boring Bits
- Saw Blades (SS.TCT Tips)
- Cutter (SS.TCT)
- Knives(SS.TCT)



***National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”***



- Sanding Belts
- Buffing Wheels
- CNC Machines



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



0722-W&C-23 Handle the material

Overview

This competency standard will provide skills and knowledge related to material handling, Dump Logs, ensure clear passage, ensure safe Storing of materials, its usage and disposal of the material and Maintain Inventory.

Competency Units	Performance Criteria
CU1. Collect the material	P1. Analyze detailed drawing of the specified job P2. Prepare list of materials as per drawing P3. Enlist the material in material issuance slip P4. Issue the material from store P5. Store the material at specified place
CU2. Operate Material movement equipment	P1. Specify the material which needs to be moved P2. Select the mode to carry the material P3. Remove obstacles from the passage
CU3. Place the material in suitable place	P1. Identify suitable places for storage of material P2. Ensure safe unloading of materials P3. Segregate material according to type, color and size P4. Ensure safe storage of material P5. Ensure easy access to material P6. Maintain record of stored material
CU.4 Use the material as per requirement	P1. Select the material as per job requirement P2. Cut the material as per given drawing P3. Store the leftover material for reuse



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



CU.5 Dispose of waste material	P1. Clean down all components and accessories of machine and tools P2. Check all parts for any damage, tag and reported P3. Sort and stack all parts neatly at store P4. Clear work area and dispose of wastage as per health and safety standards
CU.6 Manage inventory	P1. Ensure availability of tools/equipment as per list P2. Report for faulty/unserviceable tools and equipment P3. Generate demand for deficit tools and equipment P4. Maintain record of all tools and equipment

Knowledge & Understanding

This competency standard will provide knowledge related to:

- Procedure of issuance of materials
- Cleaning Techniques of workplace
- Techniques for safe storage of materials & hardware
- Importance of inventory management
- Safe loading/Unloading techniques of material

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify the various types of materials
- Identify the defective materials
- Estimation of materials
- Storing of materials
- Ensure safe transfer of material to trolley



***National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”***



Tools and Equipment Required

- Store requisition
- Power jack
- Powerlifter
- Hand trolley
- Different types of bins
- Dispose of material document
- Barricades
- Warning Signs



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



0722-W&C-24 Estimate the material cost

Overview

This competency standard will provide skills and knowledge related to preparing material lists, cost calculations, estimation of utility bills, labor costs, overheads and calculating profit margins.

Competency Units	Performance Criteria
CU1. Interpret the drawing	P1. Collect the required drawing & design P2. Analyze detailed drawing of the specified job P3. Enlist the required material as per given drawing
C2. Estimate the quantity	P1. Identify the material specification P2. Estimate the measurement of materials as per drawing P3. Prepare crosscut list
CU3. Estimate the unit cost	P1. Collect list of required materials as per job P2. Estimate material wastage while performing the job P3. Calculate the cost of required unit material
CU.4 Calculate the total cost	P1. Calculate the cost of required total material P2. Estimate cost of the labor required for the job P3. Calculate accumulative overhead cost P4. Calculate the total cost

Knowledge & Understanding

This competency standard will provide knowledge related to:

- Contents of Material List



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



- Formulas to calculate cost
- Overheads cost
- Budget preparation
- Man hours calculation

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Analysis of drawing
- Estimate material wastage while performing the job
- Calculate the cost of required material
- Calculate the machining time as per job
- Estimate cost of the labor required for the job
- Calculate accumulative overhead cost

Tools and Equipment Required

- Note pad
- Calculator
- Pen/ pencil
- Ledger book



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



0722-W&C-25 Increase the Productivity at workplace

Overview: This competency standard will provide skills and knowledge related to the improvement productivity level of the job at industries by adopting improved approaches and methods.

Competency Units	Performance Criteria
CU.1 Upgrade Material and hardware	P1. Follow new trends in the accessories P2. Use new types of paints/Finishing P3. Conduct market survey
CU.2 Upgrade Machines and technique	P1. Be aware of new cutting methods P2. Follow new machinery and equipment for carpentry P3. Conduct market survey

Knowledge & Understanding

- Knowledge of new Accessories
- Knowledge of advanced paints/Solvents
- Knowledge of latest machinery

Critical Evidence(s) Required

- Enlist latest trend in woodworking machinery
- Enlist new types in paints

Tools and Equipment Required

1. Internet
2. Books
3. Catalogs



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



0099-G-01 Perform Basic Green Skills for Carpentry Works

Overview: This competency standard deals with competencies required to perform basic green skills in woodworks

CU 1. Select green carpentry approach	P 1: Select the eco-friendly wood material P 2: Select the environmentally friendly material for the accessories P 3: Estimate material requirements for various stages of carpentry work P 4: Cut material precisely in order to reduce waste
CU 2. Manage Carpentry waste	P 1: Identify various types of carpentry waste P 2: Apply waste reduction techniques during carpentry process P 3: Categorize reusable waste P 4: Place reusable material at designated storage area P 5: Dispose off unusable waste

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Environmental degradation
- Types of carpentry materials
- Advantage and disadvantages of various carpentry materials
- Types of carpentry waste
- Waste reduction techniques
- Concept of 6 R approach (Reduce, Reuse, Recycle, Repair, Renew, and Rethink)



***National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”***



Critical Evidence(s) Required

- Categorize waste into re-cycle and re-usable material

Tools and Equipment Required

1. Internet
2. Notepad



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



0031-CS-01 Communicate at Workplace

Overview: This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.

Competency Units	Performance Criteria
CU1. Communicate within the organization	P1. Communicate within a department P2. Communicate with other departments. P3. Use various media to communicate effectively P4. Communicate orally and written
CU2. Communicate outside the organization	P1. Deal with vendors P2. Deal with clients/customers P3. Interact with other organizations P4. Use various media to communicate effectively P5. Work with people of different cultures/backgrounds
CU3. Communicate effectively in workgroup	P1. Assess the issues to provide relevant suggestions to group members P2. Resolve the issues/ problems /conflicts within the group P3. Arrange group working sessions to increase the level of



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



	<p>participation in the group processes</p> <p>P4. Communicate messages to group members clearly to ensure interpretation is valid</p> <p>P5. Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices</p> <p>P6. Act upon constructive feedback</p>
<p>CU4. Communicate in writing</p>	<p>P1. Identify relevant procedures for written information</p> <p>P2. Use strategies to ensure correct communication in writing .i.e.</p> <ul style="list-style-type: none"> • correct composition • clarity • comprehensiveness • accuracy • appropriateness <p>P3. Draft assigned written information for approval, ensuring it is written within designated timeframes</p> <p>P4. Ensure written information meets required standards of style, format and detail</p> <p>P5. Seek assistance / feedback to aid communication skills development</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Importance of intra and inter organizational communication



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



- Basics of business communication
- Defining Modes of communication
- Effective communication in workgroup
- Communicating through writing
- The importance of teamwork

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- In your current position, what types of written communication do you use most often?
(List them all)



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



0413-E-01 Develop Entrepreneurial Skills

Overview:

This Competency Standard identifies the competencies required to develop entrepreneurial skills, concepts, market analysis and investment.

Unit of Competency	Performance Criteria
<p>CU1. Develop a business plan</p>	<p>P1. Conduct a market survey to collect following information</p> <ul style="list-style-type: none"> • Customer /demand • Tools, equipment, machinery and furniture with rates • Raw material • Supplier • Credit/funding sources • Marketing strategy • Market trends • Overall expenses • Profit margin <p>P2. Select the best option in terms of cost, service, quality, sales, profit margin, overall expenses</p> <p>P3. Compile the information collected through the market survey, in the business plan format</p>
<p>CU2. Collect information regarding funding sources</p>	<p>P1. Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate</p> <p>P2. Choose the best available option according to investment</p>



**National Competency Standards Level-4 for Woodworks
“Carpentry Supervisor/ Foreman”**



	requirement P3. Prepare documents according to the loan agreement requirement P4. Include the information of funding sources in the business plan
CU3. Develop a marketing plan	P1. Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning P2. Include the information of marketing plan in the business plan
CU4. Develop basic business communication skills	P1. Communicate with internal customers e.g.: labor, partners and external customers e.g.: suppliers, customers etc., using effective communication skills P2. Use different modes of communication to communicate internally and externally e.g.: presentation, speaking, writing, listening, visual representation, reading etc. P3. Use specific business terms used in the market

Knowledge and Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- 7Ps of marketing including product, price, placement, promotion, people, packaging and positioning
- 7Cs of business communication
- Different modes of communication and their application in the industry
- Specific business terms used in the industry
- Enlist the available funding sources
- Explain how to get loan to start a new business



**National Competency Standards Level-4 for Woodworks
"Carpentry Supervisor/ Foreman"**



- Explain market survey and its tools e.g.: questionnaire, interview, observation etc.
- Market trends for specific product offering
- Main elements of business plan
- How to fill the business plan format?

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) to be competent in this competency standard:

- List 7 Ps
- List 7Cs