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FURNITURE TECHNICIAN



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LEARNER GUIDE

National Vocational Certificate Level 1

Version 1 - June, 2019



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Introduction

Welcome to your Learner's Guide for the Furniture Technician Programme. It will help you to complete the programme and to go on to complete further study or go straight into employment.

The Furniture Technician programme is to engage young people with a programme of development that will provide them with the knowledge, skills and understanding to start this career in Pakistan. The programme has been developed to address specific issues, such as the national, regional and local cultures, the manpower availability within the country, and meeting and exceeding the needs and expectations of their customers.

The main elements of your learner's guide are:

- **Introduction:**
 - This includes a brief description of your guide and guidelines for you to use it effectively
- **Modules:**
 - The modules form the sections in your learner's guide
- **Learning Units:**
 - Learning Units are the main sections within each module
- **Learning outcomes:**
 - Learning outcomes of each learning units are taken from the curriculum document
- **Learning Elements:**
 - This is the main content of your learner's guide with detail of the knowledge and skills (practical activities, projects, assignments, practices etc.) you will require to achieve learning outcomes stated in the curriculum
 - This section will include examples, photographs and illustrations relating to each learning outcome
- **Summary of modules:**
 - This contains the summary of the modules that make up your learner's guide
- **Frequently asked questions:**
 - These have been added to provide further explanation and clarity on some of the difficult concepts and areas. This further helps you in preparing for your assessment.
- **Multiple choice questions for self-test:**
 - These are provided as an exercise at the end of your learner's guide to help you in preparing for your assessment.

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Module-1
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Module 1: 072200890 Develop drawings of furniture products manually

Objective of the module: The aim of this module to be develop knowledge, skills and understanding to develop drawings of furniture products manually.

Duration 140 hours **Theory:** 28 hours **Practical:** 112 hours

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1: Develop component and size chart	The student will be able to: Record measurements of all components of the product Prepare drawing measurements as per plotter/paper scale	Understand the various measurement system and units. Conversion of measurements to suit various dimensions. Identify and use the measurement tools. Knowledge of various paper sizes for drawing and to scale accordingly Concept of area, volume and average	Basic Furniture Items (Blocks, Shapes) Assembled & Unassembled furniture (Tables, Chairs, Racks) Measuring rules (Steel Rule Steel tape
LU2: Prepare 2D Multiview drawing of furniture	The student will be able to: Prepare drawing workstation including all required tools and equipment Draw 2D Multiview of the product as per required measurements Apply Hatches on the drawing to identify component material and Upholstery Draw symbols on the drawing to identify hardware Mention all dimensions on the drawing	Clear the concept about various drafting tools and their use Basic understanding of the drawing shapes, angles and dimensions Understanding and application of various drawing views Apply the symbols, hatch patterns on to the drawing to make clarity about the hardware and material being used in the product. Have clear understanding about the drawing final cutting lines, folding	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)

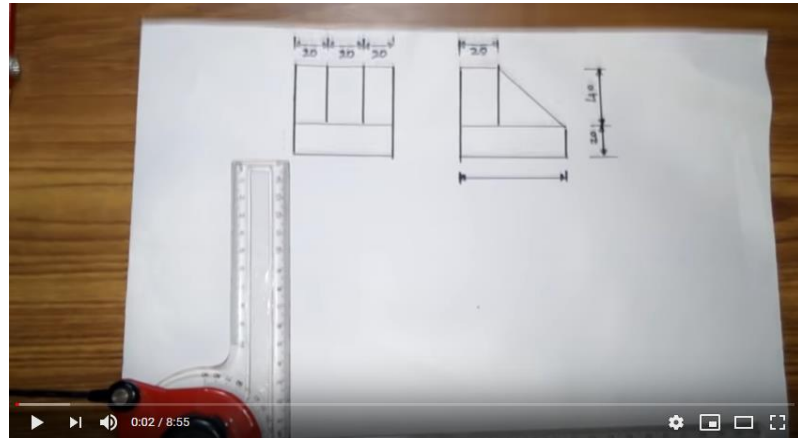
Learning Unit	Learning Outcomes	Learning Elements	Materials Required
		parameters and storage procedure	French Curves Paper Tape (1/2" or 3/4")
LU3: Prepare 2D Multiview drawing of furniture components	The student will be able to: Draw 2D Multiview of all components of the product as per required measurements Apply Hatches on the drawing to identify component material and Upholstery Draw symbols on the drawing to identify hardware Mention all dimensions on the drawing	Identify various furniture product including the component Understanding and application of various drawing views Apply the symbols, hatch patterns on to the drawing to make clarity about the hardware and material being used in the product/component Clear understanding of the various dimension styles, putting dimensions on to the drawing.	Unassembled furniture components (Table, Chair, Racks)

Examples and illustrations



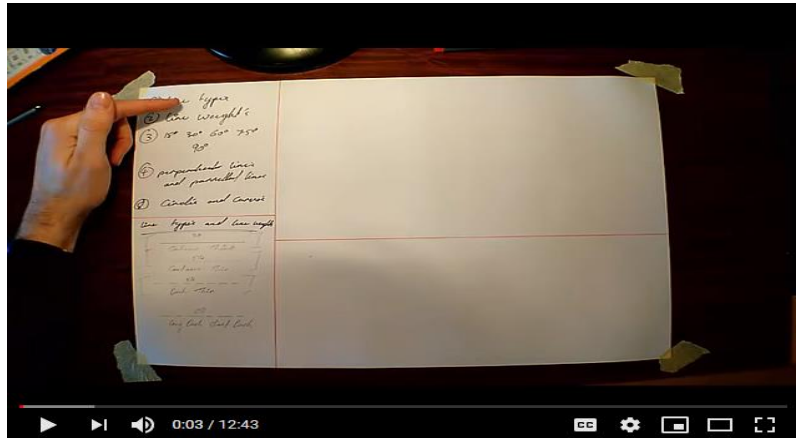
Drafting Tips - Basic Drafting Techniques - Penn State University

<https://www.youtube.com/watch?v=Axi3essEW1Y>



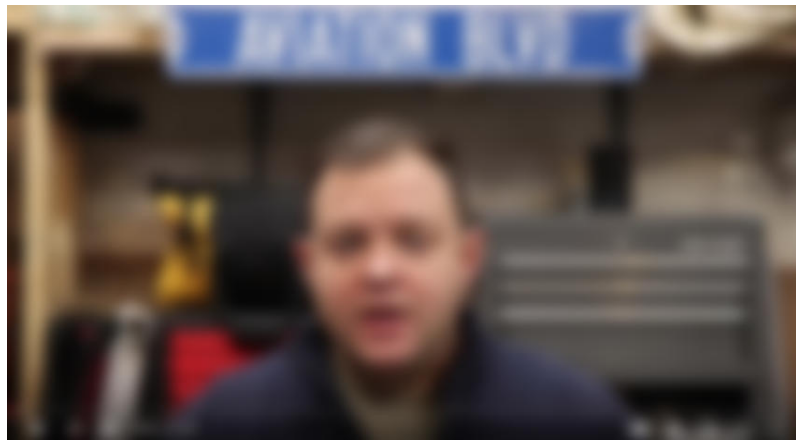
Isometric view

<https://www.youtube.com/watch?v=c6DygJMwos8>



Manual drafting basics

<https://www.youtube.com/watch?v=1zN-UtozjGc>



Drafting Basics - Episode 1: Manual Drafting Theory, Tools & Instruments

<https://www.youtube.com/watch?v=Xh3gtJRwXPM>



Required Tools for Manual Drafting

<https://www.youtube.com/watch?v=ARvVaLqE9r0>

12 FREE WAYS TO LEARN DESIGN



LEARN YOUR DESIGN HISTORY

Understand the cultural shifts that have led to current trends.



UNDERSTAND THE BASIC TERMS

Familiarize yourself with the industry lingo.



NAVIGATE DESIGN BLOGS

Pick out blogs that speak to you and your design aesthetic.



FOLLOW DESIGNERS ON SOCIAL MEDIA

Many designers post great articles, artwork and inspiring advice.



RESEARCH THE GREATS

Understand the perspectives of great designers of the past.



STUDY OTHER DESIGNERS' WORK

Analyze why some designers are more successful than others.



USE FREE ADOBE ALTERNATIVES

Until you can afford the pro tools, try the free alternatives available.



TAKE FREE ONLINE CLASSES

Save yourself some cash by learning to code and design online.



WATCH GREAT VIDEO TUTORIALS

Seek out the best design video tutorials & learn at your own pace.



WATCH TED TALKS ON DESIGN

TED Talks are like free mini-master classes. Enjoy and learn.



RECREATE YOUR FAVORITE WORK

Take a look at some famous design pieces and recreate them.



MAKE SOMETHING NEW

Fun projects can take you out of your design comfort zone.

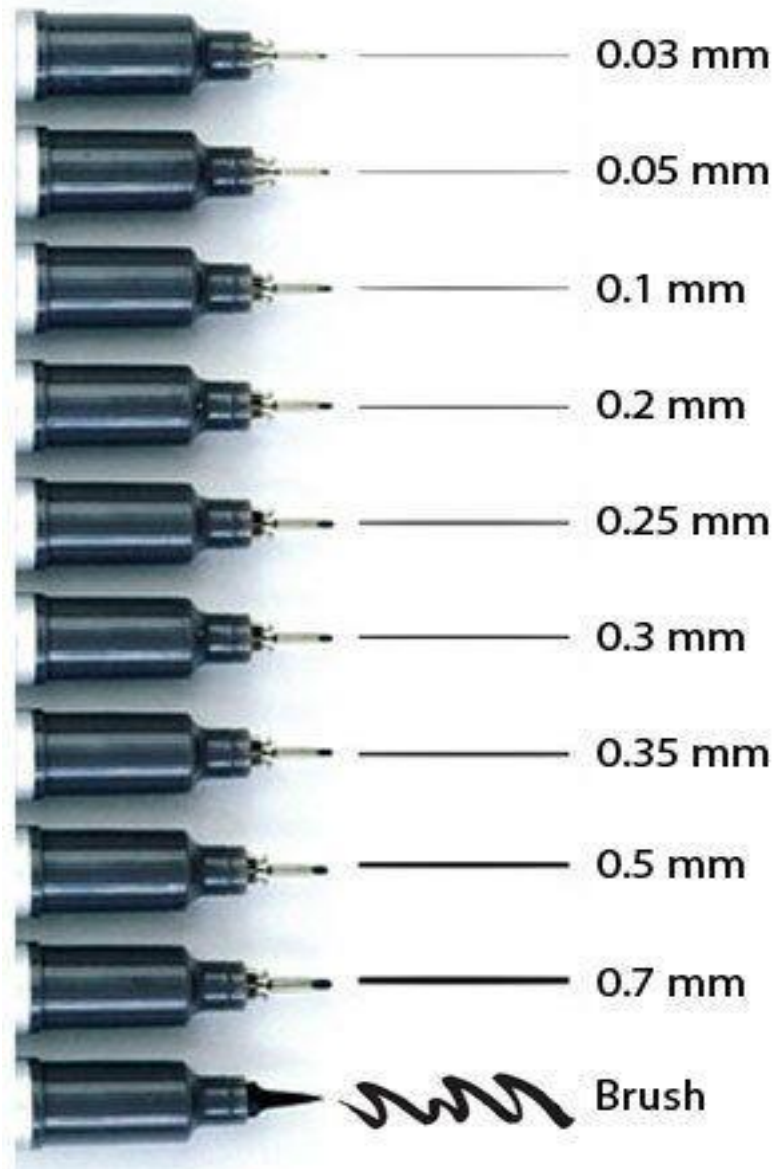
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Plumas técnicas	700 01 #20530	700 02 #20534
Punteras de recambio	750 01 #20550	750 02 #20551
Ancho de línea	0.1 mm	0.2 mm
Plumas técnicas	700 03 #20535	700 04 #20536
Punteras de recambio	750 03 #20552	750 04 #20553
Ancho de línea	0.3 mm	0.4 mm
Plumas técnicas	700 M05 #20537	700 06 #20538
Punteras de recambio	750 M05 #20554	750 06 #20555
Ancho de línea	0.5 mm	0.6 mm
Plumas técnicas	700 08 #20539	700 M10 #20540
Punteras de recambio	750 08 #20557	750 M10 #20558
Ancho de línea	0.8 mm	1.0 mm
Plumas técnicas	700 12 #20541	
Punteras de recambio	750 12 #20559	
Ancho de línea	1.2 mm	



Module summary

Course: <Furniture Technician>	Total Course Duration: 1200 Hrs
Course Overview:	
<p>The purpose of these qualifications is to set high professional standards for furniture industry.</p> <ul style="list-style-type: none"> • Improve the professional competence of the trainees • Shift from informal and non-formal to formal technical and vocational training • Provide opportunities for recognition of skills attained through non-formal or informal pathways • Improve the quality and effectiveness of training and assessment for furniture sector • Enable the existing workforce to capacitate themselves in new technologies and methods 	

Module	Learning Unit	Duration
Module 1: Develop drawings of furniture products manually Aim: The aim of this module to be develop knowledge, skills and understanding to develop drawings of furniture products manually.	LU1: Develop component and size chart LU2: Prepare 2D Multiview drawing of Furniture LU3: Prepare 2D Multiview drawing of Furniture Components LU4:	140 hours
Module 2: Prepare wooden components of the furniture Aim: The aim of this module to be develop knowledge, skills and understanding of preparing wooden components of the furniture.	LU1: Cut wood logs into Planks LU2: Prepare templates for furniture components LU3: Cut wood planks into furniture components LU4: Cut board/ panels into furniture components LU5: Plain surfaces of wooden components LU6: Finalize the size of wooden components	60 hours

Module	Learning Unit	Duration
Module 3: Make Furniture Joints Aim: The aim of this module to be develop knowledge, skills and understanding of making different types of joints being used for furniture manufacturing.	LU1: Perform Cutting LU2: Perform Planing LU3: Prepare joints as per design / drawing LU4: Assemble joints	200 hours
Module 4: Apply surface aesthetics Aim: The aim of this module to be develop advanced knowledge, skills and understanding to apply surface aesthetics on the furniture.	LU1: Perform profiling of components LU2: Perform turning of components LU3: Perform Carving Manually LU4: Perform Marquetry/Parquetry Manually	100 hours
Module 5: Assemble Furniture Products Aim: The aim of this module to be develop basic knowledge, skills and understanding required to assemble the furniture products.	LU1: Pre-Assemble Furniture Products parts LU2: Assemble Furniture Products parts LU3: LU4:	20 hours
Module 6: Perform Finishing Operations on Furniture Aim: The aim of this module to be develop advanced knowledge, skills and understanding required to perform finishing operations on furniture.	LU1: Prepare the surfaces LU2: Perform staining on surfaces LU3: Perform sealing LU4: Perform top finishing LU5: Apply powder coating on metal furniture	120 hours

Module	Learning Unit	Duration
<p>Module 7: Perform Upholstery</p> <p>Aim: The aim of this module to develop advanced knowledge, skills and essential understanding of materials, techniques needed to perform upholstery on furniture.</p>	<p>LU1: Apply Tapestry on the furniture</p> <p>LU2: Apply Canning on the furniture</p> <p>LU3:</p> <p>LU4:</p>	100 hours
<p>Module 8: Prepare Metal Furniture Products</p> <p>Aim: The aim of this module to be develop advanced knowledge, skills and essential understanding required to prepare metal furniture products</p>	<p>LU1: Cut required components from raw material</p> <p>LU2: Prepare furniture components as per design</p> <p>LU3: Assemble the furniture components using welding</p> <p>LU4: Assemble the furniture components using Knockdown method</p>	110 hours
<p>Module 9: Handle Logistics</p> <p>Aim: The aim of this module to develop basic knowledge, skills and understanding needed to handle the logistics at warehouse</p>	<p>LU1: Pack the furniture</p> <p>LU2: Load the furniture for delivery and transportation</p> <p>LU3:</p> <p>LU4:</p>	20 hours
<p>Module 10: Develop drawings of furniture products using CAD/CAM</p> <p>Aim: The aim of this module is to develop advanced knowledge, skills and understanding needed develop drawings of furniture products using CAD/CAM.</p>	<p>LU1: Draw 2D Multiview drawing of Furniture Components on CAD</p> <p>LU2: Develop 3D model of Furniture Components</p> <p>LU3: Convert CAD drawing into CAM Code</p>	140 hours

Module	Learning Unit	Duration
<p>Module 11: Apply surface aesthetics using CNC Machines</p> <p>Aim: The aim of this module to develop advanced knowledge, skills and understanding needed to apply surface aesthetics using CNC machines</p>	<p>LU1: Perform Turning of components on CNC Turning Centre</p> <p>LU2: Perform Carving on CNC Machining Centre</p> <p>LU3: Perform Marquetry/Parquetry on CNC Laser Machine</p>	<p>190 hours</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</p>

	Committee of Chairmen (IBCC).
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?	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.
6. What is the entry requirement for Recognition of Prior Learning program (RPL)?	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.
7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
8. What is the duration of this course?	The duration of the course work is 1,510 hrs. (approx. 11 months)
9. What are the class timings?	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.
10. What is equivalence of this certificate with other qualifications?	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>11. What is the importance of this certificate in National and International job market?</p>	<p>This certificate is based on the nationally 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.</p>
<p>12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?</p>	<p>You shall be able to take up jobs in the Furniture making companies in the functions of cutting, assembly and finishing of furniture articles.</p>
<p>13. What are possible career progressions in industry after attaining this certificate?</p>	<p>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.</p>
<p>14. Is this certificate recognized by any competent authority in Pakistan?</p>	<p>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.</p>
<p>15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?</p>	<p>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.</p>
<p>16. How much salary can I</p>	<p>The minimum wages announced by the</p>

get on job after attaining this certificate?	Government of Pakistan in 2019 are PKR 17,500. 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

What is a drawing?	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.
How many kinds of drawing?	Drawings are of various types <ol style="list-style-type: none">1. Free Hand Sketching2. Multiview drawing3. Pictorial Sketching4. Section drawing
What is hatching meant for?	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.
Why dimensions are used?	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.
Enlist the important drafting materials	Following are the important materials which is used or support drawings.. <ol style="list-style-type: none">1. Drawing Boards2. Drafting Tables3. Set squares4. T-Square5. Drafting Machines6. Drafting pencils

	<ol style="list-style-type: none">7. Erasers8. Triangles9. Compasses10. Curves
Why scales are important?	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.

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

Answers

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