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CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019



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CBT CURRICULUM

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Introduction	5
Definition/ Description of the training Programme for <i>Furniture Technician</i>	5
Date of Validation	5
The Curriculum Document is validated by Qualification Validation Committee on 12th November, 2019 in Islamabad	5
Purpose of the Furniture Technician Programme	6
Overall objectives of training Programme	6
Competencies to be gained after completion of course	6
Possible available job opportunities available immediately and later in the future	7
Trainee entry level	9
Minimum qualification of trainer	10
Recommended trainer: trainee ratio	10
Medium of instruction i.e. language of instruction	10
Duration of the course (Total time, Theory & Practical time)	10
Sequence of the modules	12
Summary – overview of the curriculum	13
Modules	16
Module 1: Apply Work Health and Safety Practices (WHS)	16
Module 2: Identify and Implement Workplace Policy and Procedures	20
Module 3: Communicate at Workplace	23
Module 5: Manage Personal Finances	33
Module 6: Perform Finishing Operations on Furniture	37
Module 7: Perform Upholstery	40
Module 8: Prepare Metal Furniture Products	43
General assessment guidance for (<i>Furniture Technician</i>)	47
Complete list of tools and equipment	52
Complete list of tools and equipment	52
Credit values	66

Introduction

Furniture industry is mainly originated from n Gujrat, since the era of Sikandar-e-Azam (The Great Alexander). With the passage of time it has developed to make it pioneer and still leading in furniture manufacturing in one or another way with a steady production and exports. Gujrat is also considered as City of Furniture. Its wide scope, importance, demand, urbanization, elegance is now growing in various areas of Pakistan especially in Karachi, Lahore, Azad Jammu & Kashmir, Peshawar, Rawalpindi, Chiniot, Hunza etc. With changes in designs and trends in Pakistan as well as around the globe; furniture industry looks forward to adopt latest manufacturing techniques and technology and tap the needs of export market. Industry requirement for educated and skilled workforce is increasing which can only be managed through setting relevant competency standards in collaboration with the leading industries. Being cognizant of this fact, National Vocational & Technical Training Commission (NAVTTTC) developed competency standards for Furniture Technician under National Vocational Qualifications Framework (NVQF). These competency standards have been developed by a Qualifications Development Committee (QDC) and validated by the Qualifications Validation Committee (QVC) having representation from the leading furniture manufacturing companies of the country under the platform of All Pakistan Furniture Makers Association (APFMA) and Technical Education & Vocational Training Authority (TEVTA).

A Furniture Technician is a tradesman who specializes in making wooden and metal furniture. This person is competent in preparing, joining and assembling wooden furniture components, applying upholstery, applying surface aesthetics including carving and marquetry manually utilizing hand tools / general machines as well as on CNC machines and perform finishing operations. Moreover, this person is able to prepare basic metal furniture, apply paint and powder coatings on metal furniture. The Furniture Technician is also able to develop drawings of furniture and its components manually as well as on CAD/CAM tools. The Furniture Technician will not only be hired by furniture manufacturers but he can also be able to start his own business.

Definition/ Description of the training Programme for *Furniture Technician*

The Furniture Technician Programme is to engage young people for the development of furniture manufacturing which will provide them with the knowledge, skills and understanding to start their career in Pakistan. The Programme has been developed to address specific issues, such as the national, regional and local requirements as per designs, the manpower availability within the country, meeting & exceeding the needs and expectations of their customers.

Date of Validation

The Curriculum Document is validated by Qualification Validation Committee on 12th November, 2019 in Islamabad.

Purpose of the Furniture Technician Programme

The purpose of this Programme is to set high professional standards for furniture industry considering the following objectives of developing these qualifications are as under:

- 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

Overall objectives of training Programme

The overall objectives of the Furniture Technician Programme are:

- Managing a wood workshop
- Selecting tools, machines, hardware and equipment used to saw, cut, join, and develop aesthetics on the wood & allied material.
- Measuring and drawing accurately as per design requirements
- Fabricating the different furniture articles from metals
- Finishing the furniture article by employing the latest polishing material and techniques
- Experiencing the latest techniques used to carve, upholster or cane the furniture articles
- Develop drawings & employing the advanced CNC machines to manufacture various parts of the furniture
- Working effectively and safely

Competencies to be gained after completion of course

After completing the course, the trainee will have attained the following competencies:

- Maintain the safe working environment

- Coordinate and work with the team
- Prepare reports of various section to manage work
- Supervise the furniture manufacturing operations
- Prepare Basic & advance joinery
- Prepare different wooden parts on woodworking machines
- Prepare & use the templates, jigs and fixtures as per requirement of the job
- Prepare different marquetry patterns as per design
- Prepare different carving patterns as per design
- Fabricate the metal furniture parts utilizing the appropriate machines
- Understand and application of different welding techniques
- Understand and application of basic and advance machine operations
- Understand and draw furniture drawing using CAD software
- Understand and operate CNC machines to process various operations
- Maintain production of furniture items
- Finish a completed furniture item using different polishing materials applying various techniques

Possible available job opportunities available immediately after the Level 3

Furniture technicians are employed in factories, schools, Government offices, manufacturing hubs inland and abroad, and personal endeavors. Experienced furniture technicians may advance through promotions with the same employer or by moving to more advanced positions with other employers. They can become:

- Supervisor production
- Supervisor polish
- Metal fabricator
- Metal Fabricating assistant
- Upholster
- Upholstering workshop supervisor
- Canning assistant
- Welding assistant

Trainee entry level

QUALIFICATION TITLE	ENTRY REQUIREMENTS
National Vocational Certificate Level 3 in Furniture Technician (Finisher) (0722 CFT 008)	The entry requirement for this qualification is National Vocational Certificate Level 2 in Furniture Technician (Carpenter) or equivalent or middle with hands on experience. The entry for assessment of this qualification is not specified.
National Vocational Certificate Level 3 in Furniture Technician (Upholster) (0722 CFT 009)	The entry requirement for this qualification is National Vocational Certificate Level 2 in Furniture Technician (Carpenter) or equivalent or middle with hands on experience. The entry for assessment of this qualification is not specified.
National Vocational Certificate Level 3 in Furniture Technician (Metal Furniture Fabricator) (0722 CFT 010)	The entry requirement for this qualification is National Vocational Certificate Level 2 in Furniture Technician (Carpenter) or equivalent or middle with hands on experience. The entry for assessment of this qualification is not specified.

Minimum qualification of trainer

F.A/ F.Sc./ D.A.E./ Certificate in Cabinet Making/ Woodworking/ Carpenter with minimum 6 year working experience in the relevant field.
(Advance studies of relevant field is preferable)

Bachelors in science/technology/engineering + Certificate in Cabinet Making/Woodworking/Carpenter with minimum 3.5 years' experience in the relevant field

Recommended trainer: trainee ratio

The recommended maximum trainer: trainee ratio for this Programme is 1 trainer for 10-15 trainees.

Medium of instruction i.e. language of instruction

An appropriate mixture of English and Urdu may be used to ensure understanding of technical terms and aid students in potential jobs abroad.

Duration of the course (Total time, Theory & Practical time)

Total duration of the course is 2 Years consists of 120 credits including 24 credits of theory, 96 credits of practical training.

Competency Standards	Theory Hours	Workplace Hours	Total hours
Module 1: Apply Work Health and Safety Practices (WHS)			30
Module 2: Identify and Implement Workplace Policy and Procedures			20
Module 3: Communicate at Workplace			30
Module 4: Perform Computer Application Skills			40
Module 5: Manage Personal Finances			30
Module 6: Perform finishing operations	24	96	120
Module 7: Perform Upholstery	20	80	100
Module 8: Develop Metal Furniture Products	22	88	110

Sequence of the modules

This qualification is made up of 11 modules. Eleven modules relate to drawing, sawing wood & boards, initial processing, joinery, finishing and working on computer numerical controlled machines. A suggested distribution of the level 3 modules is presented overleaf.

There is one further modules relating to general skills that a furniture technician must have: Module 1: Perform Finishing Operation involves the finishing of completed jobs using advanced materials including the high gloss finish. Module 2: Perform Upholstery depicts the techniques to cane or upholster the furniture articles. Module 3: Develop metal furniture caters the various materials and fabrication of metal furniture involving various jointing techniques.

Each module covers a range of learning components. These are intended to provide detailed guidance to teachers (for example the Learning Elements component) and give them additional support for preparing their lessons (for example the Materials Required component). The detail provided by each module will contribute to a standardized approach to teaching, ensuring that training providers in different parts of the country have clear information on what should be taught. Each module also incorporates the cultural background of Pakistan, including the woods and board material widely used for furniture manufacturing that make this qualification unique to Pakistan's needs.

The distribution table is shown below for level 3. The distribution table is shown below:

National Vocational Certificate Level 3 in Furniture Technician (Finisher) (0722 CFT 008)
1. Perform finishing operations

National Vocational Certificate Level 3 in Furniture Technician (Upholster) (0722 CFT 009)
2. Perform upholstery

National Vocational Certificate Level 3 in Furniture Technician (Metal Furniture Fabricator) (0722 CFT 010)
3. Develop metal furniture products

Summary – overview of the curriculum

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 1: Apply Work Health and Safety Practices (WHS)	LU1. Implement safe work practices at work place LU2. Participate in hazard assessment activities a work place LU3. Follow emergency procedures at workplace LU4. Participate in OHS consultative processes	6	24	30
Module 2: Identify and Implement Workplace Policy and Procedures	LU1. Identify workplace policy & procedures LU2. Implement workplace policy & procedures LU3. Communicate workplace policy& procedures LU4. Review the implementation of workplace policy & procedures	4	16	20
Module 3: Communicate at Workplace	LU1. Communicate within the organization LU2. Communicate outside the organization LU3. Communicate effectively in workgroup LU4. Communicate in writing	6	24	30
Module 4: Perform Computer Application Skills	LU1. Prepare In-page documents as per required information LU2. Prepare Spreadsheets as per required information LU3. Use MS Office as per required information LU4. Perform computer graphics in basic applications LU5. Create Email account for communications	8	32	40
Module 5: Manage Personal Finances	LU1. Develop a personal budget LU2. Develop long term personal budget LU3. Identify ways to maximize future finances	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 6: Perform Finishing Operations on Furniture (072200895)</p> <p>Aim: The aim of this module to be developing advanced knowledge, skills and understanding required to perform finishing operations on furniture.</p>	<p>LU1: Prepare the surfaces</p> <p>LU2: Perform staining on surfaces</p> <p>LU3: Perform sealing</p> <p>LU4: Perform top finishing</p> <p>LU5: Apply powder coating on metal furniture</p>	24	96	120
<p>Module 7: Perform Upholstery (072200896)</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>	20	80	100
<p>Module 8: Prepare Metal Furniture Products (072200897)</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>	22	88	110

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Module-1

CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019

Modules

Module 1: Apply Work Health and Safety Practices (WHS)

Objective: This unit describes the skills to work with safety and participate in hazard assessment activities, follow emergency procedures and participate OHS practices in process.

Duration: 30 Hours

Theory: 06 Hours

Practice: 24 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Implement safe work practices at work place	The trainee is able to: <ul style="list-style-type: none"> • Implement relevant rules and procedures of WHS at work place. • Comply with duty of care requirements • Use personal protective equipment according to safe work practices • Contribute to WHS consultative activities 				

	<ul style="list-style-type: none"> • Raise WHS issues with relevant personnel 				
LU2. Participate in hazard assessment activities a work place	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Identify hazards or WHS issues in the workplace to relevant personnel • Assess and control risks according to own level of responsibility, in line with workplace procedures • Report hazards or WHS issues in the workplace to relevant personnel • Document risk control actions as required 				
LU3. Follow emergency procedures at	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Report emergencies or 				

<p>workplace</p>	<p>incidents promptly to relevant personnel</p> <ul style="list-style-type: none"> • Deal with emergencies in line with own level of responsibility • Implement evacuation procedures as required 				
<p>LU4. Participate in OHS consultative processes</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Contribute to workplace meetings, inspections or other consultative activities • Raise OHS (Occupational Health and Safety) issues with designated persons in accordance with organizational procedures • Take actions to eliminate workplace hazards or to reduce risks 				

Knowledge and Understanding

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

- K1:** Outline the WHS rights and responsibilities that apply to own role
- K2:** Explain the term duty of care
- K3:** Describe typical health and safety roles in the workplace
- K4:** List and describe common safety signs and symbols
- K5:** Explain procedures for reporting hazards, risks, incidents and accidents
- K6:** Identify and describe common hazards and major causes of accidents relevant to the workplace
- K7:** Explain what the term risk control means
- K8:** List and describe potential emergency situations and how to respond to them

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National Vocational Certificate Level 3

Version 1 - April, 2019

Module 2: Identify and Implement Workplace Policy and Procedures

Objective: This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

Duration: 20 Hours

Theory: 04 Hours

Practice: 16 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<p>LU1. Identify workplace policy & procedures</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Identify the workplace policy & procedures • Apply appropriate strategies that can be used to measure whether your workplace health and safety obligations are being met. • Assure the policies are realistic, resources and personnel to implement • Implement the policy & procedures that reflects the 				

	<p>organizations commitments</p> <ul style="list-style-type: none"> • Ensure the appropriate methods of implementation, outcomes and performance indicators 				
LU2. Implement workplace policy & procedures	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Apply and assign responsibility for recording systems to track continuous improvements in policy & procedures • Implement strategies for continuous improvement in effective and efficient information 				
LU3. Communicate workplace policy & procedures	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Communicate procedures to help implement workplace policy • Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned 				

	responsibilities				
LU4. Review the implementation of workplace policy & procedures	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Identify the trends that may require remedial actions • Record the trends that may require remedial actions. • Ensure policy and procedures as required are made for continuous improvement of performance 				

Knowledge and Understanding

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

- K1:** Legislation, regulations and codes of practice applicable to the organization
- K2:** internal and external sources of information and organizational policy & procedures
- K3:** Typical barriers to implementing policies and procedures in an organization.

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Module-3

CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019

Module 3: Communicate at Workplace

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

Duration: 30 Hours

Theory: 06 Hours

Practice: 24 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Communicate within the organization	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Communicate within a department • Communicate with other departments. • Use various media to communicate effectively • Communicate orally and written 				
LU2. Communicate outside the organization	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Deal with vendors • Deal with clients/customers • Interact with other organisations • Use various media to 				

	<p>communicate effectively</p> <ul style="list-style-type: none"> • Work with people of different cultures / backgrounds 				
<p>LU3. Communicate effectively in workgroup</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Assess the issues to provide relevant suggestion to group members • Resolve the issues/problems /conflicts within the group • Arrange group working sessions to increase the level of participation in the group processes • Communicate messages to group members clearly to ensure interpretation is valid • Communicate style /manner to reflect professional standards/ awareness of appropriate cultural practices • Act upon constructive feedback 				

<p>LU4. Communi cate in writing</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Identify relevant procedures for written information • Use strategies to ensure correct communication in writing .i.e. • correct composition • clarity • comprehensiveness • accuracy • appropriateness • Draft assigned written information for approval, ensuring it is written within designated timeframes • Ensure written information meets required standards of style, format and detail • Seek assistance / feedback to aid communication skills development 				
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Knowledge and Understanding

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

- K1:** Importance of intra and inter organizational communication
- K2:** Basics of business communication
- K3:** Defining Modes of communication
- K4:** Effective communication in workgroup
- K5:** Communicating through writing
- K6:** The importance of teamwork

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Module-4

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National Vocational Certificate Level 3

Version 1 - April, 2019

Module 4: Perform Computer Application Skills

Objective: This unit describes the skills and knowledge required to use spreadsheet applications, prepare in page documents, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.

It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility.

Duration: 40 Hours

Theory: 08 Hours

Practice: 32 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare In-page documents as per required information	The trainee is able to: <ul style="list-style-type: none"> • Set keyboard preferences according to information requirements • Layout Page according to information requirements • Toggle between Languages • Identify the usage of tool bar • Insert Columns as per requirement • Print the document 	<ul style="list-style-type: none"> • 	Total 70 Hours Theory: 14 Hours Practical: 56 Hours	Pattern Table Cutting Mat, Pattern shapers Measuring tape measuring scales Curve set (French Curve, Pant curve) Set square, Flexible Curve, Scissors Knife Hole Punch, Hanger,	Theory Classroom Practical Workshop

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
				Pattern Stand Tape Dispenser, Korean Scale Tracing wheel, Punch machine Notches, Dummies,	
LU2. Prepare Spreadsheets as per required information	The trainee is able to: <ul style="list-style-type: none"> • Create workbook according to information requirements • Insert sheet according to information requirements • Enter basic formulae / functions using cell referencing when required • Correct formulas when error messages occur • Use a range of common tools during spreadsheet development • Edit columns and rows within the 	<ul style="list-style-type: none"> • 	Total 40 Hours Theory: 08 Hours Practical: 32 Hours	Table, chair Cutting Mat, Pattern shapers Measuring tape Different measuring scales Curve set (French Curve, Pant curve) Set square, Flexible Curve Scissors Knife, Pattern table Hole Punch, Hanger,	Theory Classroom Practical Workshop

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
	spreadsheet Filter data <ul style="list-style-type: none"> • Save the spreadsheet to a folder on a storage device • Format spreadsheet using formatting features as required • Incorporate object and chart in spreadsheet Print spreadsheet			Pattern Stand Tape Dispenser, Korean Scale Tracing wheel, Punch machine Notches, Dummies,	
Use MS Office as per required information	The trainee is able to: <ul style="list-style-type: none"> • <i>Use Microsoft Word for documentation</i> • <i>Use Microsoft Excel for documentation</i> • <i>Use Microsoft PowerPoint for presentation</i> • <i>Perform OneNote</i> • <i>Perform Outlook for emails</i> <i>Perform Publisher applications</i>	•	Total 30 Hours Theory: 06 Hours Practical: 24 Hours	Pattern table Cutting Mat, Pattern shapers Measuring tape measuring scales Curve set (French Curve, Pant curve) Set square, Flexible Curve, Scissors Knife,	Theory Classroom Practical Workshop

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
				Hole Punch, Hanger, Pattern Stand Tape Dispenser, Korean Scale Tracing wheel, Punch machine Notches, Dummies,	
Perform computer graphics in basic applications	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Perform graphic fundamentals in basic applications • Draw Points and lines to make images • Draw Dots in space to make images • Draw lightening blot Shapes to make images • Enlarge circles and rectangles to block in forms 	<ul style="list-style-type: none"> • 	<p>Total 30 Hours</p> <p>Theory: 06 Hours</p> <p>Practical: 24 Hours</p>	Pattern Table Cutting Mat, Pattern shapers Measuring tape Different measuring scales Curve set (French Curve, Pant curve) Set square, Flexible Curve, Scissors Knife Hole Punch, Hanger,	<p>Theory Classroom</p> <p>Practical Workshop</p>

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
				Pattern Stand Tape Dispenser, Korean Scale Tracing wheel, Punch machine Notches, Dummies,	
LU3. Create Email account for communications	The trainee is able to: <ul style="list-style-type: none"> • Make email account for communications • . Compose text of an email message according to organizational guidelines as required • Create an automatic signature for the user • Attach files to email message where required • Send email message • Reply to / forward a received message using available features 	<ul style="list-style-type: none"> • 	Total 15 Hours Theory: 03 Hours Practical: 12 Hours	Pattern Table Cutting Mat, Pattern shapers Measuring tape measuring scales Curve set (French Curve, Pant curve) Set square, Flexible Curve, Scissors Knife Hole Punch, Hanger, Pattern Stand Tape Dispenser,	Theory Classroom Practical Workshop

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
	<ul style="list-style-type: none"> • Save an attachment to the relevant folder • Save email message using available settings • Adjust email accounts to restrict and quarantine possible email security problems • Print email message as per requirements 			Korean Scale Tracing wheel, Punch machine Notches, Dummies,	

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Module-5

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National Vocational Certificate Level 3

Version 1 - April, 2019

Module 5: Manage Personal Finances

Objective: This unit of competency describes the outcomes required to manage develop, implement and monitor a personal budget in order to plan regular savings and manage debt effectively.

Duration: 30 Hours

Theory: 06 Hours

Practice: 24 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Develop a personal budget	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Calculate current living expenses using available information to prepare a personal budget. • Keep a record of all income and expenses for a short period of time to help estimate ongoing expenses. • Subtract total expenses from total income to determine a surplus or deficit budget for the specified period. • Find reasons for a deficit 				

	<p>budget and ways to reduce expenditure identified.</p> <ul style="list-style-type: none"> • Identify ways to increase income 				
<p>LU2. Develop long term personal budget</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Analyze income and expenditure and set long term personal financial goals. • Develop a long-term budget based on the outcomes of short-term budgeting. • Identify obstacles that might affect the business • Formulate a regular savings plan based on budget 				
<p>LU3. Identify ways to maximize future</p>	<p>The trainee is able to:</p> <ul style="list-style-type: none"> • Determine sources to maximize personal income, 				

<p>finances</p>	<ul style="list-style-type: none"> • Get further education or training to maintain or improve future income. • Identify the need for debt to finance living and other expenses, • Determine the appropriate levels of debt and repayment. • Consolidate existing debt, where possible, to minimize interest costs and fees. • Seek professional money management services. 				
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Knowledge and Understanding

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

- K1:** Explain the abilities to plan and organize to keep records and monitor a personal budget
- K2:** Describe abilities to set and review goals
- K3:** Explain basic financial management and record keeping to enable development and management of a personal budget
- K4:** Describe benefits of financial goal setting and personal budgeting to enable effective management of personal finances
- K5:** Outline numeracy skills to compare income and expenditure

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Module-6

CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019

Module 6: Perform Finishing Operations on Furniture

Objective of the module: The aim of this module to be develops advanced knowledge, skills and understanding required to perform finishing operations on furniture.

Duration: 120 Hours **Theory:** 24 Hours **Practical:** 96 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare the surfaces	The trainee will be able to: <ul style="list-style-type: none"> • Clear the glue line from Joints • Clean the surface for Dust, Oil and Grease • Check surface for non-conformities (Dents, minute holes, blemishes etc.) • Apply filler to fill gaps, holes and pores • Perform coarse sanding to smoothen the surface 	<ul style="list-style-type: none"> • Introduction to surface preparation (glue, oil, dents, holes etc.) • Understand application of fillers (putty etc.) • Introduction to sand papers & their grading • Understand application of sand papers 	Total 13 Hours Theory: 03 Hours Practical: 10 Hours	Sand Papers (80, 100, 140, 220, 320) Filler (Putty) Product (Table, chair, rack etc.)	Theory Classroom Practical Finishing Workshop
LU2:	The trainee will be able	<ul style="list-style-type: none"> • Introduction to Staining 	Total	Stains	Theory

Perform staining on surfaces	<p>to:</p> <ul style="list-style-type: none"> Perform staining (Water staining, acid staining, methylated spirit staining, oil staining) as per required colour scheme Perform fine sanding to smoothen the surface 	<ul style="list-style-type: none"> Understand application of Staining techniques (Water staining, acid staining, methylated spirit staining, oil staining) 	<p>24 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 20 Hours</p>	<p>(Stains, Methylated spirit, Oils, Liquid ammonia)</p>	<p>Classroom</p> <p>Practical</p> <p>Finishing Workshop</p>
<p>LU3:</p> <p>Perform sealing</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Prepare sealer as per sealing requirement Apply sealer on the surface as per finishing requirement Prepare undercoat as per process requirement Apply undercoat on the surface as per finishing requirement 	<ul style="list-style-type: none"> Understanding of sealer & undercoat preparation Understand application of various sealers Understand application of undercoat and its basic quality requirements Understand application of sand paper 	<p>Total 13 Hours</p> <p>Theory: 03 Hours</p> <p>Practical: 10 Hours</p>	<p>Product (Furniture Component)</p> <p>Sealer</p> <p>Thinner</p> <p>Undercoat</p>	<p>Theory</p> <p>Classroom</p> <p>Practical</p> <p>Finishing Workshop</p>
<p>LU4:</p> <p>Perform top finishing</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Perform Finishing with different types of Lacquers 	<ul style="list-style-type: none"> Introduction to various types of lacquers Understand application techniques for Antique finishing Understand applications of 	<p>Total 30 Hours</p> <p>Theory:</p>	<p>Product (Furniture Component)</p> <p>Lacquers</p> <p>Thinner</p>	<p>Theory</p> <p>Classroom</p>

	<ul style="list-style-type: none"> • Perform Antique Finishing • Perform Leafing • Apply Paints • Apply Wax as per product requirement 	<p>Leafing papers</p> <ul style="list-style-type: none"> • Understand application of different paints • Introduction to Wax finish • Introduction to various finishing systems • Introduction to spraying techniques • Introduction to types of spray guns & nozzles • Introduction to rubbing compound & buffing 	<p>06 Hours</p> <p>Practical:</p> <p>24 Hours</p>	<p>Paints</p> <p>Leaf Papers</p> <p>Wax</p> <p>Spray guns</p> <p>Nozzles</p> <p>Air compressor</p> <p>Spraying booth</p> <p>Safety Spraying Kit</p>	<p>Practical</p> <p>Finishing Workshop</p>
<p>LU5:</p> <p>Apply powder coating on metal furniture</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Treat product surface with acid to clean rust and oil • Wash the product to remove all traces of acid • Apply powder coat on the product evenly • Load coated product in the pre-heated baking oven 	<ul style="list-style-type: none"> • Introduction to cleaning rust • Introduction to Powder coating equipment (plant) • Importance of temperature requirements for powder coating • Understanding about material loading techniques in powder coating plant 	<p>Total</p> <p>40 Hours</p> <p>Theory:</p> <p>08 Hours</p> <p>Practical:</p> <p>32 Hours</p>	<p>Product</p> <p>Powder coating plant</p> <p>Product Hanging racks</p> <p>Spraying gun</p>	<p>Theory</p> <p>Classroom</p> <p>Practical</p> <p>Rusting unit</p> <p>Powder coating unit</p>

FURNITURE TECHNICIAN



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Module-7

CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019

Module 7: Perform Upholstery

Objective of the module: The aim of this module to develop advanced knowledge, skills and essential understanding of materials, techniques needed to perform upholstery on furniture.

Duration: 100 Hours **Theory:** 20 Hours **Practical:** 80 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Apply Tapestry on the furniture	The trainee will be able to: <ul style="list-style-type: none"> Check all joints for non-conformities Perform marking on the Tapestry material as per drawing Cut material (fabric/Leather/artificial leather/foam, etc.) as per marking Prepare base for Tapestry using required accessories (rubber web, elastic web, zig zag spring, helical spring, etc.) 	<ul style="list-style-type: none"> Introduction to various Upholstery materials (fabric /Leather/artificial leather/foam, etc.) Introduction to upholstery material cutting techniques Introduction to various stitching techniques Introduction to thread types Introduction to various filling materials and their application (foam, jute markeen cloth, rubber padding, spring etc.) Explaining fundamental upholstery requirements (Inner structure etc.) Introduction to upholstery accessories 	Total 60 Hours Theory: 12 Hours Practical: 48 Hours	Product (Sofa structure, chair etc.) Foam (various thickness) Upholstery material (Fabric, Leather, Leatherite etc.) Upholstery accessories (Rubber strips, shoe tacks, springs, cotton dori, jute, makeen cloth, thread, buttons etc.) Stitching Machine	Theory Classroom Practical Upholstery Area

	<ul style="list-style-type: none"> • Fix base fabric (jute, rough cloth, markeen etc.) to maintain stretching of base • Attach foam/ball fibre layer on the structure as per required thickness • Stitch the material (fabric /Leather/artificial leather) for seat and back in required size and profile • Fill stitched material with foam/ball fibre as per required thickness and shape • Fix stitched material on the structure as per design • Fix Markeen cloth on the bottom of structure 	<ul style="list-style-type: none"> • Understanding about fixing & stretching techniques of upholstery fabric 		(Juki) Upholstery tools (Scissors, Paper tape, Marking chalk, Needles etc.)	
LU2: Apply Canning on the furniture	The trainee will be able to: <ul style="list-style-type: none"> • Arrange canning material (Single Cane, Double Cane, Natural Cane, Plastic Cane) as per canning 	<ul style="list-style-type: none"> • Introduction to various Canning materials (Natural & Synthetic) • Introduction to various Knots used in webbing • Understanding of various canning designs 	Total 40 Hours Theory: 05 Hours	Wooden frame Natural cane Synthetic cane Clamping device	Theory Classroom Practical

	<p>design</p> <ul style="list-style-type: none"> • Make canning web as per canning design maintaining required tension 	<ul style="list-style-type: none"> • Understanding of wastage control techniques in canning 	<p>Practical: 35 Hours</p>		Workshop
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FURNITURE TECHNICIAN



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Module-8

CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - April, 2019

Module 8: Prepare Metal Furniture Products

Objective of the module: The aim of this module to be develop advanced knowledge, skills and essential understanding required to prepare metal furniture products

Duration: 110 Hours **Theory:** 22 Hours **Practical:** 88 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Cut required components from raw material	The trainee will be able to: <ul style="list-style-type: none"> Prepare material and size chart as per product design Clean the material for dust, grease and oil Cut the material as per required size Smoothen the sharp ends with grinder 	<ul style="list-style-type: none"> Introduction to various metals used in furniture Understanding forms of metal material (Pipes, sheets etc.) Understanding about the usage of various metal cutting tools (Disc cutter, grinder etc.) 	Total 13 Hours Theory: 03 Hours Practical: 10 Hours	Metal Samples Disc cutter Portable grinder Grinding disc (various sizes) Hack saw Sheet cutter Portable nibbler for sheet cutting	Theory Classroom Practical Metal Workshop
LU2: Prepare furniture components as per design	The trainee will be able to: <ul style="list-style-type: none"> Bore holes of required size and depth as per drawing Counter sink holes as 	<ul style="list-style-type: none"> Introduction to drill press & portable electric drill Introduction to appropriate chucks & bits (Round bits, countersink bit etc.) Introduction to metal bending 	Total 20 Hours Theory: 04 Hours	Drill press Portable Electric drill Bits (various sizes & types)	Theory Classroom Practical

	per joining requirement <ul style="list-style-type: none"> Bend the material as per product design 	techniques <ul style="list-style-type: none"> Application of various types of rivets 	Practical: 16 Hours	Sheet bending press Pipe bending die Rivet plier Rivets (various sizes & types)	Metal Workshop
LU3: Assemble the furniture components using welding	The trainee will be able to: <ul style="list-style-type: none"> Prepare welding pattern as per product design Weld components as per pattern Adjust component angles as per design Perform grinding at welded areas to smoothen the surface Perform buffing at welded areas to achieve required surface finish 	<ul style="list-style-type: none"> Introduction to welding & its importance Introduction to various welding techniques (Patterns adjustment, angle adjustment etc.) Introduction to S.W.G. (Standard Wire Gauge) Introduction to Electric Arc, Gas and Spot Welding & Organ welding Introduction to grinding of welded parts 	Total 50 Hours Theory: 10 Hours Practical: 40 Hours	Metal Pieces Welding plants (Arc, spot & gas) Portable disc Grinder Grinding disc Welding rods (various types)	Theory Classroom Practical Metal Workshop
LU4: Assemble the	The trainee will be able to:	<ul style="list-style-type: none"> Introduction to various types of knock down fittings 	Total	Product pieces Knock down	Theory

<p>furniture components using Knockdown method</p>	<ul style="list-style-type: none"> • Prepare joining pattern as per product design • Apply knockdown fitting to assemble the components as per product requirement 	<ul style="list-style-type: none"> • Application of knock down fittings • Understanding the advance machining processes for K.D. fittings 	<p>27 Hours</p> <p>Theory: 05 Hours</p> <p>Practical: 22 Hours</p>	<p>fittings (Various kinds)</p> <p>Brackets (Metal)</p>	<p>Classroom</p> <p>Practical</p> <p>Metal Workshop</p>
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General assessment guidance for (*Furniture Technician*)

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

- to the student: to identify achievement and areas for further work
- to the teacher: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

Final assessment is the assessment, usually on completion of a course or module, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment.

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Examples for direct assessment of a Furniture Technician include:

- Work performances, for example cutting a curve or circle on various machines, making profiles on wooden pieces, make a carving pattern on wood piece, preparing a job report,
- Demonstrations, for example demonstrating advanced cutting, planing methods, profiling methods, marquetry, carving, finishing techniques

- Direct questioning, where the assessor would ask the student why he is using the current material for the said job, or how the student prepare job in current sizing, how a job can be performed using various techniques including the future trends
- Paper-based tests, such as multiple choice or short answer questions on material management, machine operations, hand tools, finishing, Metal fabrication, upholstery, marquetry, carving, CAD/CAM operations or developing productive working relationships with associates.

Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of a Furniture Technician include:

- Work products, such as a completed furniture article
- Workplace documents, such as a list of materials being used in developing the product.

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

Principles of assessment

All assessments should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any assessed person. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that a valid assessment assesses what it claims to assess. For example, if complex cooking skills are to be assessed and certificated, the assessment should involve performance criteria that are directly related to that cooking activity. An interview about the effect of the cooking processes on different foods would not meet the performance criteria.

Reliability means that the assessment is consistent and reproducible. For example, if the work performance of preparing and cooking a complex poultry dish has been assessed, another assessor (eg the future employer) should be able to see the same work performance and witness the same level of achievement.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the students' needs

Assessment strategy for (*Furniture Technician*)

This curriculum consists of 11 modules:

Module 1: Develop drawings of furniture products manually

Module 2: Prepare wooden components of the furniture

Module 3: Make Furniture Joints

Module 4: Apply surface aesthetics

Module 5: Assemble Furniture Products

Module 6: Perform finishing operations

Module 7: Perform Upholstery

Module 8: Develop Metal Furniture Products

Module 9: Handle Logistics

Module 10: Develop drawings of furniture products using CAD/CAM

Module 11: Apply surface aesthetics using CNC Machines

Sessional assessment

The sessional assessment for all modules shall be in two parts: theoretical assessment and practical assessment. The sessional marks shall contribute to the final qualification.

Theoretical assessment for all learning modules must consist of a written paper lasting at least one hour per module. This can be a combination of multiple choice and short answer questions.

For practical assessment, all procedures and methods for the modules must be assessed on a sessional basis. Guidance is provided below under Planning for assessment.

Final assessment

Final assessment shall be in two parts: theoretical assessment and practical assessment. The final assessment marks shall contribute to the final Commutative grading (qualification).

The final theoretical assessment shall consist of one 3-hour paper. The paper shall be in two parts.

Part A shall last for 2 hours and shall consist of half multiple choice and half short-answer questions. This part shall cover the major furniture technician modules level wise.

Module 6: Perform finishing operations

Module 7: Perform Upholstery

Module 8: Develop Metal Furniture Products

Part B shall last for 1 hour and shall consist of short answer and at least two extended answer questions.

For the final practical assessment, each student shall be assessed over a period of two days, with two 3-hour sessions on each day. This represents a total of four sessions comprising 12 hours of practical assessment for each student. During this period, each student must be assessed on his/her ability to produce one furniture article as per drawing.

The assessment team

The number of assessors must meet the needs of the students and the training provider. For example, where two assessors are conducting the assessment, there must be a maximum of five students per assessor. In this example, a group of 20 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 students, assessments would be carried out over a two-day period only.

Planning for assessment

Sessional assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what would be the scheduled dates. .

Final assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment Programme for each group of five students. Training providers must agree the furniture articles for practical assessments in advance.

Complete list of tools and equipment

Complete list of tools and equipment

Sr#	Name of Item/ Equipment/ Tools	Specification	Quantity	Unit
1	Fire extinguishers	Standard	6	Nos.
2	First Aid box	(Including all accessories)	2	No.
3	Water & sand buckets	(3-5 litre capacity)	2	Sets
4	Portable Dust collectors	(two way)	3	Sets
5	Air blower	(Electric portable)	3	Nos
6	Exhaust units		5	Units
7	Emergency alarm	(fire, smoke)	1	Set
8	Announcement system	(with mic & 3 speakers)	1	Set
9	Cordless system	(1 hub with 5 units)	1	Set
10	Computer	(I-7, VII th generation, 500GB Hard, 8GB RAM)	26	Nos.
11	Laser Printer	(A4) (33 PPM, Duplex printing)	1	No.
12	Scanner	(A4) (600-1200 dpi resolution)	1	No.
13	Steel rule	(1 ft)	25	Nos.
14	Steel tape	(3, 5 Mtr)	25	Each.
15	Drafting table	(900 x 750 x 750 mm (H))	25	Nos.
16	Drawing board	(700 x 500 mm)	25	Nos.
17	Drafting machine	(Height & angle adjustable, sliding arm)	2	Nos.
18	Set square	(Glass with scale marking, 45 ⁰ & 60 ⁰)	25	Sets
19	T-square	(Glass, 900 mm length)	25	Nos.
20	Log band saw or Wood mizer Machine	(07-15 hp)	1	No.
21	Log band saw blade sharpening machine	(Angle adjustment)	1	No.

22	Saw setting machine		1	No.
23	Butt welding machine	(High temperature setting)	1	No.
24	Grinding machine	(Both side grinding discs)	1	No.
25	Blade cutter		1	No.
26	Paper cutter		1	No.
27	Tracing pencil		25	Nos.
28	Spindle molder Machine	(With various cutters, solid profile cutters)	1	No.
29	Plunge router	(1100-1800 w, micro adjuster)	3	Nos.
30	Jig saw	(600-900 w, 60-120 mm blade length)	3	Nos.
31	Scroll saw Machine	(16" throat depth, tilt able)	2	Nos.
32	Copying saw	(6-8" in size)	25	Nos.
33	Fret saw	(6-8" in size)	25	Nos.
34	Half round file	(10")	25	Nos.
35	Half round rasp	(10")	25	Nos.
36	Triangular file	(6")	25	Nos.
37	Round file	(10")	10	Nos.
38	Compass saw	(12-18")	10	Nos.
39	Multiple rip saw Machine	(12-14" blades)	1	No.
40	Cross cut saw Machine	(12-14")	1	No.
41	Table saw Machine	(rip capacity 600-850mm, cross cut capacity 900-2000)	1	No.
42	Panel saw Machine	(12-16' x 10-12')	1	No.
43	Jointer Machine	(18")	1	No.
44	Portable planner	(6")	1	No.
45	Thickness planner Machine	(10-18")	1	No.
46	Smooth plane	(1.5-2")	25	Nos.
47	Jack plane	(1.5-2")	25	Nos.
48	Trying plane (1.5-2")	(1.5-2")	25	Nos.
49	Block plnae (1.5-2")	(1.5-2")	5	Nos.

50	Compass plane (1.5-2")	(1.5-2")	5	Nos.
51	Spoke shave plane (1.5-2")	(1.5-2")	5	Nos.
52	Rip saw (16-24")	(16-24")	25	Nos.
53	Cross cut saw (16-24")	(16-24")	25	Nos.
54	Back saw (10-12")	(10-12")	25	Nos.
55	Mitre saw	(12-16")	2	Nos.
56	Copying saw	(8")	25	Nos.
57	Work bench	(4' x 4' x 2.75')	6	Nos.
58	Veneer saw	(4-6")	25	Nos.
59	Saw vice	Standard	2	Nos.
60	Saw setting plier	(adjustable setting)	5	Nos.
61	Bevel edge chisel	(12, 20, 25, 30mm)	25	Sets
62	Mortise chisel	(2, 6, 8, 10, 12 mm)	25	Sets
63	Marking gauge	(single or two beam, 8")	25	Nos.
64	Mortise gauge	(8")	25	Nos.
65	Marking awl	(6")	25	Nos.
66	Utility knife	(standard)	25	Nos.
67	Try square	(6")	25	Nos.
68	Framing square	(2')	5	Nos.
69	Combination square	(1')	5	Nos.
70	Spirit level	(2-3')	5	Each
71	Bar clamp	(4', 5', with T bar preferably)	3	Each
72	F-clamp	(1', 2.5', 4', 5',6')	3	Each
73	Edge clamp		5	Nos.
74	Wooden clamp		5	Nos.
75	Quick action clamp	(12", 24")	5	Each
76	Carpenters mallet	1'	25	Nos.
77	Claw hammer	(350 g)	25	Nos.
78	Pincer		25	Nos.
79	Nail punch		25	Nos.
80	Mitre box		5	Nos.

81	Standard screw driver	(6", 1')	25	Each
82	Ratchet screw driver		25	Nos.
83	Philips head screw driver	(1')	25	Nos.
84	Pneumatic nailer	(10-50 mm nails capacity)	3	Nos.
85	Pneumatic screwdriver		3	Nos.
86	Double end tenoner	(3000 mm capacity)	1	No.
87	Ring attachment		1	No.
88	Wood turning lathe	(2-5' between centres)	1	No.
89	Turning chucks	(Standard, 4 jaw chuck)	3	Each
90	Turning chisels	(6 in set, different sizes)	2	Set
91	Turning gouges	(2 in set, different sizes)	2	Set
92	Inside calipers	(8", 10")	2	Each
93	Outside calipers	(8", 10")	2	Each
94	Carving chisel set	(55 in set)	3	sets
95	Carver's vice		25	Nos.
96	Hold fast clamp		5	Nos.
97	Veneer samples	(100 x 100 mm) (20-30 sample per book)	3	Books
98	Veneer splicer	(900 mm throat depth)	1	No.
99	Veneer cutting machine	(8')	1	No.
100	Glue spreader	(4' wide)	1	No.
101	Hydraulic hot press	(2-3 plates)	1	No.
102	Universal belt sander	(8')	1	No.
103	Edge sander	(3-4')	1	No.
104	Drum sander	(4')	1	No.
105	Portable belt sander	(4")	2	Nos.
106	Orbital sander	(4-6")	3	Nos.
107	Spray gun		3	Nos.
108	Nozzels		5	Nos.
109	Air compressor	(10-35 litre capacity)	2	Nos.
110	Spraying booth	Standard	1	No.

111	Powder coating plant		1	No.
112	Product hanging trolley		1	No.
113	Stitching machine		1	No.
114	Scissors		5	Nos.
115	Clamping device		5	Nos.
116	Portable grinder	(both side grinding discs)	2	Nos.
117	Hack saw	1'	3	Nos.
118	Sheet cutter		2	Nos.
119	Portable nibbler	Standard	2	Nos.
120	Rivet plier	Standard	2	Nos.
121	Drill press	(1-13 mm chuck)	1	No.
122	Portable electric drill	(1-13 mm chuck)	2	Nos.
123	Sheet bending press		1	No.
124	Arc welding plant	Portable	1	No.
125	Spot welding plant		1	No.
126	Gas welding plant		1	No.
127	Portable disc grinder	6-12"	1	No.
128	Cling foil binder		2	Nos.
129	Pneumatic stapler	(10-50 mm)	2	Nos.
130	Bar code printer		1	No.
131	Hand Pallet		3	Nos.
132	Manual fork lifter	10-15' lift, 5 ⁰ tilting	1	No.
133	CNC machining centre	(3-5 axes, ATC)	1	No.
134	CAM software	Art CAM or other	1	No.
135	CNC turning lathe		1	No.
136	Aggregates	(4 sided)	3	Units
137	Dust collection units		3	Units
138	CNC laser machine	(6 x 4' or 8 x 4' table)	1	No.
139	4-Side planner / moulder	(100-450 mm wide)	1	No.
140	Dovetail template	12"	3	No.
141	Compound mitre saw	(1')	1	No.

142	Projector	Standard	1	No.
143	Beam Saw	3600 x 2200 mm	1	No.
144	Portable thickness planner	10-12"	1	No.
145	Boring braces	150-300 mm	2	Nos.
146	Dowel Boring Machine		1	No.
147	Domino Joiner	6-12 mm	1	No.
148	Flame blower	Standard	1	No.
149	Carcass press	12 x 2' (approx)	1	No.
150	Portable circular saw	12" blade	1	No.
151	Portable planner	4-6" blade	1	No.
152	Portable sander	4-6"	1	No.
153	Biscuit Jointer	Standard	1	No.
154	Scissors	Standard	2	Nos.
155	Slot Mortiser	Variable 6-12 mm	1	No.
156	Spray booth	10' (approx)	1	No.
157	Bar clamps	4', 5'	5	Each
158	F clamp	1, 1.5, 2, 3, 5, 6'	5	Each
159	Quick action clamp	2'	5	Nos.
160	Cam clamp	1'	20	Nos.
161	C clamp	4"	10	Nos.
162	Mitre clamps	Standard	5	Nos.
163	Wire clamps	3"	10	Nos.
164	Mitre plier	Standard	2	Nos.
165	Pin hammer	100 g	5	Nos.
166	Measuring tape	3 M	25	Nos.
167	Stitching Machine	Standard	1	No.
168	Internet device	Standard	1	No.
169	Wi-fi router	Standard	1	No.
170	Strap clipper	Standard	2	Nos.
171	Strap punch	Standard	2	Nos.
172	Wrapping Machine	Standard	1	No.

173	Cutting blades	TCT, 10-14"	5	Each
174	Chain Mortiser Machine or Slot Mortiser Machine	8, 10 mm	1	No.
175	Finishing line for boards		1	Set
176	Multimedia Projector		2	Units
177	Projection Screen		2	Nos
178	Multi Boring Machine		1	No
179	Edge Banding Machine	0.3-8 mm,	1	No.
180	Planner blades	As per machine	5	Units
181	Cordless screwdriver	18 v	2	Nos
182	Pneumatic drill machine		2	Nos
183	Pneumatic screwdriver		2	Nos
184	Hose Pipe with quick coupling set		2	Sets

Sr#	Name of Consumable Supplies	Quantity
1	Gloves	
2	Apron	
3	goggles	
4	Dust mask	
5	Chemical hazard mask	
6	Safety shoes	
7	Ear plugs	
8	Brushes	
9	Phenyl powder	
10	Report templates	
11	Paper (A4)	
12	Note pad	
13	Record register	
14	Pencils (3H, 2H, & 2.5 H.B.)	
15	Basic Furniture items (blocks, shapes)	
16	Assembled furniture products (Table, chair, racks)	
17	Unassembled furniture products (Table, chair, racks)	
18	Drawing sheets	
19	Rubbers	
20	Pencil sharpners	
21	Geometry box (Protector, Shape templates, text template, compass)	
22	French curves	
23	Paper tape (1/2", 3/4")	
24	Wooden logs	
25	Log sawing blades	
26	Plywood (8x4 x 3mm)	
27	Plywood (8x4 x 6 mm)	

28	M.D.F. (8' x 4' x 3 mm)	
29	M.D.F. (8' x 4' x 7 mm)	
30	M.D.F. (8' x 4' x 16 mm)	
31	Oil stone	
32	Knock down fittings (various types)	
33	Nails (1" x 17, 1/2" x 20, 1-1/2" x 14)	
34	Screws (1/2" x 4,6, 3/4" x 8, 1", 1.5" x 8)	
35	Dowels (8 x 35mm, 10 x 45mm)	
36	Domino (25 x 35, 25 x 45)	
37	Corrugated fasteners	
38	White glue	
39	Hot melt glue sticks	
40	Glue gun	
41	Urea formaldehyde glue	
42	Contact cement (Samad)	
43	Wood planks	
44	Board pieces	
45	Profile cutters (various designs)	
46	Profile cutter (bevel angle)	
47	Straight profile	

48	v-grooving profile	
49	Solid profile (various designs)	
50	Sand paper (80, 100,140, 220,320)	
51	Veneer tape roll	
52	Thread roll	
53	Sanding belt (as per machine)	
54	Drawer railing (12", 14", 18")	
55	Handles	
56	Locks (Drawer lock, mortise lock, rim lock, century lock, pad lock)	
57	Casters	
58	Catchers	
59	Sand papers grits (80, 100, 140, 220, 320)	
60	Putty (Chalk powder, color, glue, water, plaster of paris, zinc)	
61	Stains (Various colours)	
62	Methylated spirit	
63	Oils (various)	
64	Liquid ammonia	
65	Sealer	

66	Lacquers (Various)	
67	Thinner	
68	Undercoat	
69	N. C. paints	
70	Leafing papers (various)	
71	Wax (box and sticks)	
72	Foam (1", 1.5", 2", 4", 6" in thickness)	
73	Sofa cloth (various designs)	
74	Leather	
75	Leatherite	
76	Rubber strips	
77	Shoe tacks	
78	Springs	
79	Cotton dori	
80	Jute	
81	Markeen cloth	
82	Thread	
83	Buttons	
84	Paper tape	

85	Marking chalk	
86	Needles	
87	U-pins	
88	Natural cane	
89	Synthetic cane	
90	Metal sheets	
91	Metal pipe (20 x 20, 25 x 25, 40 x 20, 40 x 12, 38 x 38 mm)	
92	Angle iron (various size)	
93	Grinding disc (various size)	
94	Boring bits (3, 4,5,6,8,10,12,20,25,30 mm)	
95	Rivets (12, 20, 30, 40, 50 mm)	
96	Grinding disc	
97	Welding rods	
98	Knock down fittings (various kinds)	
99	Brackets	
100	Corrugated sheet	
101	Bubble wrap	
102	Jumbolan	
103	Polythene wrap	

104	Cling foil	
105	Packing roll	
106	Plastics (various thickness)	
107	u-pins (12, 20)	
108	Software CD's	
109	Drawing roll	
110	CNC bits	
111	CNC cutters	
112	Wooden blocks	
113	CNC turning tools (bits, wheels)	
114	Profiles & bits	
115	Laser tube	
116	Jigs & Fixtures	
117	Health & Safety manual	
118	Spray nozzles	
119	Solid profiles	
120	Seasoning stacking model	
121	Horse rack	
122		

Credit values

The credit value of the Furniture Technician National Certificate Level 4 in Furniture Technicians defined by estimating the amount of time/ instruction hours required to complete each competency unit and competency standard. The NVQF uses a standard credit value of 1 credit = 10 hours of learning (Following Higher Education Commission (HEC) guidelines).

The credit values are as follows:


Competency Standard	Estimate of hours	Credit
A: Develop drawings of furniture products manually	140 Hours	14
B: Prepare wooden components of the furniture	60 Hours	06
C: Join components of the furniture	200 Hours	20
D: Apply surface aesthetics	100 Hours	10
E: Assemble furniture products	20 Hours	02
F: Perform finishing operations	120 Hours	12
G: Perform Upholstery	100 Hours	10
H: Develop Metal Furniture Products	110 Hours	11

Competency Standard	Estimate of hours	Credit
I: Handle Logistics	20 Hours	02
K: Develop drawing of furniture products using CAD/CAM	140 Hours	14
L: Apply surface aesthetics using CNC machines	190 Hours	19

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