

# WOOD WORKING AND FURNITURE MAKING

## COURSE CONTENTS FOR 10<sup>TH</sup> CLASS

### THEORY

Text	Scope
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#### Chapter No.1

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|--|---|
| 1. <b>Boring tools (bits, drills) and Braces</b><br>(03 periods) | • Describe the types of boring tools  |
| 1.1 Bits   | • Describe the auger bit, gimlet bit, expensive bit, center bit, handled auger bit and counter sink bit |
| 1.2 Drills   | • Describe the list of twist drill, taper shank drill, straight shank drill                             |
| 1.3 Parts of twist drill   | • Explain the parts of twist drill  |
| 1.4 Sharpening of auger bit                                      | • Explain how to sharp auger bit  |
| 1.5 Sharpening of twist drill                                    | • Explain how to sharp twist drill  |
| 1.6 Braces/ hand drill machines                                  | • Describe the ratchet brace, hand drill and machine(crank drill)                                       |

#### Chapter No.2

- |  |  |
|--|--|
| 2. <b>Nails and Screws</b><br>(02 periods) |  |
| 2.1 Kinds of nails                         | • Explain the kinds of nails   |
| 2.2 Types of screws                        | • Describe the types of screws ( flat head screws, phillip screws, oval head screws and self threads screws) |

#### Chapter No.3

- |   |   |
|---|---|
| 3. <b>Types of Screw drivers and Scrapers</b><br>(04 periods) |   |
| 3.1 Types of screw drivers                                    | • Describe the list of screw drivers ( flat end screw drivers, phillip screw driver, carpenter screw driver and ratchet screw driver) |
| 3.2 Types of scrapers   | • Explain the kinds of scrapers, hand scrapers, cabinet scrapers & box scrapers   |

Text	Scope
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#### Chapter No.4

#### 4. Hammers and Mallets (02 periods)

- 4.1 Kinds of hammers
- 4.2 Kinds of mallets

Describe the kinds of hammers ( claw hammer, cross pen hammers and ball pen hammers)  
Describe the kinds of mallets (wooden mallets, rubber mallet and plastic mallets)

#### Chapter No.5

#### 5. Files, Holding and Miscellaneous (05 periods)

- 5.1 Parts of file
- 5.2 Types of file
- 5.3 Holding tools
- 5.4 Miscellaneous tools

- Describe parts of the file
- Describe the types of files used in wood working ( half round file, triangular file, rasp, double edge saw file and needles files)
- Explain the wood working vise, bench vise, saw sharpening vise. C clamp, parallel clamp, hand vise and hand cramp
- List of working bench, bench hook, miter box, miter block, working stand, glue pots, glue spreaders, oil stone, oilcan, brushes
- Describe the nail puller, nail punch and pincer

#### Chapter No.6

#### 6. Surface Finishing, Colouring and Painting (06 periods)

- 6.1 Sand papers
- 6.2 Filling
- 6.3 Staining
- 6.4 Painting/polishing

- Describe the sand papers and their uses (grades)
- Explain the filling of grooves and cracks
- Describe the colouring with turkey umber yellow umber, rawcyiana
- Describe sprit staining, oil staining
- Explain the varnishing, sprit polishing, wax polishing, enameling

#### Chapter No.7

#### 7. Glues (04 periods)

- 7.1 Kinds of glues

- Explain the glues
- Describe casing glue, fish glue, vegetable glue
- Give the methods of preparation of glue
- Methods of gluing

Text	Scope
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### Chapter No.8

**8. Wood Veneer, Ply Wood, Hard Board and Formica  
(04 periods)**

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|------|---|---|
| 8.1  | Introduction                                  | • Explain the introduction of veneers   |
| 8.2  | Cutting                                       | • Describe the veneer cutting   |
| 8.3  | Kinds of veneer                               | • Describe the kinds of veneer( fancy veneer, commercial veneer and packing veneer) |
| 8.4  | Uses of veneer                                | • Describe the uses and benefits of veneer  |
| 8.5  | Plywood                                       | • Explain the introduction of plywood   |
| 8.6  | Uses of plywood                               | • Describe the uses and benefits of ply wood  |
| 8.7  | Methods of plywood                            | • Describe manufacturing methods of plywood   |
| 8.8  | Characteristics of plywood                    | • Define the detail of characteristics of plywood                                   |
| 8.9  | Hard board                                    | • Brief introduction of hardboard   |
| 8.10 | Preparation and characteristics of hard board | • Give the method of preparation and characteristics of hard board                  |
| 8.11 | Uses of hard board                            | • Explain the uses of hard board  |
| 8.12 | Formica                                       | • Brief the introduction of formica   |
| 8.13 | Characteristics of formica                    | • Explain the preparation, characteristics and uses of formica                      |

**WOOD WORKING AND FURNITURE MAKING  
LIST OF PRACTICALS 10<sup>TH</sup> CLASS:**

**SKILL REQUIREMENT**

1. Prepare a simple picture frame  
Prepare a switch board  
Prepare a paper tray  
Prepare a waste paper basket

Book Shelf  
Books ends

Center Table  
Stool  
Folding stool  
Towel Stand

1. Finishing of Center Table

- 1.1 Sand papering
- 1.2 Surface colouring
- 1.3 Sprit Polishing

2. Painting of Towel Stand

- 2.1 Sand papering
- 2.2 1<sup>st</sup> Coat of Enamel by brush
- 2.3 2<sup>nd</sup> coat of enamel by brush

Repairing and refinishing of house hold and school furniture

**WOOD WORKING AND FURNITURE MAKING**  
**MACHINES USED IN WOOD WORKING**

1.	Planer	One No.
2	Thicknesser	One No.
3	Band Saw	One No.
4	Circular saw	One No.
5	Drill machine (Pedestal) Height 4' to 5'	One No.
6	Turning lathe size 5' (Mughal or Al-Hilal)	One No.
7	Mortise machine (Hilal)	One No.

**LIST OF HAND TOOLS**

S.No.	Name of Item	Quantity
1.	Foot Rules (China)	40 Nos.
2.	Try Square (England)	20 Nos.
3.	Carpenter Square(Framing Square)	05 Nos.
4.	Slide Tee Bevel 8 inches	05
5.	Making Gauge 8 inches	20
6.	Mortise Gauge 8 inches	05
7.	Divider 8 inches	10
8.	Outside Caliper 8 inches	10
9.	Inside Caliper 8 inches	10
10.	Cross Cut Saw 14-18inches	20
11.	Rip Saw 14-18inches	20
12.	Tenon Saw (Back Saw) 12-14 inches	20
13.	Dovetail Saw 10 inches	05
14.	Turning Saw 14-18 inches	05
15.	Coping Saw 6-8 inches	10
16.	Compass Saw 10-12 inches	05
17.	Key Hole Saw 10-12 inches	05
18.	Jack Plane 12 inches	20
19.	Jointer Plane 18-24 inches	10
20.	Smooth Plane 8 inches	20
21.	Block Plane 6 inches	05

S.No.	Name of Item	Quantity
22.	Rabbet Plane 8 inches	05
23.	Router Plane	05
24.	Circular Plane	05
25.	Spoke Shave Plane	05
26.	Socket Chisel 1/4inches, 1/2inches 1" 2" Cutting edge	40 Nos. each
27.	Tang Chisel 1/8", 1/4" 1/2" (Cutting edge)	10 Nos. each
28.	Mortise Chisel 1/4", 1/2", 3/4" 1"	20 Nos. each
29.	Gouges	05 sets
30.	Auger Bit	05 sets
31.	Twist Bit	05 sets
32.	Iron Drill	05 sets
33.	Gimlet Bit	05 sets
34.	Straight Shank Drill	10 Nos.
35.	Taper Shank Drill	05 Nos.
36.	Counter sink Bit	10 Nos.
37.	Center Bit	05 Nos.
38.	Handled Auger Bit	05 Nos.
39.	Ratchet Brace	05 Nos.
40.	Hand Drill (simple crank drill)	05 Nos.
41.	Claw hammer 1/2"	20 Nos. each
42.	Cross peen hammer	10 Nos.
43.	Straight peen hammer	05 Nos.
44.	Wooden mallet	20 Nos.
45.	Rubber mallet	05 Nos.
46.	Plastic Mallet	05 Nos.
47.	Nail Puller	05 Nos.
48.	Pincer	10 Nos.
49.	Nail punch	10 Nos.
50.	Screw Driver (Flat end) 8", 10", 12"	10 Nos. each
51.	Screw driver (narrow end) 8", 10", 12"	10 Nos. each
52.	Phillip screw driver 6", 8", 10"	10 each

S.No. Name of Item	Quantity
53. Ratchet screw driver (England)	03 Nos.
54. Hand scraper	05 Nos.
55. Cabinet scraper	05 Nos.
56. Half round file 10" (Brazil)	40 Nos.
57. Triangular file 4", 6", 8"	20 Nos. each
58. Round file 6", 8", 10"	10 Nos. each
59. Rasp file 10", 12"	10 Nos. each
60. Double edge saw file 8", 10"	05 Nos. each
61. Needle file Pocket size 8"	03 sets
62. Wood workers vise (imported)	40 Nos.
63. Bench vise 6" (imported)	10 Nos.
64. Hand Cramp 4', 6'	05 Nos. each
65. C clamp 6", 10" (imported)	06 pairs each
66. Parallel clamp	06 pairs
67. Work bench with vises	10 Nos.
68. Miter box	01 No.
69. Work stand	04 Nos.
70. Glue pots	02 Nos.
71. Brushes for bench cleaning	20 Nos.

**WOOD WORKING AND FURNITURE MAKING**  
**LIST OF CONSUMABLE MATERIALS**  
**(9<sup>TH</sup> and 10<sup>TH</sup> CLASSES)**

S.No.	Name of Items and size	Qty
1.	First Aid Box with Accessories	01
2.	Dcodar Wood	60 Cu.feet
3.	Shesham Wood	60 Cu.feet
4.	Ply wood 4" x 8" x 118"	2 Sheet
5.	Weneer 4' x 8" x 3/4	10 Sheet
6.	Sand papers 0,1,1-1/2, 1,2, No.	30 Each Nos.
7.	Umpers of all 3 colors	3 packets each colour
8.	Sprit (mathelated)	20 liter
9.	Enamel Paint	20 liter
10.	Nails 1/2', 3/4" 1", 1-1/2" 2"	1 Kg
11.	Screw 1/2', 3/4" 1", 1-1/2" 2"	3 pkts
12.	Shallac	10 Nos
13.	Sundres	2 Kg
14.	Mulmal cloth	1/2 kg
15.	White Glue	30 mtr
16.	Animal Glue	10 pkts
17.	Chalk Metti	15 kg
18.	Jute Brush	20 Nos.



## REFERENCE BOOK FOR TEACHERS

1. Wood Work, GW Brazier NA Haris, Printed in Great Britain by Fletcher & Son Ltd, Norwich

## GENERAL RECOMMENDATIONS

### *Text Book*

1. The textbook should be fully illustrated based on approved national curriculum.
2. The language used should be Urdu/English. Script should be simple and easy. Examples should be chosen from every day life wherever possible.
3. There should be uniformity in terminology in textbooks. For this purpose a glossary of uniform terminology based upon S.I. Units should be prepared and provided.
4. The Technical Terms/Terminology should not be translated as such and these should be directly written in Urdu.
5. Objective type as well as descriptive test items should be provided at the end of each chapter, which should serve as guideline for students and teachers.
6. The experiments suggested in the curriculum should be dealt with in detail in a separate Practicals' Manual. The experiments should be prescribed in an open-ended manner.
7. Since curriculum development is a continuous process, a follow-up committee should be formed to check its proper implementation and evaluation.

### *Practical Manual*

In order to maintain a uniform standard of practical activities throughout the country, Practical Manual should be prepared for the purpose. This manual should cover all the practicals in the trade indicating Title of practical, material, Tools & Instruments, Procedure, figure(s), Readings/ output data/result/conclusions and safety precautions etc. The final practical examination should be based on the activities prescribed in the curriculum.

### *Teacher's Guide*

In order to provide direction in the planning of academic activities, the Trade teacher needs some resource material to bank upon. A teacher's guide giving essential background information, knowledge, lesson schemes, objectives, teaching methodologies, motivation, conducting practical, assessment procedures etc. be prepared for the purpose and provided to the Trade teachers.

### *Workshop*

1. In order to facilitate the students to develop desired skills and competencies, it is recommended that practical activities should be carried out individually, where possible.
2. The workshop should be fully equipped as stipulated in the Curriculum. Provision should be made in school budget to purchase/replace latest tools and equipments to update the workshop.
3. Recommended consumables should be provided for practicals in reasonable quantity.

### ***Evaluation of Curriculum***

It is recommended that provincial curriculum evaluation committees should be formulated on permanent basis comprising curriculum experts, teacher trainers, working technical teachers, experts, subject specialists and educationists to evaluate the shortcomings and achievements of the curriculum. The committees will be expected to remain in contact with the teachers to obtain feedback for decision making.

### ***Methodology of Instruction***

Following methods of teaching may be used in technical education as considered appropriate by the teacher:

1. Project Method
2. Illustration Method
3. Investigation Method
4. Demonstration Method
5. Practice/Drill Method
6. Lecture Method
7. Assignment Method
8. Discussion (Questions & Answers) Method
9. Visit to industry
10. Tutorial

### ***Characteristics of Technical Teachers***

For effective instruction, the desirable qualities of competent technical teachers should be:-

- a) Good manager, facilitator, and counsellor
- b) Educational background and industrial experience
- c) Mastery of instructional techniques
- d) Competence in the subject
- e) Resourcefulness and creativeness
- f) Ability to develop good personal relationship with students
- g) Knowledge of performance evaluation procedures

### ***Promotional Activities***

During education various co-curricula activities develop and promote interest, positive attitudes and commitment. Following activities may be utilized to promote Vocational and Technical Education:

1. Technical club
2. Bulletin Board
3. Exhibition corner
4. Display of Projects

5. Quiz Contests
6. Technical & Science exhibition
7. Technical & Science Fair
8. Technical & Science Olympiad etc.

### ***Assessment of Student Achievement***

The procedure in vogue for evaluation is the examination. It is however, suggested that in addition to annual examination, the teachers should also evaluate class work on completion of each lesson/unit followed by periodic tests in the subject. Besides periodic and annual tests, skill standards prepared by National Training Bureau should be used at the end of the year.

For the purpose of classroom appraisal, individual as well as group technique may be used. The tests should comprise both short answer and objective type questions. Assessment should focus knowledge, skills, competencies, and application of concepts and ability to use the techniques and tools. It is therefore, suggested that a comprehensive scheme of knowledge, skills, competencies etc. be prepared to assess students' achievements. Rigorous efforts are needed to prepare such items. Standardized test items, be prepared for the use of the examining Boards and also for the classroom teachers.

It is to be kept in mind that students study habits are influenced by the teacher's method of testing. It is therefore, suggest that examination should be a meaningful activity.

### ***Recommended Scheme of Studies***

Each vocational subject is being divided into two parts – theory and practical, of 50 marks each. Geometrical and Technical Drawing is included as an essential part of the engineering trades. Questions of 20 % marks will be from Geometrical and Technical Drawing and the rest of the examination will be of 80% marks covering the whole theory and practical course of the respective trade.

Relative Marks distribution in Examination is as under:

Theory Paper: 50	(i)	Trade	40 Marks
	(ii)	Geometrical & Technical Drawing	10 Marks
Practical Paper: 50	(i)	Trade	40 Marks
	(ii)	Geometrical & Technical Drawing	10 Marks
Total: 100			

In the examination, the level of learning abilities to be tested may be taken as:

*Knowledge* – The ability to recall facts, nomenclature, classifications, practical techniques, laws and theories, straight-forward calculation and computation.

*Comprehension* – The ability to translate data from one form to another (verbal into mathematical, tabular or graphical and vice versa) to interpret or deduct the significance of data, and to solve problems.

*Application* – The ability to apply knowledge, experience and skill to new situations presented in a novel manner.

In the theory examination paper such questions may be set which facilitate to test learning abilities related to *Knowledge, Comprehension* and *Application*.

The questions asked may provide the students an opportunity to give reasoned arguments, to apply his knowledge to the theoretical and practical problems, or to interpret given data and apply in the situation described thereby.

In the practical examination, the student will be required to perform a practical, to use tools and equipment, to observe and tabulate data, perform calculations and draw graphs, to locate fault, to make physically required circuits, to troubleshoot and repair desired circuit/unit etc.

In the practical examination, the level of competencies and skill to be tested may be taken into five categories as:

*Imitation* - The ability to observe skill and attempt to repeat it.

*Manipulation* - The ability to perform skill according to instruction rather than observation.

*Precision* - The ability to reproduce a skill with accuracy, proportion, and exactness.

*Articulation*- The ability to combine more than one skill in sequence with harmony and consistency.

*Naturalisation* – The ability to comprehend one or more skills with ease and adapt automatically with limited physical or mental exertion.

*Use of Tools* - The skills and competencies to use tools and equipment.

Approximate percentage of marks allotted to each of the above abilities may be:-

<i>Knowledge</i> .....	20 %
<i>Comprehension</i> .....	25 %
<i>Application</i> .....	15 %
<i>Skills and competencies</i> .....	40 %