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# FURNITURE TECHNICIAN



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## TRAINER GUIDE

National Vocational Certificate Level 2

Version 1 - June, 2019



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## Introduction

Competence-based training helps to bridge the gap between what is taught in training and what tasks will be performed on the job. Training trainees to perform actual job functions helps to ensure that future front-line workers have the skills, knowledge and abilities required to perform their jobs properly, safely and effectively. In addition to competence-based training, assessment based on the performance of actual work competencies helps to ensure that:

- trainees are performing their work tasks as safely as possible
- performance gaps are recognized prior to serious incidents
- training can be implemented to improve competence.

There are significant benefits to competence-based training:

### 1. Cost effectiveness

Since training activities and assessments in a competence-based approach are goal-oriented, trainers focus on clearly defined areas of skills, knowledge and understanding that their own industry has defined in the competence standards. At the same time, trainees are more motivated to learn when they realize the benefits of improved performance.

### 2. Efficiency

The transfer gap between the training environment and working on the job is reduced substantially in a competence-based approach. This is because training and assessment are relevant to what needs to be done on the job. As a result, it takes less time for trainees to become competent in the required areas. This, in turn, contributes to improved efficiency where training and assessment are concerned.

### 3. Increased productivity

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach, which can also increase productivity.

### 4. Reduced risk

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

## 5. Increased customer satisfaction

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

## Lesson plans

This manual provides a series of lesson plans that will guide delivery of each module for the *(Develop Drawings of Furniture Products Manually)* qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plan for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why you chose to do it like this?'

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why they do something, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how a *(Develop Drawings of Furniture Products Manually)* acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainee where they do not meet those standards, and where they repeat it correction until they have internalized those standards.

## Demonstration of skill

Demonstration or modeling a skill is a powerful tool, which is used, in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material, which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.
- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY - describe each step as it is completed.

- j) Encourage the learners to move around and watch what you are doing from a number of different angles.
- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.
- l) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learners: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learners to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learners. A trainer may need to do repeated demonstrations of difficult or complex skills.

## Overview of the program

<b>Course:</b> <Furniture Technician>	<b>Total Course Duration:</b>
<b>Course Overview:</b>	
<p>The purpose of these qualifications is to set high professional standards for furniture industry.</p> <ul style="list-style-type: none"> <li>• Improve the professional competence of the trainees</li> <li>• Shift from informal and non-formal to formal technical and vocational training</li> <li>• Provide opportunities for recognition of skills attained through non-formal or informal pathways</li> <li>• Improve the quality and effectiveness of training and assessment for furniture sector</li> <li>• Enable the existing workforce to capacitate themselves in new technologies and methods</li> </ul>	

Module	Learning Unit	Duration
<b>Module 1: Develop drawings of furniture products manually</b> <b>Aim:</b> The aim of this module to be develop knowledge, skills and understanding to develop drawings of furniture products manually.	<b>LU1:</b> Develop component and size chart <b>LU2:</b> Prepare 2D Multiview drawing of Furniture <b>LU3:</b> Prepare 2D Multiview drawing of Furniture Components <b>LU4:</b>	140 hours

Module	Learning Unit	Duration
<p><b>Module 2: Prepare wooden components of the furniture</b></p> <p><b>Aim:</b> The aim of this module to be develop knowledge, skills and understanding of preparing wooden components of the furniture.</p>	<p><b>LU1:</b> Cut wood logs into Planks  <b>LU2:</b> Prepare templates for furniture components  <b>LU3:</b> Cut wood planks into furniture components  <b>LU4:</b> Cut board/ panels into furniture components  <b>LU5:</b> Plain surfaces of wooden components  <b>LU6:</b> Finalize the size of wooden components</p>	60 hours
<p><b>Module 3: Make Furniture Joints</b></p> <p><b>Aim:</b> The aim of this module to be develop knowledge, skills and understanding of making different types of joints being used for furniture manufacturing.</p>	<p><b>LU1:</b> Perform Cutting  <b>LU2:</b> Perform Planing  <b>LU3:</b> Prepare joints as per design / drawing  <b>LU4:</b> Assemble joints</p>	200 hours
<p><b>Module 4: Apply surface aesthetics</b></p> <p><b>Aim:</b> The aim of this module to be develop advanced knowledge, skills and understanding to apply surface aesthetics on the furniture.</p>	<p><b>LU1:</b> Perform profiling of components  <b>LU2:</b> Perform turning of components  <b>LU3:</b> Perform Carving Manually  <b>LU4:</b> Perform Marquetry/Parquetry Manually</p>	100 hours
<p><b>Module 5: Assemble Furniture Products</b></p> <p><b>Aim:</b> The aim of this module to be develop basic knowledge, skills and understanding required to assemble the furniture products.</p>	<p><b>LU1:</b> Pre-Assemble Furniture Products parts  <b>LU2:</b> Assemble Furniture Products parts  <b>LU3:</b>  <b>LU4:</b></p>	20 hours



Module	Learning Unit	Duration
<p><b>Module 6: Perform Finishing Operations on Furniture</b></p> <p><b>Aim:</b> The aim of this module to be develop advanced knowledge, skills and understanding required to perform finishing operations on furniture.</p>	<p><b>LU1:</b> Prepare the surfaces  <b>LU2:</b> Perform staining on surfaces  <b>LU3:</b> Perform sealing  <b>LU4:</b> Perform top finishing  <b>LU5:</b> Apply powder coating on metal furniture</p>	120 hours
<p><b>Module 7: Perform Upholstery</b></p> <p><b>Aim:</b> The aim of this module to develop advanced knowledge, skills and essential understanding of materials, techniques needed to perform upholstery on furniture.</p>	<p><b>LU1:</b> Apply Tapestry on the furniture  <b>LU2:</b> Apply Canning on the furniture  <b>LU3:</b>  <b>LU4:</b></p>	100 hours
<p><b>Module 8: Prepare Metal Furniture Products</b></p> <p><b>Aim:</b> The aim of this module to be develop advanced knowledge, skills and essential understanding required to prepare metal furniture products</p>	<p><b>LU1:</b> Cut required components from raw material  <b>LU2:</b> Prepare furniture components as per design  <b>LU3:</b> Assemble the furniture components using welding  <b>LU4:</b> Assemble the furniture components using Knockdown method</p>	110 hours
<p><b>Module 9: Handle Logistics</b></p> <p><b>Aim:</b> The aim of this module to develop basic knowledge, skills and understanding needed to handle the logistics at warehouse</p>	<p><b>LU1:</b> Pack the furniture  <b>LU2:</b> Load the furniture for delivery and transportation  <b>LU3:</b>  <b>LU4:</b></p>	20 hours

Module	Learning Unit	Duration
<p><b>Module 10: Develop drawings of furniture products using CAD/CAM</b></p> <p><b>Aim:</b> The aim of this module is to develop advanced knowledge, skills and understanding needed develop drawings of furniture products using CAD/CAM.</p>	<p><b>LU1:</b> Draw 2D Multiview drawing of Furniture Components on CAD</p> <p><b>LU2:</b> Develop 3D model of Furniture Components</p> <p><b>LU3:</b> Convert CAD drawing into CAM Code</p>	140 hours
<p><b>Module 11: Apply surface aesthetics using CNC Machines</b></p> <p><b>Aim:</b> The aim of this module to develop advanced knowledge, skills and understanding needed to apply surface aesthetics using CNC machines</p>	<p><b>LU1:</b> Perform Turning of components on CNC Turning Centre</p> <p><b>LU2:</b> Perform Carving on CNC Machining Centre</p> <p><b>LU3:</b> Perform Marquetry/Parquetry on CNC Laser Machine</p>	190 hours

FORMAT FOR LESSON PLAN			
Module: Develop drawings of furniture products manually			
Learning Unit> LU1, LU2, LU3			
Learning Outcomes>			
Methods	Key Notes	Media	Time
<b>Introduction</b>			
	To prepare an article or part drawing with full details have pivotal role in completion of the said job. It provides the pen picture in front of you to follow. It eases the process flow. To prepare drawings with hand you needs minimal of tools to perform detailed drawings.		20 min
<b>Main Body</b>			
	Importance of drawing. Kinds of drawings & various views Basic setup of drawing station including tools/equipment Working with drawing symbols, hatches etc. Working with 2D Multiview drawings Practicing the use of dimensioning and scaling Practicing the drawing cutting and folding methodology for storage in files or else.	Multimedia Slides White board Practice	40 min
<b>Conclusion</b>			
	The students acquire knowledge about the drawing basics, tools/equipment involved and the importance of the drawings. The students will practice various drawing views in different scales and apply dimensions, symbols and hatches to clarify the various hardware/material etc. Additionally students will also acquire the technique of cutting and folding the drawing sheets. The lessons are judged practically & have some written assessment.		10 min
<b>Assessment</b>			
	Narrate the importance of drawing Prepare the 2D Multiview drawing of an object/article. Complete with symbols, hatching & dimensions.		5 hrs
<b>Total time:</b>			

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Module-1

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<b>Module 1: 072200890 Prepare Furniture drawing manually</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1: Develop component and size chart	<p>This Session is about:</p> <p>P1. Record measurements of all components of the product</p> <p>P2. Prepare drawing measurements as per plotter/paper scale</p> <p>Begin this session with an illustrated presentation about the following</p> <ul style="list-style-type: none"> <li>• Introduction to drawing</li> <li>• Introduction to standard paper sizes</li> <li>• Introduction to paper scaling methods</li> <li>• Introduction to size chart</li> </ul> <p>Deliver a presentation to illustrate the learners about the following</p> <ul style="list-style-type: none"> <li>• Measurement Units &amp; its application</li> <li>• Formulas for conversion</li> <li>• Measuring tools</li> </ul> <p>Practice the scaling to accommodate various product sizes as per paper size.</p> <p>Practice size chart before drawing to cover all aspects of drawing. Utilize various furniture objects to prepare size charts in real including discussion.</p>	Classroom (Multimedia presentation) Workshop/Lab	<p>Basic Furniture Items (Blocks, Shapes)</p> <p>Assembled &amp; Unassembled furniture (Tables, Chairs, Racks)</p> <p>Measuring rules (Steel Rule)</p> <p>Steel tape</p>

**Module 1: 072200890 Prepare Furniture drawing manually**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<p>LU2: Prepare 2D Multiview drawing of furniture</p>	<p>This Session is about:</p> <p>P1. Prepare drawing workstation including all required tools and equipment</p> <p>P2. Draw 2D Multiview of the product as per required measurements</p> <p>P3. Apply Hatches on the drawing to identify component material and Upholstery</p> <p>P4. Draw symbols on the drawing to identify hardware</p> <p>P5. Mention all dimensions on the drawing</p> <p>Deliver a detailed presentation on the following topics covering all aspects step by step</p> <ul style="list-style-type: none"> <li>• Introduction &amp; use of drafting tools</li> <li>• Introduction to basic drawing shapes &amp; angles</li> <li>• Introduction to Develop Drawings of Furniture Products Manually strip &amp; drawing boundary</li> <li>• Introduction to the dimension</li> <li>• Introduction to drafting views</li> <li>• Introduction to symbols &amp; hatch patterns</li> </ul>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Drafting table Drawing board Drafting Machine Set Square T-square Pencils (2H, 3H, 2.5 H.B.,) Drawing Sheets Rubbers Pencil Sharpeners Geometry Box (Compass, Protector, Shape templates, Text template) French Curves Paper Tape (1/2" or 3/4")</p>

<b>Module 1: 072200890 Prepare Furniture drawing manually</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Practice the fixation of sheet on to the drafting table ensuring proper stretching. Draw boundary &amp; Develop Drawings of Furniture Products Manually bar as a standard for each &amp; every product drawing.</p> <p>Practice Multiview drawing after selecting the appropriate scale as per paper size. Put dimension, symbols, hatches etc to complete it.</p> <p>Practice to fold the completed drawing in A4 size to mount it in the drawing file.</p> <p>Mark each &amp; every drawing for line work, boundary, Develop Drawings of Furniture Products Manually bar, views, dimensions, scale, symbols, hatches and folding. Guide the learners about their mistakes to make it better in the next drawing.</p>		

**Module 1: 072200890 Prepare Furniture drawing manually**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<p>LU3: Prepare 2D Multiview drawing of furniture components</p>	<p>This session is about:</p> <p>P1. Draw 2D Multiview of all components of the product as per required measurements</p> <p>P2. Apply Hatches on the drawing to identify component material and Upholstery</p> <p>P3. Draw symbols on the drawing to identify hardware</p> <p>P4. Mention all dimensions on the drawing</p> <p>Deliver a detailed presentation on the various furniture products and components</p> <ul style="list-style-type: none"> <li>• Various kinds of chairs</li> <li>• Various kinds of stools</li> <li>• Various kinds of tables</li> <li>• Various kinds of beds</li> <li>• Detailed information on section views</li> </ul> <p>Practice the fixation of sheet on to the drafting table ensuring proper stretching. Draw boundary &amp; Develop Drawings of Furniture Products Manually bar as a standard for each &amp; every product drawing.</p>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Unassembled furniture components (Table, Stool, Beds, Chair, Racks)</p> <p>Drafting table Drawing board Drafting Machine Set Square T-square Pencils (2H, 3H, 2.5 H.B.,) Drawing Sheets Rubbers Pencil Sharpeners Geometry Box (Compass, Protector, Shape templates, Text template) French Curves Paper Tape (1/2" or 3/4")</p>



<b>Module 1: 072200890 Prepare Furniture drawing manually</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Practice Multiview drawing after selecting the appropriate scale as per paper size. Put dimension, symbols, hatches etc. to complete it .</p> <p>Mark each &amp; every drawing for line work, boundary, Develop Drawings of Furniture Products Manually bar, views, dimensions, scale, symbols, hatches. Guide the learners about their mistakes to make it better in the next drawing.</p>		

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Module-2

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<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1: Cut wood logs into planks	<p>This session is about:</p> <p>P1. Ensure alignment of log on machine trolley</p> <p>P2. Cut planks from log as per size requirements</p> <p>P3. Mark and record the sizes of planks</p> <p>P4. Stack the planks as per seasoning requirement</p> <p>Begin this session with an illustrated presentation about the following</p> <ul style="list-style-type: none"> <li>• Introduction to conversion</li> <li>• Methods of log conversion</li> <li>• Introduction, methods of seasoning</li> <li>• Importance &amp; methods of stacking</li> </ul> <p>Deliver a presentation to illustrate the learners about the following</p> <ul style="list-style-type: none"> <li>• Introduction, parts &amp; operation of log band saw/ wood mizer</li> <li>• Introduction to various kinds of blades</li> <li>• Introduction to saw blade sharpening machine</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	<p>Wooden Logs</p> <p>Log band saw or wood miser</p> <p>Log sawing blades</p> <p>Log band saw Blade sharpening machines</p> <p>Saw setting machine</p> <p>Butt welding machine</p> <p>Grinding machine</p> <p>Blade cutter</p>

<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>• Introduction to saw setting machine</li> <li>• Introduction &amp; operation of butt welding machine</li> <li>• Introduction of grinding machine</li> </ul> <p>Practice this by welding the blade covering all aspect from end cutting the length, heating, joining and grinding. Divide learners in a group of three to achieve good learning results.</p> <p>Put the same group to session 2 as sharpening and setting of the blade covering, placing, marking, angle setting, alignment and setting. Both sessions include detailed group discussion about the process</p>		

<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU2: Prepare templates for furniture components	<p>This session is about:</p> <p>P1. Paste the drawing on the template material (Ply Wood, Medium Density Fibre Board, Solid Wood etc.)</p> <p>P2. Cut the template as per drawing</p> <p>P3. Finish the edges of template to achieve accurate profile</p> <p>Deliver a detailed presentation on the following topics covering all aspects step by step</p> <ul style="list-style-type: none"> <li>• Introduction, importance &amp; significance of templates</li> <li>• Introduction to various steps/methods of template preparation</li> </ul> <p>Deliver a detailed presentation on the following to cover the following aspects</p> <ul style="list-style-type: none"> <li>• Introduction to hand tools for cutting/shaping <ul style="list-style-type: none"> <li>➤ (copying saw, fret saw)</li> <li>➤ (Half round file &amp; rasp)</li> </ul> </li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	Drawing sheet Paper cutter Template material (Plywood or M.D.F. or Wood) Tracing Pencil Spindle Molder Plunge router Jig saw Scroll Saw Copying Saw Fret Saw Half round file Half round rasps

<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>• Introduction to powered cutting/shaping machines               <ul style="list-style-type: none"> <li>➤ Jig saw</li> <li>➤ Scroll saw</li> <li>➤ Plunge router</li> <li>➤ Spindle moulder</li> <li>➤ Jigs/fixtures/ fences</li> </ul> </li> </ul> <p>Practice to make the template step by step involving the drawing, pasting, cutting, shaping and finalizing</p> <p>Practice to prepare the desired furniture component by the appropriate template. Each student at least prepare 3 different templates. Put that template to prepare multiple parts.</p>		

<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU3: Cut wood planks into furniture components	<p>This session is about:</p> <p>P1. Trace various components on the plank using drawings/template considering wood grains while maintaining cutting efficiency/average</p> <p>P2. Cut furniture components from planks as per tracing or using jigs/fixtures/fences</p> <p>Begin this session with a detailed presentation on the following machine of cutting</p> <ul style="list-style-type: none"> <li>• Introduction, parts &amp; operations of band saw</li> <li>• Introduction, parts &amp; operations of multiple rip saw</li> <li>• Introduction, parts &amp; operations of cross cut saw</li> <li>• Introduction, parts &amp; operations of table saw</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	Band Saw Wooden planks Scroll Saw Compass saw Multiple rip saw Cross cut saw Table saw

<b>Module 2: 072200891 Prepare wooden components of the furniture</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Prepare a presentation to clear the concept of the following</p> <ul style="list-style-type: none"> <li>• Application of jigs</li> <li>• Application of fixtures</li> <li>• Application of fences</li> <li>• Cutting efficiency</li> </ul> <p>Practice the cutting operations of planks using fence/ fixtures on various machines for straight cutting. Guide learner each and every step to complete the task as per size.</p> <p>Practice the cutting/shaping using jigs considering curved pieces as per drawing or size.</p>		



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**Module 3: 072200892 Make Furniture Joints**

<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1: Perform Cutting	<p>This session is about:</p> <p>P1. Practice the cross cutting</p> <p>P2. Practice the cross cutting in specific size/give size</p> <p>P3. Practice the ripping</p> <p>P4. Practice the ripping in size</p> <p>P5. Cut in curve as per mark if required as per drawing</p> <p>Begin this session with an illustrated presentations about safely using hand tools</p> <p>Hold a practical workshop to train the students about cutting across the grain using the appropriate saw. Guide them from stance, holding saw, Griping piece and finally cutting.</p> <p>Hold a practical workshop to train the students about cutting with the grain using the appropriate saw. Guide them from stance, holding saw, Griping piece and finally cutting.</p>	Classroom (Multimedia presentation) Workshop/Lab	Safety Chart Rip Saw Cross Cut Saw Marking gauge Bench vise Work Bench Woodworker's vise

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU2: Perform Plaining	<p>This session is about:</p> <p>P1. Plane the first face of the piece</p> <p>P2. Plane the edge at right angle</p> <p>P3. Mark the piece to plane in desired thickness</p> <p>P4. Plane the piece up to the marking to achieve desired size in thickness</p> <p>P5. Mark and plane the edge to achieve the desired width.</p> <p>Begin this session with an illustrated presentation about planning, importance, need of plaining.</p> <p>Hold a practical workshop to train the students about plaining the surface, edge of the piece. Guide them about achieving the true surface using the smooth or jack plane.</p> <p>Hold a practical work to train the students about Plaining in size whether in thickness or width. Guide them about marking the piece accordingly then to plane up to the mark.</p>	Classroom (Multimedia presentation) Workshop/Lab	Smooth plane Jack Plane Bench vise Work Bench Woodworker's vise Oil stone

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU3: Prepare joints as per design/ drawing	<p>This session is about:</p> <p>P1. Mark joint lines as per drawing</p> <p>P2. Perform cutting as per joint requirement</p> <p>P3. Perform Chiselling as per joint requirement</p> <p>P4. Perform boring as per joint requirement</p> <p>P5. Perform Rabbeting/ grooving as per joint requirement</p> <p>P6. Perform sizing of joint as per drawing</p> <p>Begin this session with an illustrated presentations about wood &amp; its related properties</p> <ul style="list-style-type: none"> <li>• Structure of the trees <ul style="list-style-type: none"> <li>➤ Vegetative Structure</li> <li>➤ Cross Section</li> </ul> </li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	<p>Wooden planks</p> <p>Hand Planes (Smooth Plane, Rabbet plane, Jack plane, Spoke shave, Compass plane, Block plane, Trying plane)</p> <p>Hand Saws (Rip Saw, Cross cut saw, back saw, mitre saw, compass saw, copying saw, fret saw, veneer saw, Saw vice)</p>

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>• Classification of trees</li> <li>• Defects &amp; abnormalities of the trees</li> <li>• Wood preservation &amp; methods of preservation</li> <li>• Kinds &amp; Characteristics of important woods               <ul style="list-style-type: none"> <li>➤ Soft Woods</li> <li>➤ Hard Woods</li> </ul> </li> </ul> <p>Prepare presentations to elaborate various kinds of hand tools to the learners.</p> <ul style="list-style-type: none"> <li>• Introduction to safety rules</li> <li>• Introduction, kinds &amp; uses of measuring tools</li> <li>• Introduction, kinds &amp; uses of squaring tools</li> <li>• Introduction, kinds &amp; uses of marking tools</li> <li>• Introduction, kinds &amp; uses of hand saws</li> <li>• Introduction, kinds &amp; uses of hand planes</li> <li>• Introduction, kinds &amp; uses of hand chisels</li> <li>• Introduction, kinds &amp; uses of clamps</li> <li>• Introduction, kinds &amp; uses of mallets &amp; hammers</li> <li>• Introduction, kinds &amp; uses of files and rasps</li> </ul>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Chisels (Bevel edge chisel, Mortise chisel)</p> <p>Marking Tools (Marking gauge, Mortise gauge, Marking awl, Utility knife)</p> <p>Squaring Tools (Try square, Framing square, Spirit level, Combination square)</p> <p>Nail punch</p> <p>Clamps (Bar clamp, F-clamp, C-clamp, Quick action clamp, edge clamp, wooden clamp)</p> <p>Carpenter's mallet</p> <p>Claw Hammer</p> <p>Oil stone</p> <p>Pincer</p> <p>Files &amp; Rasps (Half round file, triangular file, round file, Half round rasps)</p> <p>Mitre box</p> <p>K. D. fittings</p>

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>• Introduction, kinds &amp; uses of boring bits</li> <li>• Introduction, kinds &amp; uses of boring braces</li> <li>• Introduction, kinds &amp; uses of sharpening stones</li> <li>• Introduction to saw sharpening</li> <li>• Introduction to chisel &amp; plane iron sharpening</li> </ul> <p>Deliver an illustrated presentation on various kinds of metal cutting tools, machines and hardware</p> <p>Hold practical workshop to cut various size of pipes/sheets utilizing hand and machine cutting tools. Observe required safety during the practice session.</p> <p>Hold a practical workshop to sharp a saw in real time environment involving each &amp; every step including all tools/hardware required</p> <p>Hold a practical workshop to sharp a chisel &amp; plane iron blade in real time environment involving each &amp; every step including all tools/hardware required</p>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Saw vise Carpenter's mallet Claw Hammer Oil stone Pincer Files &amp; Rasps (Half round file, triangular file, round file, Half round rasps) Mitre box K. D. fittings</p>

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Hold a live working session for excessive practice on the basics of the technology in the following manner</p> <ul style="list-style-type: none"> <li>• Cross cutting practice</li> <li>• Ripping practice</li> <li>• Planning practice</li> <li>• Boring practice</li> <li>• Introduction to portable electric drill</li> <li>• Introduction to various kinds of chucks</li> <li>• Introduction to various kinds of bits</li> <li>• Introduction to various types of rivets</li> <li>• Introduction to rivet plier</li> </ul> <p>Deliver a detailed presentation on metal benders, techniques of bending.</p> <p>Hold a practice session to bore holes on various furniture components as per design.</p> <p>Hold a practical workshop to bend metal sheet to various direction &amp; angles. Apply rivets as per design</p>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Metal Pieces Welding plants (Arc, spot &amp; gas) Portable disc Grinder Grinding disc Welding rods (various types)</p>

<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Prepare illustrated presentation on various joints and practice in the workshop covering various steps to make it final product as per drawing. Before taking practical session make complete drawing (Multiview/isometric). Complete the whole in the following manner</p> <ul style="list-style-type: none"> <li>• Introduction to various joints</li> <li>• Drawing guidance to students</li> <li>• Taking Material</li> <li>• Planning to size</li> <li>• Cutting/chiselling/boring/rabbeting/grooving as per requirement</li> <li>• Fixing Parts</li> <li>• Final Sizing</li> <li>• Joints to make <ul style="list-style-type: none"> <li>➤ Lap Joints</li> <li>➤ Mortise &amp; Tenon joints</li> <li>➤ Dowel Joint</li> <li>➤ Domino Joint</li> <li>➤ Pin joint</li> <li>➤ Dovetail joint</li> <li>➤ Biscuit joint</li> <li>➤ Tongue &amp; groove joint</li> <li>➤ Mitre joint</li> <li>➤ Nail joint</li> <li>➤ Screw joint</li> <li>➤ Cross bar joint</li> </ul> </li> </ul>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Wood Saws Planes Woodworking benches Woodworking vises Wood chisels Joint samples</p>



<b>Module 3: 072200892 Make Furniture Joints</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU4: Assemble joints	<p>This session is about:</p> <p>P1. Join components to prepare furniture parts as per design</p> <p>P2. Apply reinforcements (Spline, Pins, Nails, Dowels etc.) as per joint requirement</p> <p>Begin this session with an illustrated presentations on the following topics</p> <ul style="list-style-type: none"> <li>• Introduction, kinds &amp; uses of screwdrivers</li> <li>• Introduction &amp; uses of pneumatics <ul style="list-style-type: none"> <li>➤ Pneumatic nailer</li> <li>➤ Pneumatic U-Pin stapler</li> <li>➤ Pneumatic screwdriver</li> </ul> </li> <li>• Introduction to various joint reinforcements</li> <li>• Introduction, kinds &amp; use of adhesives</li> </ul> <p>Hold practice session for the application of various glues completing all the requirements.</p> <p>Hold a practice session to fix/assemble various product parts together and then apply the desired reinforcement as per drawing.</p>	Classroom (Multimedia presentation) Workshop/Lab	<p>Nails (Different Sizes)</p> <p>Wooden/Steel Screws (Different Sizes)</p> <p>Wooden Dowels &amp; Dominos</p> <p>Corrugated fasteners &amp; splines</p> <p>Multi Boring Machine</p> <p>Adhesives (White glue, Hot melt glue, urea formaldehyde, Phenol Formaldehyde, Contact cement)</p> <p>Screws Drivers (Standard screwdriver, Ratchet screwdriver, Philips head screwdriver)</p> <p>Pneumatic Nailer &amp; Screwdriver</p>

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<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU1: Perform Profiling of Components	<p>This session is about:</p> <p>P1. Equip machine with required tools (cutters, blades, profiles, bits, Jigs, Fixtures etc.)</p> <p>P2. Perform profiling of straight components using required processes (Grooving, Rabbeting, Tenoning, Mortising, Shaping etc.) as per drawing</p> <p>P3. Perform profiling of curved components using required processes (Grooving, Rabbeting, Tenoning, Mortising, Shaping etc.) as per drawing</p> <p>Begin this session with an illustrated presentation about the following machines</p> <ul style="list-style-type: none"> <li>• Introduction, parts &amp; operations of Plunge router</li> <li>• Introduction, parts &amp; operations of Spindle Moulder</li> <li>• Introduction, parts &amp; operations of Double End Tenoner</li> <li>• Introduction, parts &amp; operations of 4-side plainer/ moulder</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	Wood plank/Pieces Board pieces Cutters (various profile cutter Sets, grooving cutters etc.) Bits (Straight, profile, V-grooving etc.) Solid profiles Plunge router Spindle Molder Double End tenoner Ring attachment 4-Side Planner/Moulder

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Deliver a presentation to illustrate the learners about the following</p> <ul style="list-style-type: none"> <li>• Introduction to various kinds of profiles</li> <li>• Introduction to various kinds of profiling bits</li> <li>• Introduction to various jigs/fixtures</li> </ul> <p>Practice this by shaping wood on various machines utilizing various profiles, bits and settings of machines. Give learners adequate time to practice this on machines. Guide learner step by step each and every step involved in blade/bit/profile installation, setting, guides and running the machine.</p>		

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU2: Perform turning of components	<p>This session is about:</p> <p>P1. Equip machine with required tools (Chucks, chisels, gouges, Fixtures etc.)</p> <p>P2. Perform Cylinder turning of components to achieve required finish as per drawing</p> <p>P3. Perform face plate turning of components to achieve required finish as per drawing</p> <p>P4. Perform buffing of the components as per product requirement</p> <p>Deliver a detailed presentation on the following topics covering all aspects step by step</p> <ul style="list-style-type: none"> <li>• Introduction, parts &amp; operations of wood turning lathe</li> <li>• Introduction to chisels &amp; chucks of wood turning lathe</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	Wood blocks Wood turning lathe Turning chucks Turning chisels & gouges Sand papers Caliper's (Inside & Outside)

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Practice to turn the pieces on the wood turning lathe. Guide the learner from marking the center, fixing on machine, rough turning, parting, design completion, finishing, buffing. Involve the learners in each &amp; every step separately, so they got step wise information about turning.</p> <p>Practice to face plate turning involving the steps of center marking, fixing on face place, design processing, finishing and buffing. Guide student s about various products been made through this.</p> <p>Practice the learner's for tools sharpening during the above mentioned work as and when needed. Making sure the correct angle of sharpness.</p>		

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU3: Perform Carving Manually	<p>This session is about:</p> <p>P1.Align the work piece on workstation</p> <p>P2.Paste the drawing paper on work pieces as per process requirement</p> <p>P3.Mark the carving design on work piece using template as per process requirement</p> <p>P4.Carve the design using required tools (Chisel, Gouges etc.) as per drawing or marking</p> <p>P5.Perform sanding on carved design to achieve required smoothness</p> <p>Begin this session with a detailed presentation on the following machine of cutting</p> <ul style="list-style-type: none"> <li>• Introduction, parts &amp; kinds of clamps/ holding devices involved in carving</li> <li>• Introduction, parts &amp; operations of carving chisels</li> <li>• Introduction, importance and kinds of carving</li> <li>• Introduction, parts &amp; operations of table saw</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	<p>Wood planks</p> <p>Board pieces (M.D.F. or H.D.F.)</p> <p>Carving Chisel Set</p> <p>Carver's vice</p> <p>Hold fast</p> <p>Pencils</p> <p>Drawing Sheets</p> <p>Sanding papers</p> <p>Portable Electric drill</p> <p>Drill Press</p> <p>Boring bit (Various sizes &amp; types)</p>

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Prepare a presentation to clear the concept of the following</p> <ul style="list-style-type: none"> <li>• Application of boring machines</li> <li>• Application of fixtures</li> <li>• Application of basic sanding</li> <li>• Application of various designs</li> </ul> <p>Practice the technique of carving involving various steps i.e., pasting the drawing, boring, carved the parts as per design requirement. Guide the learners about the use of each &amp; every chisel. Practice this session for each kind of carving. Guide learner each and every step to complete the task as per size.</p>		



<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
LU4: Perform Marquetry/Parquetry Manually	<p>This session is about:</p> <p>P1.Paste Marquetry/ Parquetry drawing on Veneer sheets</p> <p>P2.Align multiple veneer sheets as per tool (Scroll Saw, Copying Saw, Fret Saw) capacity</p> <p>P3.Bore blade entry holes on the Veneer sheets as per process requirement</p> <p>P4.Cut veneer sheets as per Marquetry/ Parquetry drawing</p> <p>P5.Paste Marquetry/ Parquetry Veneer Layer on required board as per product design</p> <p>P6.Fill gaps of cutting faults to achieve required Marquetry/ Parquetry finish</p> <p>Begin this session with a detailed presentation on the following machine of cutting</p> <ul style="list-style-type: none"> <li>• Introduction, sources, veneer obtaining methods &amp; kinds of veneer</li> </ul>	Classroom (Multimedia presentation) Workshop/Lab	Veneer lengths Veneer samples Board pieces Scroll saw Veneer splicer Veneer cutting machine Glue spreader Hydraulic hot press Veneer tape roll Thread roll Urea formaldehyde glue Hot Melt Glue Glue Gun

<b>Module 4: 072200894 Apply Surface Aesthetics</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>• Introduction to various veneer and geometrical patterns</li> <li>• Introduction, parts &amp; operations of veneer cutting tools &amp; machines</li> <li>• Introduction, parts &amp; operations of veneer gluing, pressing machines</li> </ul> <p>Prepare a presentation to clear the concept of the following</p> <ul style="list-style-type: none"> <li>• Application of glues</li> <li>• Application of veneer tape/thread</li> </ul> <p>Practice this session from veneer cutting to size or as per pattern design. Guide students about various designs. Assign each student a unique design to complete as a task from start to finish step by step. Record the marks.</p> <p>Practice the learners for various geometrical patterns from cutting to final finishing.</p>		

# FURNITURE TECHNICIAN



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<b>Module 5: 072200893 Assemble Furniture Products</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
<b>LU1: Pre-Assemble Furniture Products parts</b>	<p>This session is about:</p> <p>P1. Prepare surface of components by Sanding before pre-assembly</p> <p>P2. Assemble the components to prepare structures of furniture parts maintaining required alignment and angles</p> <p>P3. Polish assembled structures to achieve required semi-finish</p> <p>Begin this session with an illustrated presentation on types of sand papers used for various sand requirements</p> <p>Show various grits used for sanding &amp; their effects to earners</p> <p>Deliver an illustrated presentation on various kinds of clamps to assemble the furniture parts</p> <p>Explain them about various furniture assembling techniques.</p> <p>Deliver a detailed presentation on the following topics covering all aspects step by step</p> <ul style="list-style-type: none"> <li>• General Machines for Sanding <ul style="list-style-type: none"> <li>➤ Universal Belt Sanding</li> </ul> </li> </ul>	<p>Classroom (Multimedia presentation) Workshop/Lab</p>	<p>Presentation chart for kinds of sand papers</p> <p>Universal belt sander Edge Sander Drum Sander Sanding belt Portable belt sander Orbital sander</p>

<b>Module 5: 072200893 Assemble Furniture Products</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<ul style="list-style-type: none"> <li>➤ Drum Sanding</li> <li>➤ Edge Sander</li> <li>• Portable Sanding Machines               <ul style="list-style-type: none"> <li>➤ Portable Belt Sander</li> <li>➤ Orbital Sander</li> </ul> </li> <li>• Understanding of assemble drawings</li> <li>• Carcass Press</li> </ul> <p>Learner activity</p> <p>Demonstrate the tools, materials and equipment needed for pre-assembling furniture parts. Enable learners to practice using the appropriate tools and equipment for pre-assembling furniture parts in a controlled environment.</p> <p>Hold practical workshops to sand and assemble various parts of chair/sofa/table etc elaborating each and every step. Give learner chance to ask questions.</p>		
<b>LU2:</b> Assemble Furniture Products parts	<p>This session is about:</p> <p>P1. Fix pre-assembled parts into final product maintaining required alignment and angles</p> <p>P2. Attach hardware and accessories as per</p>	Classroom (Multimedia presentation) Workshop/Lab	Charts/multimedia presentation for identifying the furniture Hardware items Brackets Dowels Glue

<b>Module 5: 072200893 Assemble Furniture Products</b>			
<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>product design</p> <p>Begin this session with an illustrated presentation on types of hardware used to complete various furniture tasks especially including the following.</p> <ul style="list-style-type: none"> <li>• Brackets</li> <li>• Dowels</li> <li>• Drawer Railing</li> <li>• Handles</li> <li>• Locks</li> <li>• Casters</li> </ul> <p>Deliver a detailed lecture on glue/adhesive its kinds, properties and probable uses.</p> <p>Hold a workshop to assemble complete furniture object from gluing, doweling, assembling &amp; hardware fixing. Learners are encouraged to ask questions through group discussion.</p>		<p>Drawer railings</p> <p>Handles</p> <p>Locks</p> <p>Casters</p>

## Frequently Asked Questions

<p>1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?</p>	<p>Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.</p>
<p>2. What is the passing criterion for CBT certificate?</p>	<p>You shall be required to be declared “Competent” in the summative assessment to attain the certificate.</p>
<p>3. What are the entry requirements for this course?</p>	<p>The entry requirement for this course is 8th Grade or equivalent.</p>
<p>4. How can I progress in my educational career after attaining this certificate?</p>	<p>You shall be eligible to take admission in the National Vocational Certificate Level-3 in Furniture Technician (Finisher, Upholster, Metal Fabricator). You shall be able to progress further to National Vocational Certificate Level-4 in Furniture Technician (Furniture Designer); and take admission in a level-5, DAE or equivalent course. In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).</p>

<p>5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?</p>	<p>You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.</p>
<p>6. What is the entry requirement for Recognition of Prior Learning program (RPL)?</p>	<p>There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.</p>
<p>7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?</p>	<p>There are no age restrictions to enter this course or take up the Recognition of Prior Learning program</p>
<p>8. What is the duration of this course?</p>	<p>The duration of the course work is 1,510 hrs. (approx. 11 months)</p>
<p>9. What are the class timings?</p>	<p>The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.</p>
<p>10. What is equivalence of this certificate with other qualifications?</p>	<p>As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The criteria for equivalence and equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).</p>
<p>11. What is the importance</p>	<p>This certificate is based on the nationally</p>



of this certificate in National and International job market?	standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTTC website.
12.Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the Furniture making companies in the functions of cutting, assembly and finishing of furniture articles.
13.What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.
14.Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15.Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.
16.How much salary can I get on job after	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500.

attaining this certificate?	This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount.
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
18. What is the teaching language of this course?	The teaching language of this course is Urdu and English.
19. Is it possible to switch to other certificate programs during the course?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
20. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
21. Does this certificate enable me to work as freelancer?	You can start your small business of stitching Furniture making, upholstery or finishing or other products. You may need additional skills on entrepreneurship to support your initiative.

## Short Question & Answers (Module 1)

<b>What is a drawing?</b>	Graphical representation of an object is known as drawing. It shows various aspects of an object whether to view or to process it to manufacturing.
<b>How many kinds of drawing?</b>	Drawings are of various types <ol style="list-style-type: none"><li>1. Free Hand Sketching</li><li>2. Multiview drawing</li><li>3. Pictorial Sketching</li><li>4. Section drawing</li></ol>
<b>What is hatching meant for?</b>	Hatching is very important as it is a graphical representation of material used in an object. Various materials are used in a certain object have different hatch patterns.
<b>Why dimensions are used?</b>	A dimension is a measurement that accurately shows the size of an object or its parts. Dimensions also show, how the parts are located and go together.
<b>Enlist the important drafting materials</b>	Following are the important materials which is used or support drawings.. <ol style="list-style-type: none"><li>1. Drawing Boards</li><li>2. Drafting Tables</li><li>3. Set squares</li><li>4. T-Square</li><li>5. Drafting Machines</li><li>6. Drafting pencils</li></ol>

	<ul style="list-style-type: none"><li>7. Erasers</li><li>8. Triangles</li><li>9. Compasses</li><li>10. Curves</li></ul>
<b>Why scales are important?</b>	Scale helps to make drawing of an object as per drawing paper size available. With the help of this we can scale up or scale down the drawing as per appropriate paper size available.

## Short Question & Answers (Module 2)

<p><b>What is meant by Conversion?</b></p>	<p>Converting logs into planks is known as conversion. Conversion is first step before seasoning. Whole logs cannot be handled.</p>
<p><b>Narrate the kinds of conversion</b></p>	<ol style="list-style-type: none"> <li>1. Slab sawing</li> <li>2. Quarter sawing</li> </ol>
<p><b>What is seasoning, why it is important?</b></p>	<p>Drying of wood is called seasoning. Wood is hygroscopic in nature due to which it of high importance that wood should be properly dried before work on to avoid warping at the later stage. Without seasoning it is quite hard to control the wood warping.</p>
<p><b>Is it possible to use wood without seasoning?</b></p>	<p>Yes it is possible to use the wood but face difficulties in machining, finishing and finally result in the warping of the wood.</p>
<p><b>Enlist the important benefits of seasoning</b></p>	<p>Following are the important benefits achieved as a result of seasoning.</p> <ol style="list-style-type: none"> <li>11.Reduced weight</li> <li>12.Easy transport</li> <li>13.Easy handling</li> <li>14.Reduced warping</li> <li>15.Enhanced machining</li> <li>16.Enhanced workability</li> <li>17.Enhanced screwing</li> <li>18.Enhanced nailing</li> <li>19.Enhanced strength properties</li> </ol>

	<p>20. Increased fungal resistance  21. Enhanced insect attack resistance  22. Increased finishing</p>
<p><b>For what purpose Multiple Rip Saw is used?</b></p>	<p>As the name indicates it is specifically used for ripping more than one piece in a single pass. It is used for heavy production without any hassle. A chain drive feeds the planks up to the blades while anti kick back fingers helps to eliminate the chances of kick back.</p>

### Short Question & Answers (Module 3)

<p><b>What are the main saws used for cutting?</b></p>	<p>Generally two main saws are used.</p> <ol style="list-style-type: none"> <li>1. Rip Saw</li> <li>2. Cross cut Saw</li> </ol>
<p><b>What planes are used mostly for planing?</b></p>	<ol style="list-style-type: none"> <li>3. Smooth Plane</li> <li>4. Jack plane</li> <li>5. Compass plane</li> </ol>
<p><b>Narrate the specialized planes used in the technology?</b></p>	<p>Following special planes are used in the technology</p> <ol style="list-style-type: none"> <li>1. Compass plane</li> <li>2. Rabbet plane</li> <li>3. Spoke shave plane</li> </ol>

	<ul style="list-style-type: none"> <li>4. Router plane</li> <li>5. Combination plane</li> </ul>
<b>How many joints being used in the technology?</b>	In general normally 10-20 joints are being used. But on the whole more than 100 joints are there to used where appropriate.
<b>What are the basic kinds of joints</b>	<p>Following are the important benefits achieved as a result of seasoning.</p> <ul style="list-style-type: none"> <li>23. Lap Joints</li> <li>24. Mortise &amp; Tenon Joint</li> <li>25. Pin Joint</li> <li>26. Dowel Joint</li> <li>27. Dovetail Joints</li> <li>28. Mitre Joints</li> <li>29. Tongue &amp; Groove Joint</li> <li>30. Cross Bar Joint</li> <li>31. Biscuit Joint</li> </ul>
<b>Is it possible to make detachable furniture?</b>	Yes it is possible to have detachable furniture by utilizing the knock down fittings of various kinds. Some of it is of basic kinds and others are of advance level.

## Short Question & Answers (Module 4)

<p><b>What do you know about carving?</b></p>	<p>Carving is a technique used to beautify the object under consideration by making floral pattern, geometrical figures of various styles</p>
<p><b>How many basic kinds of chisels being used for carving?</b></p>	<p>In general six basic kinds of chisels are used to carve. Within these six kinds various sizes are used accordingly.</p>
<p><b>For what purpose 4-side planer/molder is being used.</b></p>	<p>4-side planer is used to plane the wood on all of its four sides in one pass. Additionally molder functions are used to add various profiles, grooves or rabbet in a single pass. It greatly enhances the productivity saving lot of time and fatigue. As doing it manually requires lot of skills, attention and devotion to do it perfect without having any injury.</p>
<p><b>How many profiles are available to work with?</b></p>	<p>Countless profiles are available to work with. Additionally still lot of profiles is also adding to the list as well.</p>
<p><b>What functions a wood turning lathe can perform?</b></p>	<p>Wood Turning Lathe is used to turn the wood. Following two main functions are being performed on it.</p> <ol style="list-style-type: none"> <li>1. Cylinder turning</li> <li>2. Faceplate turning</li> </ol>
<p><b>Narrate the difference between</b></p>	<p>Marquetry is working with veneer using</p>



<b>Marquetry and Parquetry?</b>	floral or related patterns. Parquetry specifically related to working with veneer having geometrical patterns.
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### Short Question & Answers (Module 5)

<b>What is meant by assembling?</b>	It is a term used to bind or join or fix a product or part of the product to a certain design. It is assisted by gluing and clamping of some sort. As a result various parts of the product fixes together to form certain object and retain their shape.
<b>Why is assembling important?</b>	A job is said to be completed when all part of the product are fixed into each other as per design. Without assembly the final shape of the product cannot be viewed.
<b>What type of materials are being used for assembly?</b>	<ol style="list-style-type: none"> <li>1. Clamps at low level</li> <li>2. Glues</li> <li>3. Carcass press at high level</li> <li>4. Nails and screws</li> </ol>
<b>Is angle important in assembly?</b>	Angle is of extreme importance in assembly. Slight variation in angle may result in great difficulty when doors/windows/drawer being fixed. Gap filling becomes extremely difficult if angle is not there.
<b>Is assembly demand a high skill?</b>	It demands a medium skill, but keeps it in mind the use of clamps to fix the product

	and angle manually or on carcass press. Anybody can attain that with some practice.
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## Test Yourself (Multiple Choice Questions)

### MODULE 1

**Question 1** The pencil mostly used for light work is

- A 2H
- B 3H
- C 6H
- D All of the above

**Question 2** The size of the A4 paper is

- A 297 x 210
- B 420 x 297
- C 594 x 420
- D None of the above

**Question 3** While scaling, the dimensions remains

- A Reduced
- B Enhanced
- C Unchanged
- D None of the above

**Question 4** In a drawing, hatches represents the

- A Symbols
- B Material
- C Finishes
- D None of the above

**Question 5** The minimum distance of dimension lines from the drawing is

- A 9 mm
- B 8 mm
- C 7 m
- D None of the Above

## MODULE 2

**Question 1** The saw used to cut with the grain is

- A Cross Cut Saw
- B Compass Saw
- C Rip Saw
- D None of the above

**Question 2** The sharpening angle of the plane iron is

A  $30^{\circ}$

B  $45^{\circ}$

C  $60^{\circ}$

D None of the above

**Question 3** The most important joint considered in carpentry is

A Dowel Joint

B Dovetail Joint

C Mortise & Tenon Joint

D None of the above

**Question 4** The most advanced knock down joint fitting is

- A Cam fittings
- B Domino Fittings
- C Plate Fittings
- D None of the above

**Question 5** The best joint for drawers is

- A Dowel Joint
- B Dovetail Joint
- C Mortise & Tenon Joint
- D Screw Joint

### MODULE 3

**Question 1** The process of making planks from log is called as

- A Transfer
- B Conversion
- C Inversion
- D None of the above

**Question 2** The commercial method used for seasoning of wood is

- A Air Seasoning
- B Kiln Seasoning
- C Chemical Seasoning
- D None of the above



**Question 3** The machine used to support ripping in production is

- A Band Saw
- B Table Saw
- C Multiple Rip Saw
- D None of the above

**Question 4** Curve cutting/template cutting is performed on

- A Table Saw
- B Band Saw
- C Cross Cut Saw
- D None of the above

**Question 5** The most versatile machine according to use is

- A Spindle Moulder
- B Plunge Router
- C Scroll Saw
- D None of the above

#### **MODULE 4**

**Question 1** Roughing out is performed by

- A Chisels
- B Gouges
- C Blades
- D None of the above

**Question 2** Basic turning chisels are of

- A 8 types
- B 6 types
- C 5 types
- D None of the above

**Question 3** Marquetry is an art of work on

- A Plywood
- B Veneer
- C Wood
- D All of the above

**Question 4** 4-jaw chuck is meant for

- A Light Duty work
- B Medium Duty work
- C Heavy Duty work
- D None of the above

**Question 5** Scroll saw can support

- A Marquetry Work
- B Parquetry work
- C Veneer Inlay
- D All of the above

## MODULE 5

**Question 1** Fine sanding is performed by

- A Orbital Sander
- B Belt Sander
- C Edge Sander
- D None of the above

**Question 2** Bar clamp is meant for (use in question form)

- A Light Duty Work
- B Medium Duty work
- C Heavy Duty work
- D None of the above

**Question 3** Carcass press is used for

- A Parts Assembly
- B Product Assembly
- C Side Assembly
- D All of the above

**Question 4** With the increasing trend in grit no. the sand paper would be

- A Fine
- B Coarse
- C Medium
- D None of the above

**Question 5** Application of casters support the product to

- A Move around
- B Portability
- C Easy handling
- D None of the above

## Answers

### Module 1

Q1. B

Q2. A

Q3. C

Q4. B

Q5. C

### Module 2

Q1. C

Q2. A

Q3. C

Q4. B

Q5. B

### Module 3

Q1. B

Q2. B



Q3. C

Q4. B

Q5. B

#### Module 4

Q1. B

Q2. B

Q3. B

Q4. C

Q5. D

#### Module 5

Q1. A

Q2. C

Q3. B

Q4. A

Q5. A


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