



***National Vocational Certificate Level 2 for Woodworks
“Carpentry Helper”***



**National Curriculum Level-2 for Woodworks
“Carpentry Helper”**



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



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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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Introduction

a. Definition/Description of Training Program Woodwork (Carpentry Helper)

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 NAVTTC 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 2 in Woodwork Sector (Carpentry Helper) 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 Helper
- 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) Follow safety rules
- 2) Perform measurements using basic tools



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- 3) Read basic drawings
- 4) Identify hand tools
- 5) Use basic hand tools
- 6) Maintain basic hand tools
- 7) Identify power tools
- 8) Identify Wood material

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

Possible Career Paths

- Carpentry Helper
- Carpentry Technician
- Carpentry Foreman/Supervisor

f. Trainee Entry Level

The entry requirement for National Vocational Certificate Level 2 in Woodworks **Carpentry Helper** is given below:

Title	Entry requirements
National Vocational Certificate Level 2 in Woodworks Carpentry Helper	Entry for assessment for this qualification is open. However, entry into formal training institutes, based on this qualification is; candidate having Middle Certificate.



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g. Minimum Qualification of Trainer/Instructor:

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

OR

B. Intermediate with at least 5 years hand-on experience in wood/furniture field (Must be computer literate)

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:

Total	-	600 hours
Theory	-	117 hours (19.5%)
Practical	-	483 hours (80.5%)

k. Sequence of Modules

- 1) Follow safety rules
- 2) Perform measurements using basic tools
- 3) Read basic drawings



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- 4) Identify hand tools
- 5) Use basic hand tools
- 6) Maintain basic hand tools
- 7) Identify power tools
- 8) Identify Wood material



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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 2									
1	1022-OHC-01	Follow safety rules	Carpentry Helper	2	Generic	20	30	50	5
2	0722-W&C-01	Perform measurements using basic tools		2	Technical	10	60	70	7
3	0722-W&C-02	Read basic drawings		2	Technical	9	51	60	6
4	0722-W&C-03	Identify basic hand tools		2	Technical	14	66	80	8
5	0722-W&C-04	Use basic hand tools		2	Technical	9	111	120	12
6	0722-W&C-05	Maintain basic hand tools		2	Technical	16	54	70	7



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7	0722-W&C-06	Identify power tools		2	Technical	19	81	100	10
8	0722-W&C-07	Identify wood material		2	Technical	20	30	50	5
		Total				117	483	600	60
		Percentage				19.5	80.5		

Proposed Course Duration: 6 Months

Estimated Contact Hours: 600 Hours

Estimated Credit Hours: 60 Hours



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Module: 1022-OHS-01 Follow safety rules

Objective: After the completion of this module, the trainee will be able to follow safety rules required during woodworks.

Duration: 50 Hours

Theory: 20 Hours

Practice: 30 Hours

Credit Hours: 5

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Wear personal protective equipment (PPE)	Trainee will be able to: <ul style="list-style-type: none"> Wear Safety glasses/goggles. Wear Face shields which guard the face. Wear Hearing protection (earplugs and earmuffs). Wear safety shoes, which have a protective cap. Remove the jewelry before starting the work. Use Respirator when 	Knowledge based questions: <ul style="list-style-type: none"> Define PPE's. Explain the Importance of PPE's. Describe the Maintenance and cleaning of PPEs Practical Activity: Demonstrate the use of	Theory- 02 Hrs Practical- 03 Hrs Total- 05 Hrs	<ul style="list-style-type: none"> Safety glasses Safety gloves Face shields Coverall Earplugs/Earmuffs Steel-toe boots 	Training Workshop/ Safety Lab



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	<p>working with high sawdust producing practices</p> <ul style="list-style-type: none"> Wear Gloves to protect your hands Wear proper coverall 	PPE's.			
LU2. Use Fire Extinguisher	Trainee will be able to: <ul style="list-style-type: none"> Identify the type of fire. Select the right fire extinguisher. Check the expiry of fire extinguisher. Pull the pin to unlock the mechanism. Aim low towards the base of the fire. Squeeze the lever slowly. Sweep the nozzle from side to side at the base of the 	Knowledge based questions: <ul style="list-style-type: none"> Define fire extinguisher. Define PASS. How to check the expiry of fire extinguisher? Practical Activity: Demonstrate the use of fire extinguisher.	Theory- 03 Hrs Practical- 06 Hrs Total- 09 Hrs	<ul style="list-style-type: none"> SOP/ Safety manual Fire extinguisher 	Training Workshop Safety Lab



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	fire.				
LU3. Maintain first Aid box	Trainee will be able to: <ul style="list-style-type: none"> • Check the availability of emergency medicines in first aid box. • Ensure medicines are not expired. • Identify type of injury. • Perform immediate first aid treatment for injuries. • Ensure availability of emergency and rescue contact numbers. 	Knowledge based questions: <ul style="list-style-type: none"> • Enlist the items in a first Aid Box. • Explains types of injuries. • Describe the importance of first Aid Box. Practical Activity: <ul style="list-style-type: none"> • Demonstrate the first aid treatment. 	Theory- 03 Hrs Practical- 06 Hrs Total- 09 Hrs	<ul style="list-style-type: none"> • SOP/ Safety manual • Respirator • First aid box 	Training Workshop



<p>LU4.</p> <p>Ensure Emergency Switch Operation</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Check all emergency switches are installed on wall. • Check emergency switches are installed on machines. • Make sure that all machines have emergency start and stop buttons. • Check all emergency switches are working. • Check all emergency switches are reachable. • Practice using these switches in case of any emergency. 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> • Describe three steps in the emergency action plan. • Explain the purpose of Emergency switch Operation. <p>Practical Activity:</p> <ul style="list-style-type: none"> • Demonstrate the Operations of all Emergency switches. 	<p>Theory- 04 Hrs</p> <p>Practical- 06 Hrs</p> <p>Total- 10 Hrs</p>	<ul style="list-style-type: none"> • SOP/ Safety manual • Safety glasses • Safety gloves • Fire extinguisher • Emergency switches 	<p>Training Workshop</p>
<p>LU5.</p> <p>Ensure proper fitting of equipment</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Inspect stock for nails, staples, loose knots or other 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> • Explain proper fitting of equipment 		<ul style="list-style-type: none"> • Woodwork Machinery • Blades • Wrench 	<p>Training Workshop</p>



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	<p>defects before using machines.</p> <ul style="list-style-type: none"> • Ensure that all cutting tools and blades are clean. • Turn the power off before cleaning of machine. • Check that key and adjusting wrenches are removed. 	<p>Practical Activity:</p> <ul style="list-style-type: none"> • Perform inspection and cleaning of machine. 	<p>Theory- 03 Hrs Practical- 03 Hrs Total- 06 Hrs</p>	<ul style="list-style-type: none"> • Nails • Safety glasses • Safety gloves • Face shields 	
<p>LU6.</p> <p>Use safety guards on machines</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Make sure the equipment is properly grounded before use. • Guard the machine adequately before operating. • Make sure the all-machine guards are in position. 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> • What is meant by grounding? • Describe the purpose of safety guards on machines. • Explain the procedure to check the machine guards. 	<p>Theory- 02 Hrs Practical- 03 Hrs Total- 05 Hrs</p>	<ul style="list-style-type: none"> • SOP/ Safety manual • Safety glasses • Safety gloves • Face shields • Coverall • Earplugs/Earmuffs • Steel-toe boots • Respirator • First aid box • Fire extinguisher 	<p>Training Workshop</p>



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		Practical Activity: <ul style="list-style-type: none"> Demonstrate the use of safety guards on machines. 			
LU7. Follow Standard Operating Procedures (SOPs)	Trainee will be able to: <ul style="list-style-type: none"> Read manual of safety of each woodwork machine before first time use. Report defective machinery, equipment or hand tools. Follow standard operating procedures (SOPs) which are written in each machine manual. 	Knowledge based questions: <ul style="list-style-type: none"> Define SOPs. Explain importance of SOPs in industry. Practical Activity: <ul style="list-style-type: none"> Generate a report for defective machinery / equipment. 	Theory- 03 Hrs Practical- 03 Hrs Total- 06 Hrs	<ul style="list-style-type: none"> SOP/ Safety manual Safety glasses Safety gloves Face shields Coverall Earplugs/Earmuffs Steel-toe boots Respirator First aid box Fire extinguisher 	Classroom Training Workshop



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Module: 0722-W&C-01 Perform measurements using basic tools

Objective: After the completion of this module, the trainee will be able to perform measurements using basic measurement tools and equipment.

Duration: 70 Hours

Theory: 10 Hours

Practice: 60 Hours

Credit Hours: 7

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Identify basic Measuring tools.	Trainee will be able to: <ul style="list-style-type: none"> Identify Steel foot Identify measuring tape Identify Layout squares Identify Vernier calipers Identify inside/outside caliper Identify angle gauge 	Knowledge based questions: <ul style="list-style-type: none"> Enlist measuring tools used for woodworking. Describe different types of measuring tools used in wood working. Practical Activity: <ul style="list-style-type: none"> Generate a document explaining different types of measuring tools used in wood working. Prepare a sheet of basic 	Theory- 04 Hrs Practical- 18Hrs Total- 22 Hrs	<ul style="list-style-type: none"> Steel Foot Measuring Tape Inside/Outside Caliper Vernier Caliper Layout Square Angle Square Tri-square Combination Square Note Book Pencil 	Class Room Training Workshop



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		measuring tools and label the parts.			
LU2. Use of basic measuring tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Appropriate tool for dimension • Use Appropriate tool for angle/curve • Use Appropriate tool for thickness • Use Appropriate tool for depth 	Knowledge based questions: <ul style="list-style-type: none"> • What is the purpose of using measuring tool? • What do you know about French curves? • Which tool is used for measuring thickness & depth of wood sample? • Explain safety precautions while using measuring tools. Practical Activity: <ul style="list-style-type: none"> • Use appropriate measuring tools for 	Theory- 03 Hrs Practical- 24 Hrs Total- 27 Hrs	<ul style="list-style-type: none"> • Steel Foot • Measuring Tape • Inside/Outside Caliper • Vernier Caliper • Layout Square • Angle Square • French Curve • Tri-square • Combination Square • Note Book • Pencil • Wooden piece 	Training Workshop



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		given measurements: <ul style="list-style-type: none"> ▪ Thickness ▪ Depth ▪ Angle/Curve 			
LU3. Ensure proper arrangement of measuring tools after use.	Trainee will be able to: <ul style="list-style-type: none"> • Segregate tools as per specification. • Arrange tool in tool box. • Store Tools box safely in appropriate locations. 	Knowledge based questions: <ul style="list-style-type: none"> • Define tool box. • Why it is important to arrange tools in box? • What do you know about tool specification? Practical Activity: <ul style="list-style-type: none"> • Demonstrate the importance of arranging tools in tools box. • Prepare a sheet of six different basic tools used in wood working. 	Theory- 03 Hrs Practical- 18 Hrs Total- 21 Hrs	<ul style="list-style-type: none"> • Steel Foot • Measuring Tape • Inside/Outside Caliper • Vernier Caliper • Layout Square • Angle Square • Tri-square • Combination Square • Tool box 	Training Workshop



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Module: 0722-W&C-02 Read basic drawings

Objective: After the completion of this module, the trainee will be able to read basic working drawings of woodwork.

Duration: 60 Hours

Theory: 9 Hours

Practice: 51 Hours

Credit Hours: 6

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Identify the measuring units	Trainee will be able to: <ul style="list-style-type: none"> Interpret units Interpret SI units Interpret MKS units Interpret FPS units 	Knowledge based questions: <ul style="list-style-type: none"> What do you know about unit conversion? Describe the importance of measuring units in wood work drawings. Explain measuring units <ul style="list-style-type: none"> SI units MKS units FPS units Practical Activity: <ul style="list-style-type: none"> Generate a table of 	Theory- 02 Hrs Practical- 12 Hrs Total- 14 Hrs	<ul style="list-style-type: none"> Calculator Notepad Stationery 	Class Room



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		seven basic quantities in MKS and perform conversion in SI & FPS systems.			
LU2. Identify the scale	Trainee will be able to: <ul style="list-style-type: none"> Interpret scale of drawing. Draw basic shapes on scale in manual drawing. 	Knowledge based questions: <ul style="list-style-type: none"> Enlist any six basic geometrical shapes. Define scale of drawing. Describe the interpretation of scale in drawing. Practical Activity: <ul style="list-style-type: none"> Draw given basic shapes on scale: <ul style="list-style-type: none"> Square Rectangle Triangle Circle 	Theory- 02 Hrs Practical- 12 Hrs Total-14 Hrs	<ul style="list-style-type: none"> T-Square Set Square Compass Drawing Table Pencil Foot scale Drawing Sheet Eraser Sharpener 	Training Workshop



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		<ul style="list-style-type: none"> ▪ Ellipse ▪ Polygon 			
LU3. Measure dimensions	Trainee will be able to: <ul style="list-style-type: none"> • Interpret type of dimension. • Check the dimension on drawing. 	Knowledge based questions: <ul style="list-style-type: none"> • Enlist different types of dimensions. • Enlist various dimensioning tools. • What do you know about dimensioning? Practical Activity: <ul style="list-style-type: none"> • Perform the measurements of given drawing. 	Theory- 03 Hrs Practical- 12 Hrs Total- 15 Hrs	<ul style="list-style-type: none"> • T-Square • Set Square • Compass • Pencil • Foot scale • Drawing sheet 	Class Room Training Workshop Lab



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LU4. Identify types of drawings	Trainee will be able to: <ul style="list-style-type: none"> • Identify working drawing • Identify plan • Identify elevation • Identify section 	Knowledge based questions: <ul style="list-style-type: none"> • Define working drawing Enlist different types of working drawings. • Define transverse & longitudinal sections. • What is the difference between plan & elevation? Practical Activity: Demonstrate the interpretation of working drawings in woodwork.	Theory- 02 Hrs Practical- 15 Hrs Total- 17 Hrs	<ul style="list-style-type: none"> • Drawing sheets 	Lab
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Credit Hours: 8

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Identify Marking Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify marking knife Identify marking gauge Identify mortise gauge Identify Scratch awl Identify Scriber marking tool Identify Pencils 	Knowledge based questions: <ul style="list-style-type: none"> Enlist different types of marking tools. What is the purpose of using marking tools? Describe different types of marking tools. Practical Activity: Prepare a sheet of different marking tools and label the different parts.	 Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Marking knife Panel gauge Mortise gauge Scratch awl Scriber marking tool Drawing sheet Drawing board Stationery 	Class Room/Training Workshop



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LU2. Identify Cutting Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Rip saws Identify Cross cut saws Identify Back saw Identify Dovetail saw Identify Bow saw Identify Key hole saw 	Knowledge based questions: <ul style="list-style-type: none"> Enlist different types of cutting tools. What is the purpose of using cutting tool? Explain different types of cutting tools. Practical Activity: Prepare a sheet of different cutting tools and label the different parts.	Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Rip saws Cross cut saws Back saw Dovetail saw Bow saw Key hole saw Drawing sheet Drawing board Stationery 	Class Room/Training Workshop
LU3. Identify Planning Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Bench Planes Identify Block Planes Identify Plane Alternatives 	Knowledge based questions: <ul style="list-style-type: none"> Enlist different types of planning tools. What is the purpose of using planning tool? Explain different types of 	Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Bench Planes Block Planes Plane Alternatives Drawing sheet Drawing board Stationery 	Class Room/Training Workshop



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		<p>planning tools.</p> <p>Practical Activity:</p> <p>Prepare a sheet of different planning tools and label the different parts.</p>			
<p>LU4.</p> <p>Identify Boring Tools</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Identify Wood Drill Bits Identify Auger bit Identify Expansion bit Identify Twist bit Identify Spade bit Identify Brad point bit Identify Forstner bit Identify Center bit Identify Chisels Identify bradawl tool 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> Enlist different types of boring tools. What is the purpose of using boring tools? Explain different types of boring tools. <p>Practical Activity:</p> <p>Prepare sheet of following boring tools:</p>	<p>Theory- 02 Hrs</p> <p>Practical- 12 Hrs</p> <p>Total- 14 Hrs</p>	<ul style="list-style-type: none"> Wood Drill Bits Auger bit Expansion bit Twist bit Spade bit Brad point bit Forstner bit Center bit Drawing sheet Drawing board Stationery 	<p>Class Room/Training Workshop</p>



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	<ul style="list-style-type: none"> Identify Woodworking brace tool 	<ul style="list-style-type: none"> Wood Drill Bits Auger bit Twist bit Spade bit Brad point bit Forstner bit Center bit Chisels 			
LU5. Identify Fixing Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Spring Clamps Identify C-Clamps Identify Bar-Clamps Identify Strap/web Clamps Identify Screw Clamps Identify F- Clamps Identify woodwork bench vise Identify Holdfast Identify Hammer 	Knowledge based questions: <ul style="list-style-type: none"> Enlist various types of fixing tools. What do you know about fixing tools? Practical Activity: Prepare a detailed document on different types of fixing tools.	Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Brace tool Spring Clamps C-Clamps Bar-Clamps Strap/web Clamps Screw Clamps Holdfast F- Clamps Woodwork bench vise 	Class Room/Training Workshop



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LU6. Identify Grinding Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Oil stone Identify File tools 	Knowledge based questions: <ul style="list-style-type: none"> Enlist different types of grinding tools. What is the use of grinding tool? Practical Activity: Prepare a detailed document on different types of grinding tools.	Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Oil stone File Tool Scribing Tool Rasps/Files 	Class Room/Training Workshop
LU7. Identify Finishing Tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Scribing Tool Identify Wood Rasps/Files Identify Spokeshave Identify Sand paper 	Knowledge based questions: <ul style="list-style-type: none"> Enlist different types of finishing tools. Describe the use of finishing tools. Practical Activity: Prepare a sheet of following finishing	Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Scribing Tool Wood Rasps/Files Spokeshave Bench vise Sand paper Drawing sheet Drawing board 	Class Room/Training Workshop



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		<p>tools:</p> <ul style="list-style-type: none">▪ Scribing Tool▪ Rasps/Files▪ Sand paper		<ul style="list-style-type: none">• Stationery	
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Module: 0722-W&C-04 Use basic Hand tools

Objective: After the completion of this module, the trainee will be able to use basic hand tools.

Duration: 120 Hours

Theory: 9 Hours

Practice: 111 Hours

Credit Hours: 12

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Use Marking Tools	Trainee will be able to: <ul style="list-style-type: none"> Use marking knife as per job requirement Use marking gauge as per job requirement Use mortise gauge as per job requirement Use Scratch awl as per job requirement Use Scriber marking tool as per job requirement Use Pencils as per job 	Knowledge based questions: <ul style="list-style-type: none"> Explain the use of following tools: Marking Knife Marking Gauge Mortise Gauge Scratch Awl Scriber Tool Practical Activity: Demonstrate the use of marking	 Theory- 02 Hr Practical-12 Hrs Total- 14Hrs	<ul style="list-style-type: none"> Marking knife Panel gauge Mortise gauge Scratch awl Scriber marking tool Pencils Wooden piece Drawing sheet 	Training Workshop



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	requirement	tools as per job requirement.			
LU2. Use Cutting Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Rip saws as per job requirement • Use Cross cut saws as per job requirement • Use Back saw as per job requirement • Use Dovetail saw as per job requirement • Use Bow saw as per job requirement • Use Key hole saw as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • Explain the use of different cutting tools. Practical Activity: <ul style="list-style-type: none"> • Perform the cutting of wooden piece according to the given drawing using appropriate cutting tools. 	Theory- 02 Hr Practical- 18 Hrs Total- 20 Hrs	<ul style="list-style-type: none"> • Rip saws • Cross cut saws • Back saw • Dovetail saw • Bow saw • Key hole saw • Drawing sheet • Wooden piece 	Training Workshop



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LU3. Use Planning Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Bench Planes as per job requirement • Use Block Planes as per job requirement • Use Plane Alternatives as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • Describe the use of planning tools. Practical Activity: Perform the planning of wooden piece using Bench Planes.	Theory- 01 Hrs Practical- 18 Hrs Total- 19 Hrs	<ul style="list-style-type: none"> • Bench Planes • Block Planes • Plane Alternatives • Spokeshave • Oil stone • C-Clamps • Screw Clamps • F- Clamps • Bench vise • Drawing sheet • Wooden piece 	Training Workshop
LU4. Use Boring Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Wood Drill Bits as per job requirement • Use Auger bit as per job requirement • Use Expansion bit as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • What tools are used for boring in woodworking? • Explain the working of boring tools. • What is the difference between drill bit & auger bit? 	Theory- 1 Hrs Practical- 18 Hrs Total- 19 Hrs	<ul style="list-style-type: none"> • C-Clamps • Bar-Clamps • Strap/web Clamps • Screw Clamps • Holdfast • Scribing Tool 	Training Workshop



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	<ul style="list-style-type: none"> • Use Twist bit as per job requirement • Use Spade bit as per job requirement • Use Brad point bit as per job requirement • Use Forstner bit as per job requirement • Use Center bit as per job requirement • Use bradawl tool as per job requirement • Use Woodworking brace tool as per job requirement 	<ul style="list-style-type: none"> • Define twist bit. <p>Practical Activity:</p> <ul style="list-style-type: none"> • Drill the wooden piece using Center bit as per given drawing. • Prepare a sheet of different types of boring tools and label their parts. 		<ul style="list-style-type: none"> • Wood • Wood Drill Bits • Auger bit • Expansion bit • Twist bit • Spade bit • Brad point bit • Forstner bit • Center bit • Drawing sheet 	
LU5. Use Fixing Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Spring Clamps as per job requirement • Use woodwork bench vice as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • Enlist different types of fixing tools. • Describe the use of fixing tools. 	Theory- 01 Hrs Practical- 09 Hrs Total- 10 Hrs	<ul style="list-style-type: none"> • Spring Clamps • C-Clamps • Bar-Clamps • Strap/web Clamps • Screw Clamps 	Training Workshop



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	<ul style="list-style-type: none"> • Use C-Clamps as per job requirement • Use Bar-Clamps as per job requirement • Use Strap/web Clamps as per job requirement • Use Screw Clamps as per job requirement • Use holdfast as per job requirement 	<ul style="list-style-type: none"> • What is the difference between clamp & holdfast? • Differentiate between spring clamp & bar clamp. <p>Practical Activity:</p> <p>Fix the sample wooden pieces using appropriate clamps.</p>		<ul style="list-style-type: none"> • Holdfast • Wood • F- Clamps • Bench vise • Drawing sheet • Wooden pieces 	
LU6. Use Grinding Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Oil stone as per job requirement • Use File tools as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • What tools are used for Grinding in woodworking? • Describe the use of grinding tools in woodworking. <p>Practical Activity:</p> <p>Grind the wooden piece using</p>	Theory- 01 Hrs Practical- 18 Hrs Total- 19 Hrs	<ul style="list-style-type: none"> • Spring Clamps • C-Clamps • Bar-Clamps • Strap/web Clamps • Screw Clamps • Holdfast • Oil stone • File Tool 	Training Workshop



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		appropriate file as per given drawing.		<ul style="list-style-type: none"> • Scribing Tool • Wood Rasps/Files • F- Clamps • Woodwork bench vise • Sand paper • Drawing sheet • Wooden pieces 	
LU7. Use Finishing Tools	Trainee will be able to: <ul style="list-style-type: none"> • Use Scribing Tool as per job requirement • Use Wood Rasps/Files as per job requirement • Use Spokeshave as per job requirement 	Knowledge based questions: <ul style="list-style-type: none"> • Enlist the tools used for Finishing in woodworking. • What is the difference between Rasps & files? • What is the use of spokeshave? Practical Activity: Finish the wooden pieces	Theory- 01 Hrs Practical- 18 Hrs Total- 19 Hrs	<ul style="list-style-type: none"> • Brace tool • Oil stone • File Tool • Scribing Tool • Wood Rasps/Files • Spokeshave • F- Clamps • Woodwork Bench vise 	Training Workshop



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		<p>according to the drawing using appropriate:</p> <ul style="list-style-type: none">• Wood Rasps• Spokeshave		<ul style="list-style-type: none">• Sand paper• Drawing sheet• Wooden pieces.	
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Module: 0722-W&C-05 Maintain Basic Hand tools

Objective: After the completion of this module, trainee will be able to maintain different types of basic hand tools.

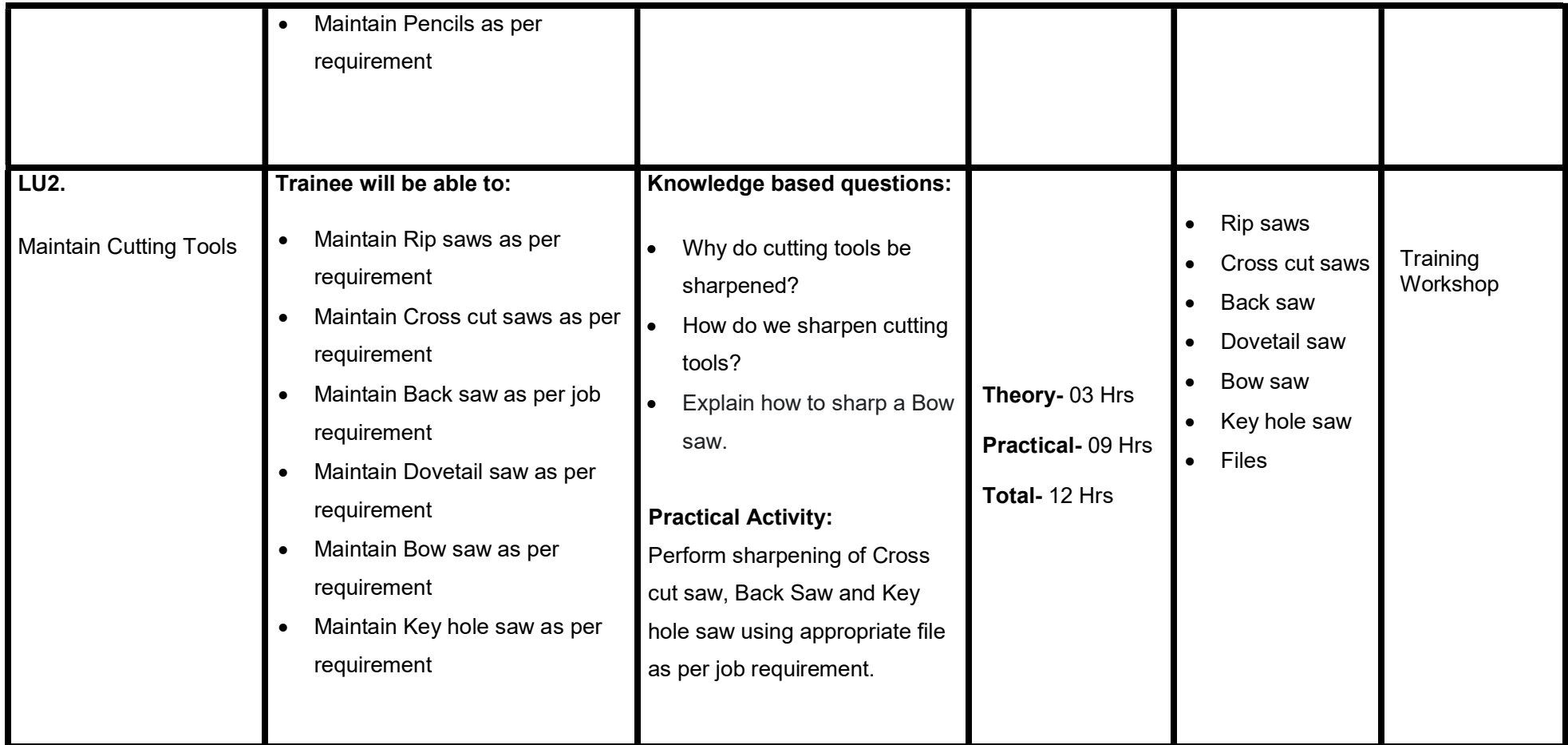
Duration: 70 Hours

Theory: 16 Hours

Practice: 54 Hours

Credit Hours: 7

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Maintain Marking Tools	Trainee will be able to: <ul style="list-style-type: none"> Maintain marking knife as per requirement Maintain marking gauge as per requirement Maintain mortise gauge as per requirement Maintain Scratch awl as per requirement Maintain Scriber marking tool as per requirement 	Knowledge based questions: <ul style="list-style-type: none"> What is meant by maintenance of marking tools? Practical Activity: Perform the maintenance of marking tools by using grinder/oil stone as per job requirement.	 Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> Marking knife Panel gauge Mortise gauge Scratch awl Scriber marking tool 	Training Workshop





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LU3. Maintain Planning Tools	Trainee will be able to: <ul style="list-style-type: none"> • Maintain Bench Planes as per requirement • Maintain block Planes as per requirement • Maintain Plane Alternatives as per requirement 	Knowledge based questions: <ul style="list-style-type: none"> • How do you sharpen a planer? • Explain how to sharp a Bench Plane. Practical Activity: <ul style="list-style-type: none"> • Perform sharpening of Block Planes and Bench Planes using oil stone as per job requirement. 	Theory- 03 Hrs Practical- 09 Hrs Total- 12 Hrs	<ul style="list-style-type: none"> • Bench Planes • Block Planes • Plane Alternatives 	Training Workshop
LU4. Maintain Boring Tools	Trainee will be able to: <ul style="list-style-type: none"> • Maintain Wood Drill Bits as per requirement • Maintain Auger bit as per requirement • Maintain Expansion bit as per requirement • Maintain Twist bit as per 	Knowledge based questions: <ul style="list-style-type: none"> • Why boring tools need to be maintained? • What is meant by tool maintenance in woodwork? • Explain maintenance of different boring tools used in woodwork. 	Theory- 02 Hrs Practical- 06 Hrs Total- 08 Hrs	<ul style="list-style-type: none"> • Wood Drill Bits • Auger bit • Expansion bit • Twist bit • Spade bit • Brad point bit • Forstner bit • Oil stone 	Training Workshop



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	<p>requirement</p> <ul style="list-style-type: none"> • Maintain Spade bit as per requirement • Maintain Brad point bit as per requirement • Maintain Forstner bit as per requirement • Maintain Center bit as per requirement • Maintain bradawl tool as per requirement. • Maintain Woodworking brace tool as per requirement 	<p>Practical Activity:</p> <p>Perform sharpening of Auger bit, Twist bit and Center bit using Grinder/ oil stone as per job requirement.</p>			
<p>LU5.</p> <p>Maintain Fixing Tools</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Maintain Spring Clamps as per requirement • Maintain woodwork bench vise as per requirement • Maintain C-Clamps as per 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> • What is meant by maintenance of Fixing Tools? • Explain the maintenance process of fixing tools used 	<p>Theory- 02Hrs</p> <p>Practical- 06 Hrs</p> <p>Total- 08 Hrs</p>	<ul style="list-style-type: none"> • Scratch awl • Clamps • Bench vise • Lubricant • Spanner Set 	<p>Training Workshop</p>



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	<p>requirement</p> <ul style="list-style-type: none"> • Maintain Bar-Clamps as per requirement • Maintain Strap/web Clamps as per requirement • Maintain Screw Clamps as per requirement • Maintain holdfast as per job requirement 	<p>in woodwork.</p> <p>Practical Activity:</p> <p>Perform repair and maintenance of:</p> <ul style="list-style-type: none"> • Spring Clamps • C-Clamps <p>Also perform greasing of Bench vise as job requirement.</p>			
<p>LU6.</p> <p>Maintain Grinding Tools</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Maintain Oil stone as per requirement • Maintain File tools as per requirement 	<p>Knowledge based questions:</p> <ul style="list-style-type: none"> • What is Oil stone? • How maintenance of grinding tools is carried out? <p>Practical Activity:</p> <p>Perform visual inspection of oil stone and replace if required.</p>	<p>Theory- 02 Hrs</p> <p>Practical- 06 Hrs</p> <p>Total- 08 Hrs</p>	<ul style="list-style-type: none"> • Oil stone • File • Sand paper 	<p>Training Workshop</p>



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LU7. Maintain Finishing Tools	Trainee will be able to: <ul style="list-style-type: none"> • Maintain Scribing Tool as per requirement • Maintain Wood Rasps/Files as per requirement • Maintain Spokeshave as per requirement 	Knowledge based questions: <ul style="list-style-type: none"> • Enlist Finishing Tools. • Explain the maintenance of finishing tools. Practical Activity: Perform sharpening of Scribing Tool and Spokeshave using oil stone.	 Theory- 02 Hrs Practical- 09 Hrs Total- 11 Hrs	<ul style="list-style-type: none"> • Scratch awl • Scriber marking tool • Bench Planes • Block Planes • Plane Alternatives 	



Objective: This module will provide skills and knowledge related to identification of power tools required during woodworks.

Duration: 100 Hours

Theory: 19 Hours

Practice: 81 Hours

Credit Hours: 10

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		<ul style="list-style-type: none"> • Portable Chainsaw • Portable Reciprocating Saw • Portable Jigsaw • Portable route 		Jigsaw <ul style="list-style-type: none"> • Portable router 	
LU2. Identify power planning tools	Trainee will be able to: <ul style="list-style-type: none"> • Identify hand electric Planer • Identify Rabbet Planer 	Knowledge based questions: <ul style="list-style-type: none"> • Define Power planning tools. • Enlist power Planning tool <u>Practical Activity:</u> Differentiate the followings <ul style="list-style-type: none"> • Hand electric Planer • Rabbet Planer 	Theory-02 Hrs Practical- 09Hrs Total-11 Hrs	<ul style="list-style-type: none"> • Hand electric Planer • Rabbet Planer 	Class Room Training Workshop



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LU3. Identify power boring tools	Trainee will be able to: <ul style="list-style-type: none"> Identify hand drill machine Identify Drill press 	Knowledge based questions: <ul style="list-style-type: none"> Define Power boring tools. Enlist power boring tool <u>Practical Activity:</u> <ul style="list-style-type: none"> Differentiate the followings <ul style="list-style-type: none"> Hand drill machine Drill press 	Theory- 02Hrs Practical- 12Hrs Total-14 Hrs	<ul style="list-style-type: none"> Hand drill machine Drill press 	Class Room Training Workshop
LU4. Identify shaping power tools	Trainee will be able to: <ul style="list-style-type: none"> Identify Portable router Identify Rotary Tool Kit 	Knowledge based questions: <ul style="list-style-type: none"> Define Power shaping tools. Enlist Power shaping tools <u>Practical Activity:</u> <ul style="list-style-type: none"> Differentiate the followings <ul style="list-style-type: none"> Portable router Rotary Tool Kit 	Theory- 03Hrs Practical-12 Hrs Total- 15Hrs	<ul style="list-style-type: none"> Portable router Rotary Tool Kit 	Class Room Training Workshop



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LU5. Identify power fixing tools	Trainee will be able to: <ul style="list-style-type: none"> Identify pneumatic screwdriver Identify pneumatic drill machine Identify pneumatic clamps 	Knowledge based questions: <ul style="list-style-type: none"> Define Power fixing tools. Enlist Power fixing tool <u>Practical Activity:</u> <ul style="list-style-type: none"> Differentiate the followings <ul style="list-style-type: none"> pneumatic screwdriver pneumatic drill machine pneumatic clamps 	Theory- 03Hrs Practical- 12 Hrs Total- 15Hrs	<ul style="list-style-type: none"> Pneumatic screwdriver Pneumatic drill machine Pneumatic clamps 	Class Room Training Workshop
LU6. Identify power grinding tools	Trainee will be able to: <ul style="list-style-type: none"> Identify pedestal grinder Identify disk grinder 	Knowledge based questions: <ul style="list-style-type: none"> Define Power grinding tools. Enlist power grinding tool <u>Practical Activity:</u> <ul style="list-style-type: none"> Differentiate the followings <ul style="list-style-type: none"> Pedestal grinder 	Theory- 03Hrs Practical- 12Hrs Total- 15 Hrs	<ul style="list-style-type: none"> Pedestal grinder Disk grinder 	Class Room Training Workshop



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		<ul style="list-style-type: none"> ▪ Disk grinder 			
LU7. Identify power finishing tools	Trainee will be able to: <ul style="list-style-type: none"> • Identify portable disk Sander • Identify portable orbital Sander • Identify Buffing machine 	Knowledge based questions: <ul style="list-style-type: none"> • Define Power finishing tools. • Enlist Power finishing tools <u>Practical Activity:</u> <ul style="list-style-type: none"> • Differentiate the followings: <ul style="list-style-type: none"> ▪ Portable disk Sander ▪ Portable orbital Sander ▪ Buffing machine 	Theory-03 Hrs Practical- 12 Hrs Total- 15 Hrs	<ul style="list-style-type: none"> • Portable disk Sander • Portable orbital Sander • Buffing machine 	Class Room Training Workshop



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Module: 0722-W&C-07 Identify Wood material

Objective: This module will provide skills and knowledge related to identification of wood material and its defects.

Duration: 50 Hours

Theory: 20 Hours

Practice: 30 Hours

Credit Hours: 5

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Identify different types of wood	Trainee will be able to: <ul style="list-style-type: none"> Identify Engineered wood Identify Natural wood 	Knowledge based questions: <ul style="list-style-type: none"> Define different type of wood Enlist the type of wood <u>Practical Activity:</u> <ul style="list-style-type: none"> Differentiate the wood samples. 	Theory- 07Hrs Practical- 12Hrs Total- 19Hrs	<ul style="list-style-type: none"> Natural wood sample Engineered wood sample 	Class Room Training Workshop



LU2. Classify different kinds of wood	Trainee will be able to: <ul style="list-style-type: none"> • Classify Engineered wood • Classify Natural wood 	Knowledge based questions: <ul style="list-style-type: none"> • Differentiate between Natural and Engineered wood <u>Practical Activity:</u> <ul style="list-style-type: none"> • Differentiate the Natural wood samples. • Differentiate the Engineered wood samples. 	 Theory-07Hrs Practical-09Hrs Total- 16Hrs	<ul style="list-style-type: none"> • Natural wood sample • Engineered wood sample 	Training Workshop



LU3. Identify wooden defects	Trainee will be able to: <ul style="list-style-type: none"> Inspect the wood Identify Cracks (if any) Identify Knots (if any) Identify Shakes(if any) 	Knowledge based questions: <ul style="list-style-type: none"> Define the type of wooden defects Define types of knots Define types of cracks Define types of shakes <u>Practical Activity:</u> <ul style="list-style-type: none"> Inspect and identify the defects in given wooden sample. 	 Theory- 06Hrs Practical- 09Hrs Total- 15Hrs	<ul style="list-style-type: none"> Natural wood sample Engineered wood sample 	



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List of Tools, Machinery and Equipment

Sr. No.	Tool and Equipment	Quantity
1.	Safety glasses	25
2.	Safety gloves	25
3.	Face shields	25
4.	Coverall	25
5.	Earplugs/Earmuffs	25
6.	Steel-toe boots	25
7.	Face shields	25
8.	SOP/ Safety manual	25
9.	Fire extinguisher	05
10.	Respirator	05
11.	First aid box	02
12.	Emergency switches	05
13.	Nails	10 Kg
14.	Wrench	25
15.	Steel Foot	25



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Sr. No.	Tool and Equipment	Quantity
16.	Measuring Tape	25
17.	Inside/Outside Caliper	25
18.	Vernier Caliper	25
19.	Layout Square	25
20.	Angle Square	25
21.	Tri-square	25
22.	Combination Square	25
23.	Tool box	25
24.	Set Square	25
25.	Compass	25
26.	Drawing Table	25
27.	Foot scale	25
28.	Marking knife	25
29.	Panel gauge	25
30.	Mortise gauge	25
31.	Scratch awl	25



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Sr. No.	Tool and Equipment	Quantity
32.	Scriber marking tool	25
33.	Drawing board	25
34.	Rip saws	25
35.	Cross cut saws	25
36.	Back saw	25
37.	Dovetail saw	25
38.	Bow saw	25
39.	Key hole saw	25
40.	Bench Planes	25
41.	Block Planes	25
42.	Plane Alternatives	25
43.	Wood Drill Bits	25
44.	Auger bit	25
45.	Expansion bit	25
46.	Twist bit	25
47.	Spade bit	25



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Sr. No.	Tool and Equipment	Quantity
48.	Brad point bit	25
49.	Forstner bit	25
50.	Center bit	25
51.	Brace tool	25
52.	Spring Clamps	50
53.	C-Clamps	50
54.	Bar-Clamps	50
55.	Strap/web Clamps	50
56.	Screw Clamps	50
57.	Holdfast	50
58.	F- Clamps	50
59.	Woodwork bench vise	25
60.	Oil stone	05
61.	File Tool	25
62.	Scribing Tool	25
63.	Rasps/Files	25



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Sr. No.	Tool and Equipment	Quantity
64.	Spoke shave	25
65.	Sand paper	25
66.	Wood rasps	25
67.	Brace tool	25
68.	Portable Circular Saw	05
69.	Portable Miter Saw	05
70.	Portable Chainsaw	05
71.	Portable Reciprocating Saw	05
72.	Portable Jigsaw	05
73.	Portable router	05
74.	Hand electric Planer	05
75.	Rabbet Planer	05
76.	Hand drill machine	05
77.	Drill press	05
78.	Rotary Tool Kit	05
79.	Pneumatic screwdriver	25



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Sr. No.	Tool and Equipment	Quantity
80.	Pneumatic drill machine	25
81.	Pneumatic clamps	25
82.	Pedestal grinder	02
83.	Disk grinder	02
84.	Portable disk Sander	05
85.	Portable orbital Sander	05
86.	Buffing machine	05
87.	Natural wood sample	As per requirements
88.	Engineered wood sample	25 Sheets
89.	Wooden pieces.	100



**National Vocational Certificate Level 2 for Woodworks
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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, NAVTTC certified assessor
14.	Ms. Samia Amir Hamza	CBT Expert, GCU, Faisalabad



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Members of Curriculum Validation Committee

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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
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8	Engr. Liaqat Jamro	Represented of S-TEVTA, Director Academics
9	Dr Muhammad Naazir Khan	Representative (Chairman) PBTE, Lahore
10	Engr. Israr Ahmed	Representative KP BTE, Secretary



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Sr. No.	Name	Designation
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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