



***National Vocational Certificate Level 4 for Woodworks  
“Carpentry Supervisor/ Foreman”***



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



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



## ***National Vocational Certificate 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 **Woodworks**. 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 PVTC 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 needs 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.

**Executive Director (NAVTTTC)**



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## ***National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”***



### **Introduction**

#### **a. Definition/Description of Training Program Woodwork (Carpentry Supervisor/ Foreman)**

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. A Carpenter can construct, erect, install, and repair structures and fixtures made from wood and other materials. Carpenters are involved in many different kinds of construction, from the building of highways and bridges to the installation of kitchen cabinets.

Woodwork Industry is one of the flourishing industries in Pakistan and has huge demand in local as well as in international market. Therefore, the skills are required to be inducted in the future generation. If an individual is planning to pursue a career in carpentry, this program will be helpful in targeting various commercial and non-commercial projects.

Keeping in view of the above; the competency based national vocational qualifications have been developed by NAVTTC to provide skilled manpower to improve the existing construction industry. Training course is based on competency standards which are defined by the industry and the traditional role of a trainer changes and shifts towards the facilitation of training. A trainer encourages and assists trainees to learn for themselves. Trainees are likely to work in groups (pairs) and all doing something different. Some are doing practical tasks in the workshop, some writing, some not even in the classroom or workshop but in another part of the building using specialist equipment, working on computers doing research on the Internet or in the library. As trainees learn at different pace; they might be at different stages in their learning, thus learning must be tailored to suit individual needs.

#### **b. Purpose of the Training Program**

The purpose of the program is to train unskilled human resource on technical and entrepreneurial skills to be employed / self-employed and inevitably set sustainable impact on their lives by increasing their livelihood income. 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 vital role to support the economy in the form of remittances. According to new labor laws, a large number of skilled



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workers are demanded by Saudi Government especially for the construction sector. For this purpose, new qualifications have been developed by NAVTTTC on CBT&A mode in order to train the unskilled human resource with employable skills and cater the demand of Saudi Government. Moreover, the availability of skilled professionals will bring socio-economic benefits to all stakeholders.

### **c. Objectives of Training Program**

The main objectives of the National Vocational Certificate Level 4 in Woodwork Sector (Carpentry Supervisor/ Foreman) are as follows:

- Empower the youth with globally required employable skills
- Cater the immediate need of skilled workers in GCC countries
- Improve the professional competence of woodwork
- Produce competitive Carpentry Supervisor
- Capacitate the local community and trainers in modern CBT(Competency Based Training), methodologies and processes as envisaged under NVQF
- Establish a standardized and sustainable system of training for woodwork across the globe
- Improve the quality and effectiveness of the training and assessment for woodwork Industry

### **d. Competencies to be gained after completion of course**

At the end of the course, the trainee has attained the following core competencies:

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- 1) Specify job routing
- 2) Operate advance woodwork machinery



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- 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) Perform Basic Green Skills for Carpentry Works
- 9) Communicate at workplace
- 10) Develop Entrepreneurial skills

**e. Possible available job opportunities, available immediately and later in the future:**

### **Possible Career Paths**

- Carpentry Helper
- Carpentry Technician
- Carpentry Foreman/Supervisor



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### **f. Trainee Entry Level**

The entry requirement for National Vocational Certificate Level 4 in Woodworks **Carpentry Supervisor/ Foreman** is given below:

<b>Title</b>	<b>Entry requirements</b>
National Vocational Certificate Level 4 in Woodworks <b>Carpentry Supervisor/ Foreman</b>	Entry for assessment for this qualification is open. However, entry into formal training institutes, based on this qualification is; candidate having National Vocational Certificate Level 3 in Woodworks <b>(Carpentry Technician)</b>

### **g. Minimum Qualification of Trainer/Instructor:**

A. Certification(minimum 1 year) in Woodworks/Furniture design with at least 5 years relevant experience

**AND**

B. Certification in CAD/CAM and CNC

### **h. Recommended Trainer: Trainee Ratio**

The recommended maximum trainer: trainee ratio for this program is 1 trainer for 25 trainees.

### **i. Medium of Instruction i.e. Language of Instruction:**

Medium of instruction will be in Urdu / English / Local language

### **j. Duration of the course (Total time, Theory & Practical time):**

The distribution of contact hours is given below:

<b>Total</b>	-	<b>1200 hours</b>
<b>Theory</b>	-	<b>240 hours (20%)</b>
<b>Practical</b>	-	<b>960 hours (80%)</b>





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### **Sequence of Modules**

- 1) Specify job routing
- 2) Operate Advance 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) Perform Basic Green Skills for carpentry Works
- 9) Communicate at Workplace
- 10) Develop Entrepreneurial Skills



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### Summary Template - Overview of the Curriculum

Following is the structure of the course:

Sr No	Code	Competency Standards	Occupation	NVQF Level	Category	Estimated Contact Hours			Cr Hr
						Th	Pr	Total	
Level 4									
1	0722-W&C-19	Specify job routing	Carpentry Supervisor / Foreman	4	Technical	20	150	170	17
2	0722-W&C-20	Operate Advance woodwork machinery		4	Technical	30	240	270	27
3	0610-I&C-21	Perform CAD/CAM operations		4	Technical	30	150	180	18
4	0722-W&C-22	Operate Computer Aided Machines (CNC/NC)		4	Technical	30	180	210	21
5	0722-W&C-23	Handle the material		4	Technical	20	90	110	11



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6	0722-W&C-24	Estimate the material cost		4	Technical	21	69	90	9
7	0722-W&C-25	Increase the Productivity at workplace		4	Technical	20	60	80	8
8	0099-G-01	Perform Basic Green Skills for Carpentry Works		4	Generic	21	9	30	3
9	0031-CS-01	Communicate at workplace		4	Generic	24	6	30	3
10	0413-E-01	Develop Entrepreneurial Skills		4	Generic	24	6	30	3
		<b>Total</b>				<b>240</b>	<b>960</b>	<b>1200</b>	<b>120</b>
		<b>Percentage</b>				<b>20</b>	<b>80</b>		

**Proposed Course Duration:** 12 Months

**Estimated Contact Hours:** 1200 Hours

**Estimated Credit Hours:** 120 Hours



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### Module: 0722-W&C-19 Specify job routing

**Objective:** After the completion of this module, the trainee will be able to use the appropriate tool and machinery at different conditions and also be able to maintain the safety and environmental protocols at workshop.

**Duration: 170 Hours**

**Theory: 20 Hours**

**Practice: 150 Hours**

**Credit Hours: 17**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Access the job requirements	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify and report the physical hazards at workplace, if any</li> <li>Install barricades hoardings, signage in the hazardous areas</li> <li>Remove obstacles from work area</li> <li>Check all tools and accessories are fit for the purpose.</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the PPE's used while working in workshop</li> <li>Define physical hazards</li> <li>Describe safety signage</li> <li>Explain cleaning techniques of various tools and equipment.</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Demonstrate the use of PPE's</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-06Hrs</b>  <b>Total-07Hrs</b>	<ul style="list-style-type: none"> <li>Goggles</li> <li>Safety glasses</li> <li>Safety gloves</li> <li>Face shields</li> <li>Coverall</li> <li>Earplugs/ Earmuffs</li> <li>Steel-toe boots</li> <li>Signage</li> </ul>	Class Room  Training Workshop



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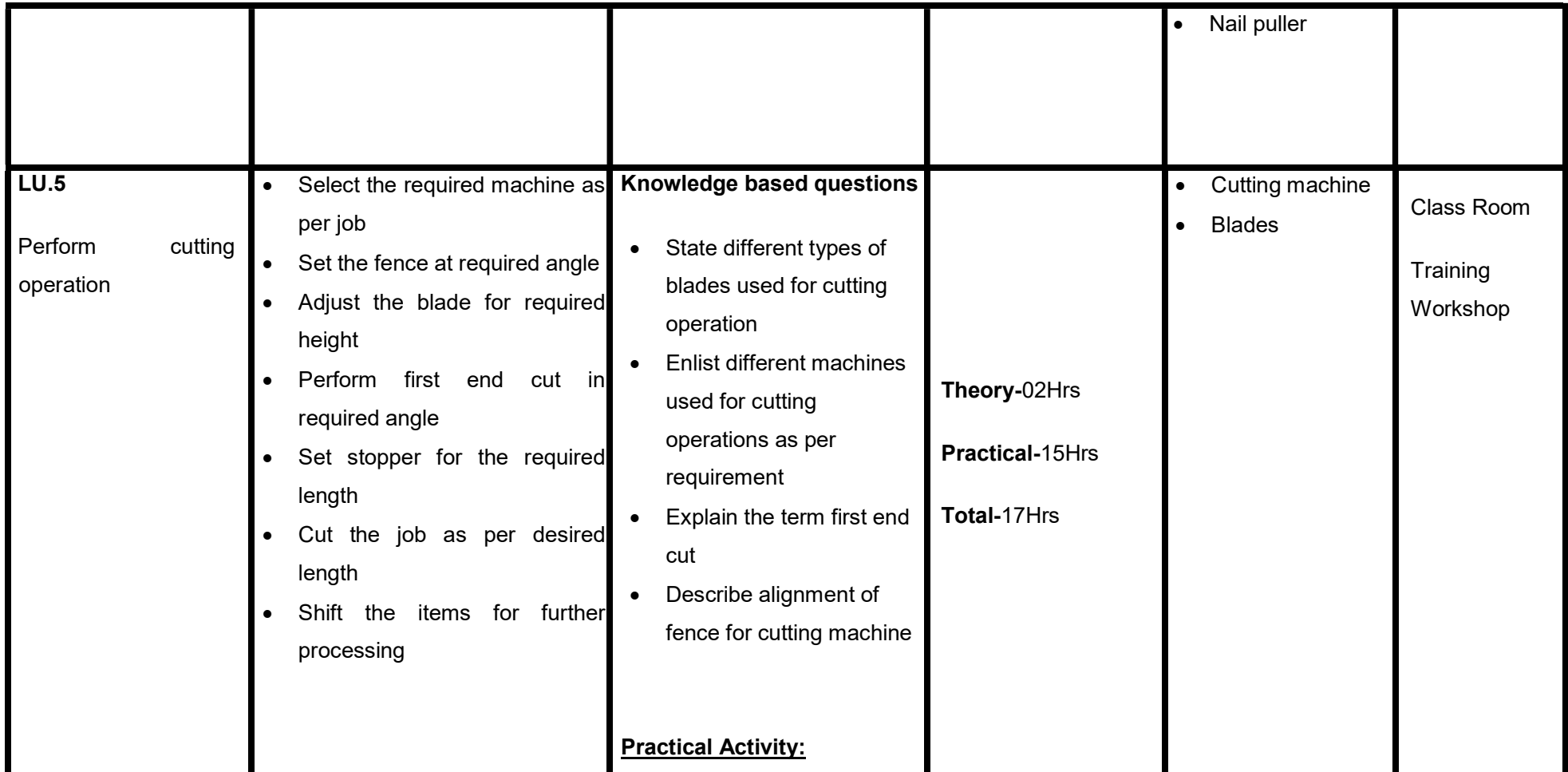
	<ul style="list-style-type: none"> <li>Select appropriate PPEs for the purpose</li> </ul>	<ul style="list-style-type: none"> <li>Draw five different safety signage</li> </ul>			
<b>LU2.</b>  Plan the job	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Prepare the list of components and accessories as per job requirement</li> <li>Read job order</li> <li>Interpret drawings</li> <li>Plan the transportation and manpower requirement in accordance with job</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain working drawings</li> <li>Describe the term job order</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Make the group of three trainees and prepare the list of required components and accessories by interpreting the given drawing.</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-06Hrs</b>  <b>Total-07Hrs</b>	<ul style="list-style-type: none"> <li>Stationery</li> <li>Drawing samples</li> <li>Sample job order</li> </ul>	Class Room  Training Workshop
<b>LU3.</b>  Arrange the required material as per	<ul style="list-style-type: none"> <li>Identify the material as per job demand</li> <li>Collect the required material</li> <li>Arrange the materials in</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the types of wood</li> <li>Differentiate between soft</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-09Hrs</b>	<ul style="list-style-type: none"> <li>Natural wood               <ul style="list-style-type: none"> <li>➤ Hard wood</li> <li>➤ Soft wood</li> </ul> </li> <li>Engineered wood</li> </ul>	Class Room  Training



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specification	sequence	<p>and hard wood</p> <ul style="list-style-type: none"> <li>Explain adhesive materials used in wood working</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make the group of five trainees and prepare the wood sample board</li> </ul>	<b>Total-10Hrs</b>	<ul style="list-style-type: none"> <li>Adhesives</li> </ul>	<p>Workshop</p> <p>Field visit</p>
<p><b>LU.4</b></p> <p>Arrange the required tool/machinery for the required operation</p>	<ul style="list-style-type: none"> <li>Collect the tools for the required job</li> <li>Organize the tool on your work space</li> <li>Identify hand tools</li> <li>Identify the required machine</li> <li>Check working condition of Tools &amp; Equipment before use</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Enlist the hand tools used in wood working</li> <li>Enlist power tools used in wood working</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Prepare the list of tools used for wood working job in sequence</li> </ul>	<p><b>Theory-01Hrs</b></p> <p><b>Practical-09Hrs</b></p> <p><b>Total-10Hrs</b></p>	<ul style="list-style-type: none"> <li>Cutting machine</li> <li>Surface planner</li> <li>Edging machine</li> <li>Boring machine</li> <li>Sanding machine</li> <li>Sand paper</li> <li>Nail punch</li> <li>Bits</li> <li>Nails</li> <li>Clamps</li> <li>Hammer</li> <li>Files</li> </ul>	<p>Class Room</p> <p>Training Workshop</p>





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		<ul style="list-style-type: none"> <li>Make the group of three trainees and cut (25mm x 50mm x 200mm) wood piece</li> </ul>			
<b>LU.6</b>  Perform planning operation	<ul style="list-style-type: none"> <li>Select planer as per job</li> <li>Adjust the out-feed table according to cutting edge of the cutter</li> <li>Set the required cut off in feed table</li> <li>Feed the piece manually or by feeder</li> <li>Plane the surface</li> <li>Shift the items for further processing</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>State different types of planer</li> <li>Describe the adjustment of out-feed table</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make the group of three trainees and perform surface planning of given wooden piece</li> </ul>	<b>Theory-02Hrs</b>  <b>Practical-15Hrs</b>  <b>Total-17Hrs</b>	<ul style="list-style-type: none"> <li>Surface planner</li> <li>Wooden piece</li> </ul>	Class Room  Training Workshop
<b>LU.7</b>  Perform sizing as per drawing	<ul style="list-style-type: none"> <li>Collect the drawing/cutting list</li> <li>Interpret drawing/cutting list</li> <li>Collect the required items</li> <li>Mark the items as per</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist different types of marking tools</li> </ul>	<b>Theory-02Hrs</b>  <b>Practical-06Hrs</b>	<ul style="list-style-type: none"> <li>Marking gauge</li> <li>Mortise gauge</li> <li>Marking knife</li> <li>Scratch awl</li> </ul>	Class Room  Training





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	<p>requirement of job</p> <ul style="list-style-type: none"> <li>Shift the items for further processing</li> </ul>	<ul style="list-style-type: none"> <li>Explain cutting list.</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make the group of five trainees and mark the dimensions on wooden piece as per given cutting list</li> </ul>	<b>Total-08Hrs</b>	<ul style="list-style-type: none"> <li>Wooden piece</li> </ul>	Workshop
<p><b>LU.8</b></p> <p>Perform profiling operations</p>	<ul style="list-style-type: none"> <li>Mark the job for profile</li> <li>Select the machine</li> <li>Install the required accessories (Cutters/Jigs/Fixtures)</li> <li>Set machine as per operation</li> <li>Perform test cut</li> <li>Perform profiling</li> <li>Shift the items for further processing</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Enlist the accessories required for profiling</li> <li>Define profiling in wood working</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make the group of five trainees and perform profiling as per given drawing</li> </ul>	<p><b>Theory-02Hrs</b></p> <p><b>Practical-12Hrs</b></p> <p><b>Total-14Hrs</b></p>	<ul style="list-style-type: none"> <li>Edging machine</li> <li>Accessories</li> </ul>	<p>Class Room</p> <p>Training Workshop</p>



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<b>LU.9</b>  Perform boring operations	<ul style="list-style-type: none"> <li>Mark center point of the job for boring</li> <li>Select the machine/hand tools</li> <li>Install the required Bit</li> <li>Set machine as per operation</li> <li>Ensure center marking on the job</li> <li>Perform boring</li> <li>Shift the items for further processing</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the types of bits used for wood working</li> <li>Enlist the hand tools used for boring operations</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make the group of three trainees and bore a 4mm diameter hole in 25mm thick wooden piece.</li> </ul>	<b>Theory-02Hrs</b>  <b>Practical-12Hrs</b>  <b>Total-14Hrs</b>	<ul style="list-style-type: none"> <li>Boring machine</li> <li>Bits</li> <li>Wooden piece</li> </ul>	Class Room  Training Workshop
<b>LU.10</b>  Perform assembling process	<ul style="list-style-type: none"> <li>Collect the parts for assembling</li> <li>Arrange the parts in sequence</li> <li>Assemble the job to ensure accuracy</li> <li>Adjust the clamps according to job</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain the different types of clamps used for wood working</li> <li>Describe the sequence of assembling process</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make the group of five</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-09Hrs</b>  <b>Total-10Hrs</b>	<ul style="list-style-type: none"> <li>Clamps</li> <li>Working Drawing</li> </ul>	Class Room  Training Workshop



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		trainees and perform assembling as per given drawing			
<b>LU.11</b>  Perform fixing process	<ul style="list-style-type: none"> <li>Identify the required fastener</li> <li>Collect the nails or any other adhesive material for fixing</li> <li>Mount fastener to enhance firmness</li> <li>Remove the clamps after adhesive setting</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe different tools and materials used for fixing</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make the group of five trainees and perform fixing as per given drawing.</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-12Hrs</b>  <b>Total-13Hrs</b>	<ul style="list-style-type: none"> <li>Hammer</li> <li>Nail punch</li> <li>Nails</li> <li>Adhesive materials</li> <li>Working Drawing</li> </ul>	Class Room  Training Workshop
<b>LU.12</b>  Perform excesses removal	<ul style="list-style-type: none"> <li>Remove the excess adhesive at the time of joining before it gets dry</li> <li>Remove the excess adhesive</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain the purpose of sand paper</li> </ul>	<b>Theory-01Hrs</b>  <b>Practical-06Hrs</b>  <b>Total-07Hrs</b>	<ul style="list-style-type: none"> <li>Scriber</li> <li>Sand paper</li> </ul>	Class Room  Training Workshop



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	<p>with scribe if it dries</p> <ul style="list-style-type: none"> <li>Use sand paper for smoothness of joints and surface</li> </ul>	<p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Remove excesses of wooden joint with the help of scribe and smooth the surface with sandpaper</li> </ul>			
<p><b>LU.13</b></p> <p>Perform sanding process</p>	<ul style="list-style-type: none"> <li>Select the appropriate machine for sanding</li> <li>Install the required sand paper</li> <li>Set machine as per operation</li> <li>Perform sanding of job</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Define sanding</li> <li>Describe different methods of shaping wood</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make the group of three trainees and perform sanding process.</li> </ul>	<p><b>Theory-01Hrs</b></p> <p><b>Practical-09Hrs</b></p> <p><b>Total-10Hrs</b></p>	<ul style="list-style-type: none"> <li>Sanding machine</li> <li>Sand paper</li> </ul>	<p>Class Room</p> <p>Training Workshop</p>
<p><b>LU.14</b></p> <p>Perform finishing process</p>	<ul style="list-style-type: none"> <li>Select the appropriate tools for surface preparation</li> <li>Use the required tools for the finishing process</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Enlist the tools used for finishing process</li> </ul>	<p><b>Theory-01Hrs</b></p> <p><b>Practical-15Hrs</b></p>	<ul style="list-style-type: none"> <li>Sanding machine</li> <li>Sand paper</li> <li>Hammer</li> <li>Nail punch</li> </ul>	<p>Class Room</p> <p>Training</p>



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	<ul style="list-style-type: none"> <li>Punch the nails for surface smoothing</li> <li>Check for surface dents</li> <li>Fill up the cracks/minute holes</li> <li>Remove the extra adhesive</li> <li>Apply sand paper for edge/surface smoothing</li> </ul>	<ul style="list-style-type: none"> <li>Describe method of cracks repairing</li> </ul> <p><b>Practical Activity:</b></p> <ul style="list-style-type: none"> <li>Perform finishing of wooden piece having dents and cracks</li> </ul>	<b>Total-16Hrs</b>	<ul style="list-style-type: none"> <li>Filler</li> <li>Wooden Job</li> </ul>	Workshop
<b>LU.15</b>  Check the quality of product	<ul style="list-style-type: none"> <li>Ensure product specification</li> <li>Check the product before polishing on it</li> <li>Check the product for hardware installation</li> <li>Mark the defected area (if any)</li> <li>Check quality of finished product</li> <li>Ensure safe packing of product before delivery</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Define product specification</li> <li>Explain the method of checking the qualities of wood</li> </ul> <p><b>Practical Activity:</b></p> <ul style="list-style-type: none"> <li>Make the group of two trainees and prepare the story board of job routing</li> </ul>	<p><b>Theory-01Hrs</b></p> <p><b>Practical-09Hrs</b></p> <p><b>Total-10Hrs</b></p>	<ul style="list-style-type: none"> <li>Specification sheet</li> <li>Stationary</li> </ul>	Class Room  Training Workshop



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		with the help of pictures.			
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## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### Module: 0722-W&C-20 Operate Advance woodwork machinery

**Objective:** After the completion of this module, the trainee will be able to provide skills and knowledge related to a Woodworking machine that is intended to process wood.

**Duration: 270 Hours**

**Theory: 30 Hours**

**Practice: 240 Hours**

**Credit Hours: 27**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Operate high speed router	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Fix the safety guard before starting operation</li> <li>Set the tools in machine for required profile</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>State the safety precautions of machine</li> <li>How to adjust the cutter depth?</li> </ul> <b><u>Practical Activity:</u></b>	<b>Theory- 03Hrs</b>  <b>Practical- 24Hrs</b>  <b>Total- 27Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>High speed router</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Screw Wrench</li> <li>Screw Driver set</li> <li>L-key Set</li> <li>Blades</li> </ul>	Class Room  Training Workshop



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	<ul style="list-style-type: none"> <li>Set the sharpness of tools</li> <li>Set the templates as per job</li> <li>Place the work piece on the machine</li> <li>Adjust the cutter depth</li> <li>Perform the routing process</li> </ul>	<ul style="list-style-type: none"> <li>Make the group of five trainees and perform the routing of the given job</li> </ul>		<ul style="list-style-type: none"> <li>Profile Knives</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	
<b>LU2.</b>  Operate chain mortiser	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the chain as per required mortise</li> <li>Fixed the chain in the machine</li> <li>Select the depth of chain</li> <li>Clamp work piece on machine table</li> <li>Perform the mortise process</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>What are the different types of clamps?</li> <li>Explain the method of using chain mortiser</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Make the group of five trainees and use chain mortiser for the given task</li> </ul>	<b>Theory- 03Hrs</b> <b>Practical- 21Hrs</b> <b>Total- 24Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Chain mortiser</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Chain</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	Class Room  Training Workshop





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<b>LU3.</b>  Operate double end cutter machine	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the saw blade as per job material</li> <li>Fix the saw blade with riving knives</li> <li>Set the machine for the required measurement</li> <li>Perform the cutting process</li> <li>Check the size of work piece after cutting</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the types of blades used for wood work</li> <li>How to set the machine for measurements?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make the group of two trainees and perform cutting operation of (200mm x 50mm x 200mm) wooden piece</li> </ul>	<b>Theory- 02Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 23Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Double end cutter machine</li> <li>Measuring tape</li> <li>Screw driver</li> <li>Saw Blade</li> <li>Cutter blade</li> <li>Cutter head</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	Class Room  Training Workshop
<b>LU4.</b>  Operate pendulum saw	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select and fixed the blade</li> <li>Adjust the stopper as per required length</li> <li>Place the planks on the machine track bars</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the parts of pendulum saw machine</li> <li>What is the role of stopper in pendulum saw</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 24Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Pendulum saw</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Screw Wrench</li> <li>Screw Driver set</li> <li>Blades</li> </ul>	Class Room  Training Workshop



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	<ul style="list-style-type: none"> <li>• Cut the end of the planks</li> <li>• Place stopper and cut planks as per requirement</li> </ul>	<b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>• Demonstrate the use of pendulum saw</li> </ul>		<ul style="list-style-type: none"> <li>• Grease</li> <li>• Lubricating oil</li> <li>• Wood/lamination sheets</li> <li>• Dowels of different sizes</li> </ul>	
<b>LU5.</b>  Operate  multiple rips saw	<ul style="list-style-type: none"> <li>• Follow the safety precautions of machines</li> <li>• Select the saw blades for job</li> <li>• Adjust the fence as per required width</li> <li>• Adjust the machine for planks thickness</li> <li>• Perform cutting process</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Explain the purpose of Multiple Rip Saw.</li> <li>• Differentiate between rip saw and table saw.</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>• Demonstrate the use of multiple rip saw</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 24Hrs</b>  <b>Total- 27Hrs</b>	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Multiple rips saw</li> <li>• Measuring tape</li> <li>• Spanner Set</li> <li>• Screw Wrench</li> <li>• Screw Driver set</li> <li>• Blades</li> <li>• Grease</li> <li>• Lubricating oil</li> <li>• Wood/lamination sheets</li> <li>• Dowels of different sizes</li> </ul>	Class Room  Training Workshop



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<b>LU6.</b>  Operate cross cut saw machine	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the saw blades</li> <li>Place work piece on machine table</li> <li>Adjust the stopper as per required length</li> <li>Perform cutting process</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe the cross cut saw</li> <li>Differentiate between cross cut saw and rip saw</li> <li>How many teeth per inch does a cross cut saw have?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Demonstrate the use of cross cut saw machine</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 24Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Cross Cut Saw Machine</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Screw Wrench</li> <li>Screw Driver set</li> <li>Blades</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	Class Room  Training Workshop
<b>LU7.</b>  Operate trolley saw	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Check the sharpness and joint of the blade</li> <li>Adjust the log on the trolley</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe the purpose of trolley saw.</li> </ul>	<b>Theory- 02Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 23Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Trolley saw</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Screw Wrench</li> </ul>	Class Room  Training Workshop



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	<ul style="list-style-type: none"> <li>machine track</li> <li>Clamp the log</li> <li>Adjust the blade as per required thickness</li> <li>Perform cutting operation</li> </ul>	<ul style="list-style-type: none"> <li>How the blades are adjusted in trolley saw for the required thickness?</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Demonstrate the use of trolley saw.</li> </ul>		<ul style="list-style-type: none"> <li>Screw Driver set</li> <li>Blades</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	
<b>LU8.</b>  Operate multi head boring machine	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the bits as per required diameter</li> <li>Set the boring head as per drawing</li> <li>Adjust the machine bed as per work piece</li> <li>Perform boring</li> <li>Check the work piece after pre fixing</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Enlist the types of boring machine.</li> <li>What is the purpose of multi head boring machine?</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Demonstrate the use of multi head boring machine.</li> </ul>	<p><b>Theory- 03Hrs</b> <b>Practical- 24Hrs</b> <b>Total- 27Hrs</b></p>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Multi head boring machine</li> <li>Measuring tape</li> <li>Spanner Set</li> <li>Screw Wrench</li> <li>Screw Driver set</li> <li>Jig and fixture</li> <li>Chain</li> <li>Bits</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> </ul>	Class Room  Training Workshop



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				<ul style="list-style-type: none"> <li>Dowels of different sizes</li> </ul>	
<b>LU9.</b>  Operate wood turning lathe	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the gouge chisels as per job requirement.</li> <li>Set the machine chuck/face plate/center as per job requirement to holding the work piece.</li> <li>Adjust the tool post for turning.</li> <li>Start wood turning as per sequence</li> <li>Perform the wood turning as per design</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>What is the specific use of wood turning lathe?</li> <li>Describe the purpose of mini wood turning lathe.</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Demonstrate the use of wood turning lathe.</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 24Hrs</b>  <b>Total- 27Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Wood turning lathe</li> <li>Chisel set</li> <li>Measuring tape</li> <li>Screw Wrench</li> <li>Screw Driver set</li> <li>L-key Set</li> <li>Grease</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> <li>Dowels of different sizes</li> </ul>	Class Room  Training Workshop



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<b>LU10.</b>  Operate surface Machine Sanding	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the sanding belt / grid as per requirement</li> <li>Adjust the machine bed as per required thickness</li> <li>Perform sanding</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist different types of sanding machine for woodwork.</li> <li>Describe the safety precautions to be followed while operating surface sanding machine.</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Demonstrate the use of surface sanding machine</li> </ul>	<b>Theory- 02Hrs</b> <b>Practical- 21Hrs</b> <b>Total- 23Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Surface Sanding Machine</li> <li>Sanding Belts</li> <li>Wood/lamination sheets</li> </ul>	Class Room  Training Workshop
<b>LU11.</b>  Operate edge sanding machine	<ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the sanding belt / grid as per requirement</li> <li>Adjust the machine bed as per required thickness</li> <li>Perform edge sanding</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe the purpose of Edge Sanding Machine.</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Demonstrate the use of</li> </ul>	<b>Theory- 03Hrs</b> <b>Practical- 18Hrs</b> <b>Total- 21Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Edge sanding machine</li> <li>Sanding Belts</li> <li>Lubricating oil</li> <li>Wood/lamination sheets</li> </ul>	Class Room  Training Workshop



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	<ul style="list-style-type: none"><li>• Check the work piece edge after sanding</li></ul>	edge sanding machine			
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## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### Module: 0722-W&C-21 Perform CAD/CAM operations

**Objective:** After the completion of this module, the trainee will be able to interpret, draw and design woodwork model using CAD/CAM operations.

**Duration: 180 Hours**

**Theory: 30 Hours**

**Practical: 150 Hours**

**Credit Hours: 18**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Draw 2D shapes	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Setup user interface settings for required drawing</li> <li>• Create different 2D shapes with given measurements</li> <li>• Edit different 2D shapes to meet requirement</li> <li>• Insert dimensions and symbols as per requirement</li> <li>• Save the file in different drawing</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Define 2D drawing</li> <li>• Enlist the commands used for drawing in CAD software</li> <li>• Explain the method to save the file in different drawing formats</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>• Demonstrate the use of CAD CAM for making a 2D</li> </ul>	<b>Theory-03Hrs</b>  <b>Practical-18Hrs</b>  <b>Total- 21Hrs</b>	<ul style="list-style-type: none"> <li>• CAD/CAM software</li> <li>• PC</li> <li>• Printer/Plotter</li> </ul>	Class Room  Computer Lab





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	formats	shape.			
<b>LU2.</b>  Prepare final sets of 2D drawings	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Develop 2D Drawing with given project specification and measurements</li> <li>Plot drawing on scale according to required size &amp; orientation</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>How to make layers in CAD?</li> <li>What is meant by scale of drawing?</li> <li>What is deference in plan and elevation?</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Demonstrate the use of CAD to Prepare final sets of 2D drawings</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 24Hrs</b>	<ul style="list-style-type: none"> <li>CAD/CAM software</li> <li>PC</li> <li>Printer/Plotter</li> </ul>	Class Room  Computer Lab



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<b>LU3.</b>  Develop 3D Objects	<ul style="list-style-type: none"> <li>• Setup 3D user interface settings for required drawing</li> <li>• Create different 3D objects with given measurements</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• How to make 3D drawing from 2D drawing?</li> <li>• Explain various 3D commands.</li> </ul> <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>• Draw five different 3D shapes by using CAD.</li> </ul>	<b>Theory- 04Hrs</b>  <b>Practical- 18Hrs</b>  <b>Total- 22Hrs</b>	<ul style="list-style-type: none"> <li>• CAD/CAM software</li> <li>• PC</li> <li>• Printer/Plotter</li> </ul>	Class Room  Computer Lab
<b>LU4.</b>  Manipulate 3D objects using 3D Editing Tools	<ul style="list-style-type: none"> <li>• Modify 3D objects in line with the requirements</li> <li>• Make customized 3D models according to the requirement of given job</li> <li>• Generate orthographic views from 3D model</li> <li>• Generate sectional/auxiliary views from 3D model as per requirement</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• What is orthographic view?</li> <li>• Describe subtract and union command.</li> <li>• How to generate sectional view from 3D model?</li> <li>• Define mesh.</li> <li>• Knowledge of 3D Scanners for Woodworking</li> </ul> <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>• Demonstrate the use of</li> </ul>	<b>Theory- 04Hrs</b>  <b>Practical- 18Hrs</b>  <b>Total- 22Hrs</b>	<ul style="list-style-type: none"> <li>• CAD/CAM software</li> <li>• PC</li> <li>• Printer/Plotter</li> </ul>	Class Room  Computer Lab



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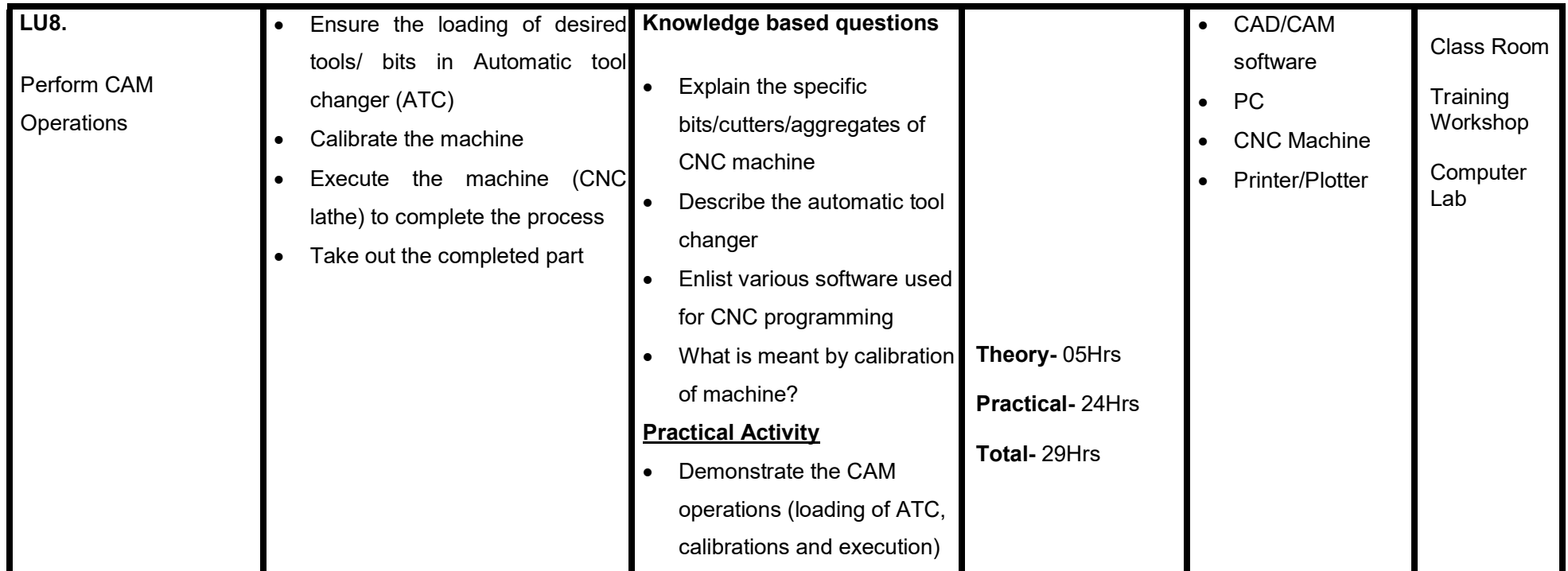
		editing tools in CAD for generating required 3D model.			
<b>LU5.</b>  Render 3D Model	<ul style="list-style-type: none"> <li>• Apply material to required 3D Model as per given specification</li> <li>• Render and print the 3D model according to required size &amp; orientation</li> <li>• Apply texture to 3D model as per requirement</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Describe process of applying materials to 3D objects</li> <li>• What is meant by rendering in CAD?</li> <li>• What is 3D realistic rendering?</li> <li>• Why rendering is important in woodwork?</li> </ul> <u><b>Practical Activity</b></u> <ul style="list-style-type: none"> <li>• Demonstrate the use of CAD for rendering a 3D model.</li> </ul>	<b>Theory-</b> 03Hrs  <b>Practical-</b> 18Hrs  <b>Total-</b> 21Hrs	<ul style="list-style-type: none"> <li>• CAD/CAM software</li> <li>• PC</li> <li>• Printer/Plotter</li> </ul>	Class Room  Computer Lab



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<b>LU6.</b>  Perform Simulation	<ul style="list-style-type: none"> <li>Convert CAD to CAM codes using the software</li> <li>Operate simulation to check accuracy of process</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe the method to convert CAD into CAM.</li> <li>Explain the codes used to convert CAD to CAM</li> <li>Explain the simulation process</li> </ul> <u><b>Practical Activity</b></u> <ul style="list-style-type: none"> <li>Convert 3D CAD drawing into CAM and perform simulation.</li> </ul>	<b>Theory- 05Hrs</b>  <b>Practical- 21Hrs</b>  <b>Total- 26Hrs</b>	<ul style="list-style-type: none"> <li>CAD/CAM software</li> <li>PC</li> <li>Printer/Plotter</li> </ul>	Class Room  Computer Lab
<b>LU7.</b>  Perform Material Loading	<ul style="list-style-type: none"> <li>Identify required parts of the job</li> <li>Set the clamping/ vacuum sucking units as per parts of the job</li> <li>Load the job parts on the machine bed</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain the vacuum system.</li> <li>Explain the Material Loading process</li> </ul> <u><b>Practical Activity</b></u> <ul style="list-style-type: none"> <li>Demonstrate the process of loading of material.</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical- 12Hrs</b>  <b>Total- 15Hrs</b>	<ul style="list-style-type: none"> <li>CAD/CAM software</li> <li>Operating System</li> <li>PC</li> <li>Printer/Plotter</li> <li>Job Material</li> </ul>	Class Room  Training Workshop  Lab





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

**Objective:** After the completion of this module, the trainee will be able to operate Computer Aided Machines (CNC/NC)

**Duration: 210 Hours**

**Theory: 30 Hours**

**Practice: 180 Hours**

**Credit Hours: 21**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Operate CNC panel saw	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Check the cutting tools as per job requirement</li> <li>Load the sheets on machine and set the clamp device</li> <li>Verify the job order</li> <li>Check the optimization of sheets on control panel</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe CNC/NC machines used in woodworking</li> <li>Describe working principle of CNC Machine</li> <li>Explain different parts of CNC/NC Machines</li> <li>What is CNC panel saw?</li> <li>What are the Safety</li> </ul>	<b>Theory-06Hrs</b>  <b>Practical-36Hrs</b>  <b>Total- 42Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Saw Blades (SS.TCT Tips)</li> <li>CNC Machines</li> </ul>	Class Room  Training Workshop  Lab



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	<ul style="list-style-type: none"> <li>• Cut the work pieces and check as per drawing dimensions</li> <li>• Check the proper fixing of dust collector hose</li> <li>• Check the sheet cutting (Splitting)</li> </ul>	<p>precautions involved during use of CNC panel saw?</p> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Demonstrate the use of CNC panel saw</li> </ul>			
<b>LU2.</b>  Operate NC Edging machine	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Follow the safety precautions of machines</li> <li>• Measure the temperature of the rubber coating wheel</li> <li>• Check if there is any precipitation at the bottom of the glue tank (normal heating)</li> <li>• Check whether the heating tube is working normally (normal heating)</li> </ul>	<b>Knowledge based questions:</b> <ul style="list-style-type: none"> <li>• What are the Safety precautions involved in use of NC edging machine?</li> <li>• What is meant by edging quality?</li> <li>• How to Improve the working speed of the edge banding machine?</li> </ul> <p><b><u>Practical Activity:</u></b></p>	<b>Theory-06Hrs</b>  <b>Practical-36Hrs</b>  <b>Total- 42Hrs</b>	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Cutter (SS.TCT)</li> <li>• Knives(SS.TCT)</li> <li>• CNC Machines</li> </ul>	Class Room  Training Workshop



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	<ul style="list-style-type: none"> <li>• Check that the temperature is increased by 10°C-200°C</li> <li>• Increase gluing volume</li> <li>• Increase the pressure</li> <li>• Improve the working speed of the edge banding machine</li> <li>• Check the edge-sealing</li> <li>• Check the Edging quality (Radius, adhesive, Buffing)</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the use of NC Edging machine.</li> <li>•</li> </ul>			
<b>LU3.</b>  Operate CNC Engraver machine	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Follow the safety precautions of machines</li> <li>• Check the drawing as per design</li> <li>• Set the tools as per job</li> <li>• Set the jigs and fixture as per job requirement</li> <li>• Check the proper working of</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• How to apply safety while working on the CNC engraver machine?</li> <li>• What is difference between NC and CNC machine?</li> <li>• Describe the purpose of CNC Engraver machine</li> </ul>	<b>Theory-06Hrs</b> <b>Practical-36Hrs</b> <b>Total- 42Hrs</b>	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Cutter (SS.TCT)</li> <li>• Knives(SS.TCT)</li> <li>• CNC Machines</li> </ul>	Class Room  Training Workshop





## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



	dust collector <ul style="list-style-type: none"> <li>Set the work piece on machine bed</li> <li>Operate the machine</li> <li>Check the work piece carving quality</li> </ul>	<b>Practical Activity:</b> Demonstrate the use of CNC Engraver machine			
<b>LU4.</b>  Operate NC boring machine	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the boring bit size</li> <li>Fix the bit in boring head</li> <li>Put the work piece in machine table</li> <li>Set the machine bed as per work piece requirement</li> <li>Start the machine and complete the operation</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define boring head.</li> <li>How to apply safety while working on the NC boring machine</li> <li>What is difference between NC and CNC machine?</li> <li>Describe the purpose of NC boring machine?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Demonstrate the use of</li> </ul>	<b>Theory-06Hrs</b> <b>Practical-36Hrs</b> <b>Total- 42Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Boring Bits</li> <li>CNC Machines</li> </ul>	Class Room  Training Workshop



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		NC boring machine			
<b>LU5.</b>  Operate NC Surface sanding machine	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow the safety precautions of machines</li> <li>Select the sanding belts/ grit</li> <li>Mount the sanding belts in the machine rollers</li> <li>Set the feeding roller speed as per chart. (Already display on machine)</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>How to apply safety while working on the NC Surface sanding machine?</li> <li>What is working principle of NC Surface sanding machine?</li> <li>Describe the purpose of NC Surface sanding machine</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Demonstrate the use of NC Surface sanding machine.</li> </ul>	<b>Theory-06Hrs</b>  <b>Practical-36Hrs</b>  <b>Total- 42Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Sanding Belts</li> <li>Buffing Wheels</li> <li>CNC Machines</li> </ul>	Class Room  Training Workshop



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### Module: 0722-W&C-23 Handle the material

**Objective:** After the completion of this module, the trainee will be able to handle the material, its usage and dispose the material and Maintain Inventory.

**Duration: 110 Hours**

**Theory: 20 Hours**

**Practice: 90 Hours**

**Credit Hours: 11**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Collect the material	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Analyze detailed drawing of the specified job</li> <li>Prepare list of materials as per drawing</li> <li>Enlist the material in material issuance slip</li> <li>Issue the material from store</li> <li>Store the material at specified place</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain procedure of issuance of material.</li> <li>What are cleaning techniques of workplace?</li> <li>Explain different techniques for safe storage of materials.</li> <li>How to identify the defective materials?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Demonstrate the procedure</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical-12Hrs</b>  <b>Total- 15Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Store requisition</li> </ul>	Class Room  Training Workshop  Store/ Field Visit



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		to collection the materials.			
<b>LU2.</b>  Operate Material movement equipment	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Specify the material which need to be moved</li> <li>Select the mode to carry the material</li> <li>Remove obstacles from the passage</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>How to ensure safe transfer of material to trolley?</li> <li>Enlist the material movement equipment.</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>Demonstrate the operation of Material movement equipment.</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical-12Hrs</b>  <b>Total- 15Hrs</b>	<ul style="list-style-type: none"> <li>PPEs</li> <li>Power jack</li> <li>Power lifter</li> <li>Hand trolley</li> <li>Barricades</li> <li>Warning Signs</li> </ul>	Class Room  Training Workshop  Store/ Field Visit
<b>LU3.</b>  Place the material on suitable place	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify suitable place for storage of material</li> <li>Ensure safe unloading of</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain methods of Safe loading/Unloading of material.</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical-18Hrs</b>  <b>Total- 21Hrs</b>	<ul style="list-style-type: none"> <li>Record register</li> <li>Hand trolley</li> </ul>	Class Room  Training Workshop  Store/ Field



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	<p>materials</p> <ul style="list-style-type: none"> <li>Segregate material according to type, color and size</li> <li>Ensure safe storage of material</li> <li>Ensure easy access to material</li> <li>Maintain record of stored material</li> </ul>	<p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make a group of five trainees and visit wood workshops and prepare a report on material storage.</li> </ul>			Visit
<p><b>LU4.</b></p> <p>Use the material as per requirement</p>	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>Select the material as per job requirement</li> <li>Cut the material as per given drawing</li> <li>Store the leftover material for reuse</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>Explain methods of Estimation of materials</li> <li>How to store the leftover materials?</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Demonstrate the use of required material from store as per job requirement</li> </ul>	<p><b>Theory- 04Hrs</b></p> <p><b>Practical-15Hrs</b></p> <p><b>Total- 19Hrs</b></p>	<ul style="list-style-type: none"> <li>Wood material</li> <li>Working Drawing</li> <li>Material cutting list</li> <li>Cutting Tools</li> </ul>	<p>Class Room</p> <p>Training Workshop</p> <p>Store/ Field Visit</p>



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<b>LU5.</b>  Dispose of waste material	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Clean down all components and accessories of machine and tools</li> <li>• Check all parts for any damage, tag and report</li> <li>• Sort and stack all parts neatly at store</li> <li>• Clear work area and dispose wastage as per health and safety standards</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• What are cleaning techniques of workplace?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>• Make a group of three trainees and dispose of the waste material after use from woodwork lab.</li> </ul>	<b>Theory- 03Hrs</b>  <b>Practical-15Hrs</b>  <b>Total- 18Hrs</b>	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Different types of bins</li> <li>• Dispose of material document</li> </ul>	Class Room  Training Workshop  Store/ Field Visit
<b>LU6.</b>  Manage inventory	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Ensure availability of tools/equipment as per list</li> <li>• Report for faulty/unserviceable tools and equipment</li> <li>• Generate demand for deficit tools and equipment</li> <li>• Maintain record of all tools and</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Define ‘Inventory’</li> <li>• State the importance of inventory management.</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>• Make a group of five trainees and prepare a report on inventory</li> </ul>	<b>Theory- 04Hrs</b>  <b>Practical-18Hrs</b>  <b>Total- 22Hrs</b>	<ul style="list-style-type: none"> <li>• Record register</li> <li>• Calculator</li> <li>• Pen/ pencil</li> <li>• Ledger book</li> </ul>	Class Room  Training Workshop  Field Visit



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	equipment	management			
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## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### Module: 0722-W&C-24 Estimate the material cost

**Objective:** After the completion of this module, the trainee will be able to prepare material list, cost calculation, estimation of utility bills, labor cost, overheads and calculate profit margins.

**Duration: 90 Hours**

**Theory: 21 Hours**

**Practice: 69 Hours**

**Credit Hours: 9**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Interpret the drawing	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Collect the required drawing &amp; design</li> <li>Analyze detailed drawing of the specified job</li> <li>Enlist the required material as per given drawing</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>What is detailed drawing?</li> <li>Define sectional drawing.</li> <li>Describe the process of identifying the material from drawing.</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Interpret the dimensions from given set of drawings</li> <li>Prepare a material list as per given drawing</li> </ul>	<b>Theory-04Hrs</b>  <b>Practical-12Hrs</b>  <b>Total- 16Hrs</b>	<ul style="list-style-type: none"> <li>Set of Drawing</li> <li>Notepad</li> <li>Calculator</li> <li>Pen/ pencil</li> </ul>	Class Room





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<b>LU2.</b>  Estimate the quantity	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify the material specification</li> <li>Estimate the measurement of materials as per drawing</li> <li>Prepare crosscut list</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Describe formula for volume area parameter of plan geometric figures</li> <li>Differentiate between rough cost and detailed estimate.</li> <li>What is material statement?</li> <li>How to estimate material wastage while performing the job?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Prepare the material statement for the given job.</li> </ul>	<b>Theory- 07Hrs</b>  <b>Practical- 24Hrs</b>  <b>Total- 31Hrs</b>	<ul style="list-style-type: none"> <li>Note pad</li> <li>Calculator</li> <li>Pen/ pencil</li> <li>Ledger book</li> </ul>	Class Room
<b>LU3.</b>  Estimate the unit cost	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Collect list of required materials as per job</li> <li>Estimate material wastage while performing the job</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define MRS?</li> <li>Describe the method to calculate the machining time as per job</li> </ul>	<b>Theory- 05Hrs</b>  <b>Practical- 15Hrs</b>  <b>Total- 20Hrs</b>	<ul style="list-style-type: none"> <li>Note pad</li> <li>Calculator</li> <li>Pen/ pencil</li> <li>Latest MRS</li> <li>Ledger book</li> </ul>	Class Room



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	<ul style="list-style-type: none"> <li>Calculate the cost of required unit material</li> </ul>	<ul style="list-style-type: none"> <li>How to estimate cost of the labor required for the job?</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Prepare the Estimate for the unit cost of woodwork activity.</li> </ul>			
<b>LU4.</b>  Calculate the total cost	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Calculate the cost of required total material</li> <li>Estimate cost of the labor required for the job</li> <li>Calculate accumulative overhead cost</li> <li>Calculate the total cost</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define Overheads cost</li> <li>What is importance of Budget preparation?</li> <li>Explain the method of Man hours' calculation</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Prepare the estimate for the total cost of job as per given drawing.</li> </ul>	<b>Theory- 05Hrs</b>  <b>Practical- 18Hrs</b>  <b>Total- 23Hrs</b>	<ul style="list-style-type: none"> <li>Note pad</li> <li>Calculator</li> <li>Pen/ pencil</li> <li>Ledger book</li> </ul>	Class Room



## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### Module: 0722-W&C-25 Increase the Productivity at workplace

**Objective:** After the completion of this module, the trainee will be able to provide skills and knowledge related to the improving the productivity level of woodworking by adopting latest approaches and methods.

**Duration: 80 Hours**

**Theory: 20 Hours**

**Practice: 60 Hours**

**Credit Hours: 8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Upgrade Material and hardware	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Follow new trends in the accessories</li> <li>Use new types of paints/Finishing</li> <li>Conduct market survey</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define wood texture.</li> <li>Enlist the hardware used for wood working.</li> <li>Explain the types of paints used for wood working</li> </ul> <b><u>Practical Activity:</u></b>  Make the group of two trainees and prepare a sample board of accessories and finishes use for wood working	<b>Theory- 10Hrs</b>  <b>Practical- 30Hrs</b>  <b>Total- 40Hrs</b>	<ul style="list-style-type: none"> <li>Accessories</li> <li>Paints and finishes</li> </ul>	Class Room  Training Workshop  Field Visit



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<b>LU2.</b>  Upgrade Machines and technique	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Be aware of new cutting methods</li> <li>• Follow new machinery and equipment for carpentry</li> <li>• Conduct market survey</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• What are the different types of woodworking machines used in modern wood work?</li> <li>• Describe the latest tools and equipment used in wood workshop</li> </ul> <b><u>Practical Activity:</u></b>  Make the group of five trainees and prepare sample board of new machinery and equipment with the help of pictures	<b>Theory- 10Hrs</b>  <b>Practical- 30Hrs</b>  <b>Total- 40Hrs</b>	<ul style="list-style-type: none"> <li>• Machines</li> <li>• Equipment</li> </ul>	Class Room  Training Workshop  Field Visit
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## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### Module: 0099-G-01 Perform Basic Green Skills for Carpentry Works

**Objective:** After the completion of this module, the trainee will be able to perform basic green skills in woodworks.

**Duration: 30 Hours**

**Theory: 21 Hours**

**Practice: 9 Hours**

**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Select green carpentry approach	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Select the eco-friendly wood material</li> <li>Select the environmental friendly material for the accessories</li> <li>Estimate material requirements for various stages of carpentry work</li> <li>Cut material precisely in order to reduce waste</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define the term 'Green Skill'.</li> <li>Enlist the names of most sustainable woods.</li> <li>Explain the term Environmental degradation</li> <li>Explain advantages and disadvantages of various carpentry materials</li> </ul> <b>Practical Activity:</b>  Prepare the sample board for	          <b>Theory- 09Hrs</b>  <b>Practical- 03Hrs</b>  <b>Total- 12Hrs</b>	<ul style="list-style-type: none"> <li>Internet.</li> <li>Notepad</li> <li>Eco-friendly wood material</li> </ul>	Class Room  Training Workshop  Field Visit



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		green carpentry material			
<b>LU2.</b>  Manage Carpentry waste	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify various types of carpentry waste</li> <li>Apply waste reduction techniques during carpentry process</li> <li>Categorize reusable waste</li> <li>Place reusable material at designated storage area</li> <li>Dispose of unusable waste</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Define 6R approach</li> <li>Describe the types of carpentry waste</li> <li>How to categorize waste into re-cycle and re-usable material?</li> <li>Explain the waste reduction techniques</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Collect the carpentry waste and dispose of it by using 6R formula.</li> </ul>	<b>Theory- 12Hrs</b> <b>Practical- 06Hrs</b> <b>Total- 18Hrs</b>	<ul style="list-style-type: none"> <li>Waste material</li> <li>Bins</li> <li>Labels</li> </ul>	Class Room  Training Workshop  Field Visit



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### Module: 0031-CS-01 Communicate at Workplace

**Objective:** After the completion of this module, the trainee will be able to develop communication skills at the workplace.

**Duration: 30 Hours**

**Theory: 24 Hours**

**Practice: 6 Hours**

**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Communicate within the organization	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Communicate within a department</li> <li>Communicate with other departments.</li> <li>Use various media to communicate effectively</li> <li>Communicate orally and written</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain modes of communication</li> <li>What are 7C's of communication</li> <li>What is the importance of intra and inter organizational communication?</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Write a letter to communicate with head of department.</li> </ul>	<b>Theory-06Hrs</b>  <b>Practical-03Hrs</b>  <b>Total-09Hrs</b>	<ul style="list-style-type: none"> <li>Notebooks</li> <li>Pencils</li> <li>Erasers</li> <li>Sharpeners</li> <li>White board</li> <li>Multimedia</li> <li>Internet</li> <li>Computer system</li> </ul>	Class Room



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<b>LU2.</b>  Communicate outside the organization	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Deal with vendors</li> <li>Deal with clients/customers</li> <li>Interact with other organizations</li> <li>Use various media to communicate effectively</li> <li>Work with people of different cultures / backgrounds</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Basics of business communication</li> <li>Importance of communication with clients/customers/vendor</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Write a letter to HR department to interact with other organization.</li> </ul>	<b>Theory-06Hrs</b> <b>Practical-03Hrs</b> <b>Total-09Hrs</b>	<ul style="list-style-type: none"> <li>Notebooks</li> <li>Pencils</li> <li>Erasers</li> <li>Sharpeners</li> <li>White board</li> <li>Multimedia</li> <li>Internet</li> <li>Computer system</li> </ul>	Class Room
<b>LU3.</b>  Communicate effectively in work group	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Assess the issues to provide relevant suggestion to group members</li> <li>Resolve the issues/ problems /conflicts within the group</li> <li>Arrange group working sessions to increase the level</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Explain the method of Communication in work group</li> <li>What is the importance of communication style/manner?</li> <li>Explain different methods of feedback</li> </ul>	<b>Theory: 06hrs</b> <b>Practical: 0hrs</b> <b>Total: 06hrs</b>	<ul style="list-style-type: none"> <li>Notebooks</li> <li>Pencils</li> <li>Erasers</li> <li>Sharpeners</li> <li>White board</li> <li>Multimedia</li> <li>Internet</li> <li>Computer system</li> </ul>	Class Room





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	<p>of participation in the group processes</p> <ul style="list-style-type: none"> <li>• Communicate messages to group members clearly to ensure interpretation is valid</li> <li>• Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices</li> <li>• Act upon constructive feedback</li> </ul>				
<b>LU4.</b>  Communicate in writing	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Identify relevant procedures for written information</li> <li>• Use strategies to ensure correct communication in writing .i.e.               <ul style="list-style-type: none"> <li>• correct composition</li> <li>• clarity</li> <li>• Comprehensiveness</li> </ul> </li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Define procedures for written information</li> <li>• What is the importance of communication strategies in writing</li> </ul>	<b>Theory:</b> 06hrs <b>Practical:</b> 0hrs <b>Total:</b> 06hrs	<ul style="list-style-type: none"> <li>• Notebooks</li> <li>• Pencils</li> <li>• Erasers</li> <li>• Sharpeners</li> <li>• White board</li> <li>• Multimedia</li> <li>• Internet</li> <li>• Computer system</li> </ul>	Class Room



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	<ul style="list-style-type: none"><li>• Accuracy</li><li>• Appropriateness</li><li>• Draft assigned written information for approval, ensuring it is written within designated timeframes</li><li>• Ensure written information meets required standards of style, format and detail</li><li>• Seek assistance / feedback to aid communication skills development</li></ul>				
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**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1.  Develop a business plan	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Conduct a market survey to collect following information</li> <li>• Customer /demand</li> <li>• Tools, equipment, machinery and furniture with rates</li> <li>• Raw material</li> <li>• Supplier</li> <li>• Credit / funding sources</li> <li>• Marketing strategy</li> <li>• Market trends</li> <li>• Overall expenses</li> <li>• Profit margin</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Define Entrepreneurship.</li> <li>• What are the three main important skills of an Entrepreneur?</li> <li>• Why are entrepreneurial skills important?</li> <li>• What are main elements of business plan?</li>   <li>• Describe specific business terms used in the industry.</li> </ul>	<p><b>Theory-</b> 04Hrs</p> <p><b>Practical-</b> 0Hrs</p> <p><b>Total-</b> 04Hrs</p>	<ul style="list-style-type: none"> <li>• Note pad</li> <li>• Stationary</li> <li>• Internet</li> </ul>	Class Room  Field Visit



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	<ul style="list-style-type: none"> <li>Select the best option in terms of cost, service, quality, sales, profit margin, overall expenses</li> <li>Compile the information collected through the market survey, in the business plan format</li> </ul>				
<b>LU2.</b>  Collect information regarding funding sources	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify the available funding sources based on their terms and conditions, maximum loan limit, payback time, interest rate</li> <li>Choose the best available option according to investment requirement</li> <li>Prepare documents according to the loan agreement requirement</li> <li>Include the information of funding sources in the business</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>Enlist the available funding sources</li> <li>Explain how to get loan to start a new business</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>Make group of five trainees and generate a report of funding sources from any three carpentry shops.</li> <li>Prepare a document of loan agreement as per</li> </ul>	<b>Theory- 06Hrs</b>  <b>Practical- 03Hrs</b>  <b>Total- 09Hrs</b>	<ul style="list-style-type: none"> <li>Note pad</li> <li>Stationary</li> <li>Internet</li> </ul>	Class Room  Field Visit



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	plan	requirement.			
<b>LU3.</b>  Develop a marketing plan	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Make a marketing plan for the business including product, price, placement, promotion, people, packaging and positioning</li> <li>• Include the information of marketing plan in the business plan</li> </ul>	<b>Knowledge based questions</b> <ul style="list-style-type: none"> <li>• Explain 7Ps of marketing.</li> <li>• Explain market survey and its tools e.g.: questionnaire, interview, observation etc.</li> <li>• How to fill the business plan format?</li> </ul> <b><u>Practical Activity:</u></b> <ul style="list-style-type: none"> <li>• Develop a business plan to establish a wood workshop.</li> <li>• Make an advertisement plan to establish a carpentry business.</li> </ul>	<b>Theory- 06Hrs</b>  <b>Practical- 03Hrs</b>  <b>Total- 09Hrs</b>	<ul style="list-style-type: none"> <li>• Note pad</li> <li>• Stationary</li> <li>• Internet</li> </ul>	Class Room  Field Visit



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<p><b>LU4.</b></p> <p>Develop basic business communication skills</p>	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>Communicate with internal customers e.g.: labor, partners and external customers e.g.: suppliers, customers etc., using effective communication skills</li> <li>Use different modes of communication to communicate internally and externally e.g.: presentation, speaking, writing, listening, visual representation, reading etc.</li> <li>Use specific business terms used in the market</li> </ul>	<p><b>Knowledge based questions</b></p> <ul style="list-style-type: none"> <li>What are 7Cs of business communication?</li> <li>Explain different modes of communication.</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Make a presentation on any topic of woodwork and present it in class.</li> </ul>	<p><b>Theory- 08Hrs</b></p> <p><b>Practical- 0Hrs</b></p> <p><b>Total- 08Hrs</b></p>	<ul style="list-style-type: none"> <li>Note pad</li> <li>Stationary</li> <li>Internet</li> </ul>	<p>Class Room</p> <p>Lab</p>
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## National Vocational Certificate Level 4 for Woodworks “Carpentry Supervisor/ Foreman”



### List of Tools, Machinery and Equipment

Sr. No.	Tools and Equipment required	Quantity Required
1	Goggles	25
2	Safety glasses	25
3	Safety gloves	25
4	Face shields	25
5	Coverall	25
6	Earplugs and Earmuffs	25
7	Steel-toe boots	25
8	Signage	10
9	Stationery	25 set
10	Drawing samples	25 set
11	Sample job order	25
12	Hard wood	as per job requirement
13	Soft wood	as per job requirement
14	Engineered wood	25 sheets
15	Adhesives	25 kg
16	Cutting machine	5
17	Surface planner	5



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Sr. No.	Tools and Equipment required	Quantity Required
18	Edging machine	5
19	Boring machine	5
20	Sanding machine	5
21	Sand paper	25
22	Nail punch	25
23	Bits	25
24	Nails	10 kg
25	Clamps	50
26	Hammer	25
27	Files	25
28	Nail puller	25
29	Marking gauge	25
30	Mortise gauge	25
31	Marking knife	25
32	Scratch awl	25
33	set of Drawing	25
34	Scriber	25
35	High speed router	5





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Sr. No.	Tools and Equipment required	Quantity Required
36	Measuring tape	25
37	Spanner Set	<b>25</b>
38	Screw Wrench	25
39	Screw Driver set	25
40	L-key Set	25
41	Profile Knives	25 set
42	Grease	10 kg
43	Lubricating oil	10 liter
44	Wood/lamination sheets	25
45	Dowels of different sizes	25 set
46	Chain mortiser	25
47	Chain	25
48	Double end cutter machine	5
49	Saw Blade	25
50	Cutter blade	25
51	Cutter head	25
52	Pendulum saw	5
53	Multiple rips saw Measuring tape	5



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Sr. No.	Tools and Equipment required	Quantity Required
54	Cross Cut Saw	5
55	Trolley saw	5
56	Multi head boring machine	5
57	Jig and fixture	25
58	Wood turning lathe	5
59	Sanding Belts	5
60	Edge sanding machine	5
61	CAD/CAM software	<b>25</b>
62	Printer/Plotter	5
63	Saw Blades (SS.TCT Tips)	5
64	CNC Machines	5
65	Cutter (SS.TCT)	5
66	Knives(SS.TCT)	5
67	Buffing Wheels	5
68	Store requisition	5
69	Power jack	5
70	Power lifter	5
71	Hand trolley	10



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Sr. No.	Tools and Equipment required	Quantity Required
72	Barricades	2
73	Warning Signs	10
74	Record register	25 copies
75	Material cutting list	25
76	Different types of bins	10
77	Dispose of material document	25 copies
78	Ledger book	25 copies
79	Latest MRS	5 copies
80	Computer system	25
81	Multimedia	1
82	Internet	



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**Members of Curriculum Development Committee**

S#	Name	Designation
1.	Mr. Muhammad Aasim	Assistant Director, Coordinator, NAVTTTC HQ
2.	Mr. Aijaz Ahmed Zia	DACUM Facilitator
3.	Mr. Muhammad Razzaq	Instructor (Civil), GTTI Mughalpura Lahore.
4.	Mr. Syed Asif Munir	Principal GSTC Mughalpura Lahore
5.	Ms. Afshan Mansoor	Instructor architecture GCT, Railway road Lahore.
6.	Dr. Iftikhar Hussain Shah	Principal GCT Faisalabad
7.	Ms. Anum Fayaz	Architect, Leader Architects Engineers Lahore
8.	Mr. Gohar Ali	Senior Science Teacher Woodworks, IMSB Islamabad
9.	Engr Abdul Basit Mansoor	Assistant Executive Engineer, Civil Pak PWD
10.	Miss. Farukh Naz	Lecturer Architecture COE Hayatabad Peshawar, Representative KP-TEVTA



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S#	Name	Designation
11.	Engr. Ayesha Ramzan	Inst. GCT Railway Road Lahore
12.	Engr. Engr.Arsalan Hameed Khan	Assistant Manager(Projects), Planning & Projects Department, LWMC
13.	Ayesha Saddique	Instructor, NAVTTTC certified assessor
14.	Ms. Samia Amir Hamza	CBT Expert, GCU, Faisalabad



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**Members of Curriculum Validation Committee**

	<b>Name</b>	<b>Designation</b>
1	Mr. Muhammad Aasim	Assistant Director, Coordinator, NAVTTTC HQ
2	Mr. Aijaz Ahmed Zia	DACUM Facilitator
3	Mr. Muhammad Razzaq	Instructor (Civil), GTTI Mughalpura Lahore.
4	Mr. Syed Asif Munir	Principal GSTC Mughalpura Lahore
5	Dr. Iftikhar Hussain Shah	Principal GCT Railway Road Lahore
6	Ms. Anum Fayyaz	Architect, Leader Architects Engineers Lahore
7	Malak Shams ul Arifin	<b>Representative KP TEVTA,</b> Lecturer, GCT Nowshera,
8	Engr. Liaqat Jamro	<b>Represented of S-TEVTA,</b> Director Academics
9	Dr Muhammad Naazir Khan	<b>Representative (Chairman) PBTE</b> Lahore
10	Engr. Israr Ahmed	<b>Representative KP BTE, Secretary</b>



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	Name	Designation
11	Muhammad Nasir	Architect, Consys Solutions Lahore
12	Engr. Ayesha Ramzan	Inst. GCT Railway Road Lahore
13	Muhammad Sarfraz	Supervisor, Global HiTech Engineering Lahore
14	Ms. Asma Mumtaz	Freelance consultant IBM, F11, Islamabad
15	Engr Syed Shahzeb Iftikhar	Site Engineer, Itehad group of Construction Certified Assessor of CBT&A