WOOD TECHNOLOGY AND DESIGN SYLLABUS

FORM 1 - 4

2015-2022

Curriculum Development and Technical Services,
P.O. Box MP 133, Mount Pleasant, Harare

© All Rights Reserved
Revised 2015
ACKNOWLEDGEMENTS

The Ministry of Primary and Secondary Education wishes to acknowledge the following for their valued contribution in the production of this syllabus:

- The National Food Technology and Design Syllabus Panel
- Panelists for Wood Technology and Design
- Government Departments: Psychomotor Activities
- Belvedere Technical Teachers’ College
- Zimbabwe School Examinations Council (ZIMSEC)
- University of Zimbabwe Department of Technical Education
- Captains of Industry
- United Nations International Children’s Emergency Fund (UNICEF)
- United Nations Educational, Scientific and Cultural Organisation (UNESCO)
### TABLE OF CONTENTS

1.0 ACKNOWLEDGEMENTS ................................................................. 1

1.0 PREAMBLE.................................................................................. 4
1.1 INTRODUCTION.......................................................................... 4
1.2 RATIONALE............................................................................... 4
1.3 SUMMARY OF CONTENT ......................................................... 5
1.5 ASSUMPTIONS .......................................................................... 7
1.6 CROSS-CUTTING THEMES ....................................................... 7

2.0 PRESENTATION OF THE SYLLABUS ......................................... 8

3.0 AIMS.......................................................................................... 8

4.0 SYLLABUS OBJECTIVES ........................................................... 9

5.0 METHODOLOGY AND TIME ALLOCATION .............................. 9

6.0 TOPICS..................................................................................... 10

7.0 SCOPE AND SEQUENCE .......................................................... 11

8.0 COMPETENCY MATRIX .............................................................. 18

9.0 ASSESSMENT ............................................................................ 119
9.1 ASSESSMENT OBJECTIVES ...................................................... 121
9.2 ASSESSMENT MODEL ................................................................. 9
9.3 SCHEME OF ASSESSMENT ....................................................... 122
9.4 SPECIFICATION GRID ............................................................... 122

10 GLOSSARY/APPENDICES............................................................ 122
1.0 PREAMBLE

1.1 Introduction
The Wood Technology and Design syllabus covers Forms 1-4. The problem solving approach will be at the centre of implementation of this syllabus. It also ensures access to learning and teaching Wood Technology and Design regardless of gender and different physical abilities.

The syllabus promotes learners’ development of psychomotor skills and ensures that they develop socially, physically, emotionally and cognitively. It serves as a firm foundation for entry into the construction industry, self-reliance, entrepreneurship and further studies in Wood Technology and Design.

1.2 Rationale
The syllabus will develop qualities which will emphasize the learners’ role in making and shaping of their environment. It fosters the learner’s ability to employ problem solving skills which will promote the application of scientific and technological knowledge. The syllabus will promote entrepreneurial, recreational and other life skills relevant in the contemporary society. The learning area will enable learners to appreciate the dignity of labour, integrity (unhu/ubunt) and patriotism. It will also enable learners to value the use of different materials in design. This would allow greater flexibility in solving practical problems encountered in everyday life. An integral part of the syllabus will be the development of the learners’ appreciation of the significance of the principal raw materials used in the workshop. The learner will be made aware of the subject’s environmental and economical impact and provide solutions. The syllabus will inculcate the culture of maintenance and self-reliance.

1.3 Summary of Content
The Form 1 – 4 Agriculture syllabus will cover theory and practical activities in areas of soil, water, plant and animal management, farm tools and machinery and agri-business. This four-year learning phase seeks to develop skills in sustainable soil, water, plant and animal management, farm tools and machinery as well as production of agricultural commodities. The syllabus will help all learners to acquire marketing and value addition skills.

- workshop safety and health
- science of materials (indigenous and exotic)
- use and maintenance of woodworking tools and equipment
- problem solving
- construction and production techniques
- workshop calculations and costing
- drawing and design
- Enterprise skills.

1.4 Assumptions
The syllabus assumes that learners have:

- drawing and measuring skills
- knowledge of some woodworking tools, equipment and materials
- knowledge of different wood artefacts
- information communication technology and skills
- numeracy and scientific skills
- engaged in individual and group work activities
- knowledge of environment, health and safety

1.5 Cross-cutting themes
In order to foster competency development for further studies, life and work, the following cross-cutting themes have to be taken into consideration in the teaching and learning of Wood Technology and Design:

- Gender
- Children’s rights and responsibilities
- Disaster risk management
- Financial Literacy
- Life Skills (HIV/ AIDS)
- Child Protection
4.2 identify appropriate tools, equipment and materials for specific tasks

4.3 demonstrate processes and technical skills involved in the making of artefacts

4.4 calculate quantities and cost of materials required for projects

4.5 design useful projects as solutions to problems using technologies

4.6 use resources in a sustainable manner in the design and realisation of artefacts working within the constraints of cost and time

4.7 describe conservation of trees in relation to the ecosystem, environment and climate

4.8 demonstrate graphical communication skills relating to artefacts or systems using ICT tools

4.9 practise wood technology and design as an enterprise

4.10 demonstrate patriotism through community development projects

4.11 demonstrate an understanding of properties of materials used in Wood Technology and Design

4.12 apply scientific principles and technology in solving real life problems

4.13 demonstrate desirable interpersonal dimensions, attitudes and moral values underlying attributes of Unhu/Ubuntu/Vumunhu philosophy

5.0 METHODOLOGY AND TIME ALLOCATION

Methodology

This syllabus is based upon a learner-centred and
multi-sensory approach. Workshop science and calculations should be an integral part of every practical exercise. Linkage between theory and practice is strongly encouraged in the learning and teaching of Wood Technology and Design. This approach should also create awareness of environmental issues. The use of Information Communication Technology (ICT) tools is mandatory.

**Suggested Methods**

- Discussions
- Project work
- Group work
- Experimentation/Discovery
- Problem Solving
- Demonstration
- Question and Answer
- Educational tours

**Time Allocation**

8x 40 minutes’ periods per week. 6 practical block lessons and 2 theory block lessons are required. One educational tour per Form per year. Learners should exhibit their projects once per year.

**6.0 TOPICS**

6.1 Safety and Health

6.2 Material Technology

6.3 Enterprise Skills

6.4 Tools and tool technology

6.5 Machines
### 7.0 Scope and Sequence

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>FORM 1</th>
<th>FORM 2</th>
<th>FORM 3</th>
<th>FORM 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7.1 Safety and Health</strong></td>
<td>• Workshop safety&lt;br&gt;• Tool safety&lt;br&gt;• Emergency safety</td>
<td>• Tool safety&lt;br&gt;• Portable power machines</td>
<td>• Regulations and Acts governing health and safety at work&lt;br&gt;• Code of practice for safe use of machinery</td>
<td>• Careers in health and safety&lt;br&gt;• Hazardous substances</td>
</tr>
<tr>
<td><strong>7.2 Materials Technology</strong></td>
<td>• Wood (growth and structure of trees, classification, characteristics)&lt;br&gt;• Metal properties&lt;br&gt;• Plastic properties&lt;br&gt;• Ceramics (properties)&lt;br&gt;• Rubber (types and properties)</td>
<td>• Wood (felling, Conversion, seasoning)&lt;br&gt;• Metal (ferrous and non-ferrous)&lt;br&gt;• Plastic (thermoplastics, thermostetting)&lt;br&gt;• Ceramics, glass, tiles, cement&lt;br&gt;• Finishes&lt;br&gt;• Adhesives</td>
<td>• Wood (Defects, Diseases Timber preservation, Veneers Built up material)&lt;br&gt;• Method of integrating&lt;br&gt;- Metal&lt;br&gt;- Plastic&lt;br&gt;- Ceramics&lt;br&gt;- Rubber&lt;br&gt;• Finishes&lt;br&gt;• Adhesives</td>
<td>• Wood scientific testing of metals&lt;br&gt;- Wood&lt;br&gt;- Metal&lt;br&gt;- Plastic&lt;br&gt;- Ceramics&lt;br&gt;- Rubber&lt;br&gt;• Finishes&lt;br&gt;• adhesives</td>
</tr>
<tr>
<td><strong>7.3 Enterprise Skills</strong></td>
<td>• Concept&lt;br&gt;• Materials and artefacts cost&lt;br&gt;• Business ethics (unhu/Ubuntu)&lt;br&gt;• Marketing</td>
<td>• Materials and artefacts costs&lt;br&gt;• Business ethics (unhu/Ubuntu) (leadership, team building, Innovation)&lt;br&gt;• Marketing&lt;br&gt;• Material orders</td>
<td>• Business ethics (unhu/Ubuntu), (Planning and organization, self-management, self-initiative, cooperation)&lt;br&gt;• Marketing&lt;br&gt;• Project proposal&lt;br&gt;• Business growth</td>
<td>• Business ethics (unhu/Ubuntu), (code of conduct, making ethical decisions)&lt;br&gt;• Marketing&lt;br&gt;• Project proposal&lt;br&gt;• Company formation</td>
</tr>
<tr>
<td>TOPIC</td>
<td>FORM 1</td>
<td>FORM 2</td>
<td>FORM 3</td>
<td>FORM 4</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
</tbody>
</table>
| 7.4 Tools and Tool Technology | • Holding and supporting tools (the workbench)  
• Measuring and marking out tools (rule, try square, marking gauge)  
• Bench planes  
• Saws (handsaws)  
• Chisels (paring, firmer)  
• Percussion and impelling tools (Warrington hammer, nail punch) | • Holding and supporting tools (G-cramp, sash, cramp, miter box)  
• Measuring and marking out tools (Mortise gauge, sliding bevel, Templates, Measuring tape)  
• Spoke-shaves – flat and round)  
• Saws. (Back Saws)  
• Chisels (Mortise, Registered mortise)  
• Percussion and impelling tools (mallet, Philips, Ratchet screwdrivers) | • Tool maintenance  
• Special purpose planes  
• Gouges  
• Saws (curve cutting saws)  
• Special purpose planes  
• Grinding and honing tools  
• Gears  
• Levers  
• Pulleys | • Intellectual Property Rights | • Business growth |
| 7.5 Machines | • Portable power tools (electric drill, jig saw) | • Portable power tools (electric hand plane, router) | • Machine tools (circular saw, grinder, pillar drill, surface planer) | • Tool maintenance  
• Multi-purpose planes  
• Appropriate technology  
• Simple structures  
• Cams  
• Linkages  
• Glue strength |
<table>
<thead>
<tr>
<th>TOPIC</th>
<th>FORM 1</th>
<th>FORM 2</th>
<th>FORM 3</th>
<th>FORM 4</th>
</tr>
</thead>
</table>
| 7.6 Construction, Processes and Hardware | • Preparation of materials  
• Marking out and cutting joints (Nailed butt, Tee halving, Corner halving)  
• Assembly (trial, closed)  
• Forms of construction (Flat frames, parts and joints)  
• Fixing tops and seats(Nailing)  
• Fasteners (Nails) | • Marking out and cutting joints (correct sequence, dovetail halving and through mortise and tenon joints)  
• Assembly (trial, closed and cleaning process)  
• Forms of construction (Flat frame, stool construction, parts and joints)  
• Fixing tops and seats ( Direct screwing, counter boring, pocket screwing) | • Marking out and cutting joints (correct cutting, haunched mortise and tenon, stopped housing, widening joints, common dovetails)  
• Machine operations  
• Assembly  
• Forms of construction (Carcase construction, simple framed and paneled, solid and carcase solid all round)  
• Fixing tops and seats (wooden button method, shrinkage plates)  
• Fittings ( Hinge, Locks) | • Marking out and cutting joints (Loose tongue and groove, slot screwing, lap dovetail, twin mortise, double mortise and tenon, strengthening of joints.)  
• Machine operations  
• Assembly (trial and closed, test for squareness, cleaning)  
• Forms of construction (drawer design, drawer construction)  
• Fixing tops and seats (slot screwing, modern methods)  
• Fittings (catches, other fittings) |
| 7.7 Joinery | • Doors (Uses and terms related to doors)  
• Windows (Uses and terms related to windows)  
• Wall fittings (Methods of fixing) | • Doors (Types, Class, Function, Parts)  
• Windows (Types, parts)  
• Wall fittings - Wall plugs | • Doors (Design of doors, iron mongery)  
• Windows ( Design of windows, Iron mongery)  
• Wall fittings -methods of fixing artifacts to the walls | • Doors (construction of doors, door fitting)  
• Windows (construction of windows, fixing windows) |
<table>
<thead>
<tr>
<th>TOPIC</th>
<th>FORM 1</th>
<th>FORM 2</th>
<th>FORM 3</th>
<th>FORM 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Nails)</td>
<td>- Roofs (Types and classification)</td>
<td>- Roofs (Roof design, covering materials, roof trusses)</td>
<td>- Roofs (construction of roofs, roof setting, roof determination)</td>
</tr>
<tr>
<td></td>
<td>- Formwork (Terms, material)</td>
<td>- Formwork (Release agents, dismantling)</td>
<td>- Formwork (construction of framework, methods of dismantling)</td>
<td>- Formwork (construction of framework, methods of dismantling)</td>
</tr>
<tr>
<td></td>
<td>- Ceiling (Uses of ceiling)</td>
<td>- Ceiling (fitting ceilings)</td>
<td>- Ceiling (fitting ceilings)</td>
<td>- Ceiling (fitting ceilings)</td>
</tr>
<tr>
<td>7.8 Carpentry</td>
<td>• Roofs (Uses of roofs, roof terminology)</td>
<td>• roofs (Types and classification)</td>
<td>• roofs (Roof design, covering materials, roof trusses)</td>
<td>• roofs (construction of roofs, roof setting, roof determination)</td>
</tr>
<tr>
<td></td>
<td>• Formwork (Terms, material)</td>
<td>• Formwork (Release agents, dismantling)</td>
<td>• Formwork (construction of framework, methods of dismantling)</td>
<td>• Formwork (construction of framework, methods of dismantling)</td>
</tr>
<tr>
<td></td>
<td>• Ceiling (Uses of ceiling)</td>
<td>• Ceiling (fitting ceilings)</td>
<td>• Ceiling (fitting ceilings)</td>
<td>• Ceiling (fitting ceilings)</td>
</tr>
<tr>
<td>7.9 Upholstery</td>
<td>• Upholstery (Tools used in upholstery)</td>
<td>• Upholstery (Terms, materials used)</td>
<td>• Upholstery (Application of simple upholstery techniques)</td>
<td>• Upholstery (Application of techniques of upholstery)</td>
</tr>
<tr>
<td></td>
<td>• Upholstery (Tools used in upholstery)</td>
<td>• Upholstery (Terms, materials used)</td>
<td>• Upholstery (Application of simple upholstery techniques)</td>
<td>• Upholstery (Application of techniques of upholstery)</td>
</tr>
<tr>
<td>7.10 Wood Finishing</td>
<td>• Abrasives (Coated abrasives - Glass Paper - Garnet)</td>
<td>• Abrasives (coated abrasives - emery cloth - aluminum oxide - silicon carbide)</td>
<td>• Sanding machines (portable)</td>
<td>• Sanding machines (belt sander, drum sander)</td>
</tr>
<tr>
<td></td>
<td>• Finishes (Terms relating to finishes, Reasons for applying finished Application and clearing)</td>
<td>• Finishes (Preparation of surfaces, Application of clear finish, Uses of solvents)</td>
<td>• Finishes (preparation of surfaces, applying of opaque finishes, use of solvents)</td>
<td></td>
</tr>
<tr>
<td>7.11 Graphics</td>
<td>• Free hand sketches</td>
<td>• Free hand sketches</td>
<td>• Drawing with instruments (2 point perspective,</td>
<td>• Drawing with instruments (orthographic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOPIC</td>
<td>FORM 1</td>
<td>FORM 2</td>
<td>FORM 3</td>
<td>FORM 4</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>• Drawing Instruments (types of lines)</td>
<td>• Drawing with instruments</td>
<td>orthographic drawing, sectional and exploded</td>
<td>drawing illustrating doors, drawers, shelving</td>
</tr>
<tr>
<td></td>
<td>• Drawing with instruments (lines)</td>
<td></td>
<td>• Computer aided Drawing</td>
<td>• Computer aided Drawing</td>
</tr>
<tr>
<td>7.12 Design</td>
<td>• Design process (design stages, Projects - pot stand, broom rack, coat hook, pencil stand, candle stand, money box)</td>
<td>• Design process (design stages, Projects - stools, tea tray, shoe rack, fruit tray, magazine rack, jewellery box)</td>
<td>• Design process (design stages, Projects - that include carcase and flat frame construction)</td>
<td>• Design process (design stages, Projects that include flat frame, carcase and stool construction using wood and other materials)</td>
</tr>
<tr>
<td>7.13 Management of Resources</td>
<td>• Sustainability</td>
<td>• Material Economics</td>
<td>• Waste management</td>
<td>• Artefact costing</td>
</tr>
<tr>
<td></td>
<td>• Afforestation</td>
<td>• Waste management</td>
<td>• Material cost</td>
<td>• Calculations</td>
</tr>
<tr>
<td></td>
<td>• Recycling</td>
<td>• Afforestation</td>
<td>• Calculations</td>
<td>• Afforestation</td>
</tr>
<tr>
<td>7.14 Wood Bending, Carving, Sculpting, Turning and Ornamentation</td>
<td>• Wood carving ( History, Traditional projects produced using wood)</td>
<td>• Wood carving (Decorating, artifacts)</td>
<td>• Wood turning lathe</td>
<td>• Wood turning (face plate turning, centre boring)</td>
</tr>
<tr>
<td></td>
<td>• Wood sculpture</td>
<td>• Wood sculpture</td>
<td>• Ornamentation - inlaying</td>
<td>• Ornamentation (parquetry, marquetry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• moulding</td>
<td>• Wood bending</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• spindle turning</td>
<td></td>
</tr>
</tbody>
</table>
### Wood Technology & Design (Form 1 - 4) Syllabus

#### Key Concepts

#### Objectives
Learners should be able to:

- **Workshop Safety**
  - demonstrate an understanding of safety rules in the workshop
  - explain methods of accident prevention in the workshop

- **Tool Safety**
  - demonstrate safe use and carrying of tools

#### Content (Attitudes, Skills and Knowledge)

<table>
<thead>
<tr>
<th>Key Concepts</th>
<th>Suggested Resources</th>
<th>Suggested Notes and Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop Safety</td>
<td>Print media, ICT tools</td>
<td>Identifying causes of accidents in the workshop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explaning methods of preventing accidents in the workshop</td>
</tr>
<tr>
<td>Tool Safety</td>
<td>Print media, ICT tools</td>
<td>Identifying causes of accidents in the workshop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explaining methods of preventing accidents in the workshop</td>
</tr>
</tbody>
</table>

#### Suggested Notes and Activities

- Workshop rules
  - learners
  - visitors
- Accident prevention
  - use of tools
  - carrying and storage of tools

#### Suggested Resources

- Print media
- ICT tools
- Realia such as the tools
### 8.1.3 Emergency Safety

**OBJECTIVES**

- identify First Aid and fire-fighting equipment in the workshop
- outline procedures to be taken for treatment of an accident victim

**SUGGESTED RESOURCES**

- First Aid kit
- Fire extinguishers
- ICT tools
- Print media

**CONTENT**

- First Aid procedures
- Identifying First Aid and fire-fighting equipment in the workshop
- Conducting fire drills
- Role play of accident scene

### 8.2 TOPIC 2: MATERIAL TECHNOLOGY

**KEY CONCEPT**

- Classify trees into hardwoods and softwoods
- Differentiate the growth and structure of hardwoods and softwoods
- Identify different parts of a tree
- Identify the characteristics and properties of woods

**OBJECTIVES** (ATTITUDES, SKILLS AND KNOWLEDGE)

- Classification of hardwoods and softwoods
- Growth and structure of trees
- Characteristics and properties of woods

**SUGGESTED NOTES AND ACTIVITIES**

- Classifying wood into hardwoods and softwoods
- Discussing the growth of trees
- Identifying the different parts of a tree
- Identifying characteristics and properties of:
  - Hardwoods
  - Softwoods

**SUGGESTED RESOURCES**

- ICT tools
- Print media
- Softwoods
- Hardwoods
<table>
<thead>
<tr>
<th></th>
<th>8.2.2 Metal</th>
<th>8.2.3 Plastic</th>
<th>8.2.4 Ceramics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification</strong></td>
<td>identifying classes of metals</td>
<td>identifying classes of plastics</td>
<td>identifying classes of ceramics</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
<td>listing uses of metals</td>
<td>listing uses of plastics</td>
<td>listing the uses of ceramics</td>
</tr>
<tr>
<td></td>
<td>print media</td>
<td>print media</td>
<td>print media</td>
</tr>
<tr>
<td></td>
<td>metals</td>
<td>plastics</td>
<td>ceramics</td>
</tr>
<tr>
<td></td>
<td>ICT tools</td>
<td>ICT tools</td>
<td>ICT tools</td>
</tr>
<tr>
<td></td>
<td>resource persons</td>
<td>resource persons</td>
<td>resource persons</td>
</tr>
</tbody>
</table>

- **Metals**
- **Plastics**
- **Ceramics**
### 8.2.5 Rubber

<table>
<thead>
<tr>
<th>Identify types of rubber</th>
<th>Types of rubber</th>
<th>Identify types of rubber</th>
<th>Print media</th>
</tr>
</thead>
<tbody>
<tr>
<td>State uses of rubber</td>
<td>Properties of rubber</td>
<td>Listing uses of rubber</td>
<td>Rubber</td>
</tr>
<tr>
<td>Identify types of rubber</td>
<td></td>
<td>Identifying properties of rubber</td>
<td>ICT tools</td>
</tr>
</tbody>
</table>

### 8.3 TOPIC 3: ENTERPRISE SKILLS

<table>
<thead>
<tr>
<th>KEY CONCEPT</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.1 Concept</td>
<td></td>
<td>Concept of Entrepreneurship Qualities of an Entrepreneur</td>
<td>Explaining the meaning of entrepreneurship Describing the qualities of an entrepreneur</td>
<td>Print media ICT tools Resource persons</td>
</tr>
<tr>
<td>8.3.2 Materials and Artefact Cost</td>
<td></td>
<td>Material orders Cost of materials Artefact costs</td>
<td>Drawing up orders for materials Calculating the cost of materials Calculating the cost of a simple artefact</td>
<td>Catalogues Quotations Electronic media</td>
</tr>
<tr>
<td>8.3.3 Business Ethics</td>
<td></td>
<td>Soft skills - fairness - firmness - honesty - self-motivation - integrity</td>
<td>Explaining the ethics</td>
<td>Resource persons ICT tools Print media</td>
</tr>
</tbody>
</table>
### 8.3.4 Marketing

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| - explain the concept of marketing  
- describe the skills/strategies/techniques | - Concept of marketing  
- Marketing (skills/strategies/techniques) | - Explaining the concept  
- Describing the skills/strategies/techniques | - Print media  
- ICT tools  
- Resource person |

### 8.3 TOPIC 3: ENTERPRISE SKILLS

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.4.1 Holding and Supporting Tools | - identify holding and supporting tools  
- sketch the holding and supporting tools  
- demonstrate the uses of holding and supporting tools  
- construct some of the holding and supporting tools | - Holding and Supporting tools:  
- bench vice  
- bench hook  
- bench stop  
- bench well  
- bench hold fast  
- Uses | - Identifying the holding and supporting tools  
- Illustrating holding and supporting tools  
- Demonstrating the uses of the holding and supporting tools  
- Constructing some of the holding and supporting tools | - Print media  
- Realia such as holding and supporting tools, bench tools  
- ICT tools  
- Timber |
### 8.4.2 Measuring and marking out tools

- Identify measuring and marking out tools.
- Identify the parts of these tools and explain their uses.
- Types
  - Rule
  - Try square
  - Marking gauge
  - Pencil gauge
  - Squaring rod
  - Thumb gauge
- Uses

- Identifying measuring and marking out tools
- Illustrating the structure of measuring and marking out tools
- Demonstrating the correct use of measuring and marking out tools

- Print media
- Measuring and marking out tools

### 8.4.3 Bench planes

- Identify bench planes
- Demonstrate the correct use of bench planes
- Identify the parts of a bench plane
- bench planes
  - trying plane/jointer
  - jack plane
  - smoothing plane
- Demonstration of correct use of bench planes
- Parts of bench planes
- Identifying the bench planes
- Demonstrating the correct use of bench planes
- Identifying the parts of a bench plane

- Print media
- ICT Tools
- Realia such as Bench planes
<table>
<thead>
<tr>
<th>Wood Technology &amp; Design Form 1-4 Syllabus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.4.4 Saws - Handsaws</strong></td>
</tr>
<tr>
<td>- Identify differences among handsaws</td>
</tr>
<tr>
<td>- Showing the differences of teeth type and points by sketches</td>
</tr>
<tr>
<td>- Identifying uses of handsaws</td>
</tr>
<tr>
<td>- Using handsaws</td>
</tr>
<tr>
<td>- Structure and construction of handsaws</td>
</tr>
<tr>
<td>- Sketch the handsaws</td>
</tr>
<tr>
<td>- Uses</td>
</tr>
<tr>
<td><strong>8.4.5 Chisels - Firmer and Paring</strong></td>
</tr>
<tr>
<td>- Identify different types of firmer and paring chisels</td>
</tr>
<tr>
<td>- Sketch different types of firmer and paring chisels</td>
</tr>
<tr>
<td>- Demonstrate use of firmer and paring chisels</td>
</tr>
<tr>
<td>- Uses of firmer and paring chisels</td>
</tr>
</tbody>
</table>

**Print media**
- Hand saws
- ICT Tools

**Realia such as**
- Firmer and Paring chisels
### 8.4.6 Percussion and Impelling Tools

**Print Media**
- Identifying percussion and impelling tools
- Sketching percussion and impelling tools
- Demonstrating the uses of percussion and impelling tools

**ICT Tools**
- Warrington hammer
- Ball-peen hammer
- Claw hammer
- Nail punch
- Bradawl

**Sketches of percussion and impelling tools**
- Uses of percussion and impelling tools

**Identifying percussion and impelling tools**
- Sketch the percussion and impelling tools
- Demonstrate the uses of percussion and impelling tools
8.5 TOPIC 5: MACHINES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.5.1 Portable power tools | • Explain safety precautions observed when using the power tools  
• Identify the parts of the power tools  
• State the use of the power tools  
• Operate the power tools | • Safety  
• Electric drill  
• Jig saw  
- Operation of machines | • Explaining safety precautions  
• Identifying power tools parts  
• Stating the uses of the power tools  
• Operating the power tools | • Print media  
• Electronic media  
• Realia such as electric drill and jig saw |

8.5 TOPIC 5: MACHINE

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.6.1 Preparation of Materials | • list planning steps in their correct order  
• Prepare a piece of timber to size correctly | • Correct planning steps using hand tools  
• Materials preparation | • Stating all the planning steps  
• Preparing a piece of timber to correct sizes | • Print media  
• Realia such as: pieces of timber and tools  
• ICT tools |
| 8.6.2 Marking out and cutting joints | • identify appropriate tools for marking out and cutting joints | • Correct sequence of marking out and cutting of the joints  
- Nailed butt  
- Tee –halving joint | • Identifying and selecting the correct tools  
• Marking out and cutting the joints | • Realia such as marking out tools, cutting tools, holding and supporting tools  
• ICT tools |
| 8.6.3 Assembly | • select appropriate tools for marking out and cutting joints  
• mark out and cut the joints correctly | - Corner-halving  
- Cross-halving joint | • Print media |
|----------------|-----------------------------------------------------------------|-------------------------------------------------|------------------|
| 8.6.4 Forms of Construction | • identify parts of a flat frame  
• identify the joints used in flat frame construction  
• identify artefacts that can be made using flat frame construction | - Flat frames  
- Parts  
- Joints – butt and halving  
- Artefacts that can be made | • Identifying the parts  
• Identifying the joints  
• Identifying the artefacts  
• Observing the finished products made from flat frame construction | • Samples of artefacts  
• Print media  
• ICT tools |
| 8.6.5 Fixing Tops and Seats | • Identify the nailing method  
• describe the nailing method  
• apply the nailing method | - Method  
- Nailing | • Identifying and describing the method  
• Selecting the correct tools  
• Fixing a top on artefacts | • Tools for nailing  
• Print media  
• Sample artefacts |
| 8.6.6 Fasteners | • identify common types of nails  
• state the uses of nails  
• sketch the nails | - Nails  
- Types  
- Uses  
- Parts | • identifying and naming the types of nails  
• stating the uses of nails | • Sample types of nails  
• Print media  
• ICT tools  
• Print media |
### 8.7 TOPIC 7: JOINERY

#### KEY CONCEPTS

<table>
<thead>
<tr>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED RESOURCES</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners should be able to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• state uses of doors</td>
<td>• Realia such as</td>
<td>• Identifying the nailing</td>
</tr>
<tr>
<td>• explain terms related to doors</td>
<td>• doors</td>
<td>method of fixing to the wall</td>
</tr>
<tr>
<td>• define terms related to windows</td>
<td>• terms related to</td>
<td>• Observing already fitted</td>
</tr>
<tr>
<td></td>
<td>• windows</td>
<td>artefacts on the wall</td>
</tr>
</tbody>
</table>

#### OBJECTIVES

<table>
<thead>
<tr>
<th>METHODS OF NAILING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners should be able to:</td>
</tr>
<tr>
<td>• sketching the method</td>
</tr>
<tr>
<td>• fixing an artefact on the wall</td>
</tr>
</tbody>
</table>

#### SUGGESTED RESOURCES

- Realia such as doors, windows, observings, nails, realia, clearing, nails, ICT tools
- Steel nails, print media, samples of already fixed artefacts

#### SUGGESTED NOTES AND ACTIVITIES

- Identifying the nailing method
- Observing already fitted artefacts on the wall
- Sketching the method
- Fixing artefacts on the wall using the nailing method

---

<table>
<thead>
<tr>
<th>8.7.1 Doors</th>
<th>8.7.2 Windows</th>
<th>8.7.3 Wall Fittings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses of doors</td>
<td>Uses of windows</td>
<td>Method of fixing to the wall</td>
</tr>
<tr>
<td>Terms related to doors</td>
<td>Terms related to windows</td>
<td>Nailing</td>
</tr>
<tr>
<td>Sketching the method</td>
<td>Defining terms related to windows</td>
<td>Fixing artefacts on the wall</td>
</tr>
<tr>
<td>Identifying the nailing method</td>
<td></td>
<td>Sketching the method</td>
</tr>
</tbody>
</table>

---

#### METHODS OF NAILING

- Nailing

---

<table>
<thead>
<tr>
<th>8.5  TOPIC 5: MACHINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners should be able to:</td>
</tr>
<tr>
<td>• identify the parts of a nail</td>
</tr>
<tr>
<td>• use the correct method of nailing</td>
</tr>
<tr>
<td>• list the requirements for ordering nails</td>
</tr>
<tr>
<td>• draw up an order for nails.</td>
</tr>
</tbody>
</table>
### 8.8 TOPIC 8: CARPENTRY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.8.1 Roofs  | • state uses of roofs  
• define terms related to roofs | • Uses of roofs  
• Roof terminology | • Stating uses of roofs  
• Defining the terms  
• Observing roofs on local buildings | • Realia such as roofs  
• Miniature roofs  
• Print Media |
| 8.8.2 Formwork | • define terms related to formwork  
• state materials used in formwork | • Terms  
• Materials | • Defining terms  
• Stating the material  
• Observing formwork on construction sites | • Realia such as formwork  
• Samples of formwork materials  
• ICT tools |
| 8.8.3 Ceiling | • state uses of ceiling | • uses of ceiling | • Stating uses of ceiling  
• Observing ceiling on local buildings | |

### 8.9 TOPIC 9: UPHOLSTERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.9.1 Upholstery | • identify tools used in upholstery | • Tools used in upholstery | • Identifying tools  
• Sketching tools  
• Observing upholstered furniture | • Tools used in upholstery  
• Print media  
• ICT tools |
### KEY CONCEPTS

#### 8.10 Topic 10: Wood Finishing

#### 8.10.1 Abrasives

- **OBJECTIVES**
  - Learners should be able to:
    - distinguish glass paper from garnet paper
    - state the grades of glass paper and garnet paper
    - describe how they are manufactured
    - use glass paper and garnet paper correctly

- **CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)**
  - Coated abrasives
    - Glass paper
    - Garnet paper
    - Coated abrasives grades

- **SUGGESTED RESOURCES**
  - Samples of glass paper and garnet paper
  - Print media

- **SUGGESTED NOTES AND ACTIVITIES**
  - Distinguishing glass paper from garnet paper
  - Stating the grades of glass paper and garnet paper
  - Describing how they are manufactured
  - Using glass paper and garnet paper correctly

- **SUGGESTED RESOURCES**
  - Samples of finishes
  - Tools used for finishing
  - Solvents
  - Recommended textbooks
  - ICT tools
  - Print Media

#### 8.10.2 Finishes

- **OBJECTIVES**
  - Learners should be able to:
    - define terms relating to finishes
    - state reasons for applying finishes
    - apply finishes correctly
    - clean brushes correctly

- **CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)**
  - Terms relating to finishes
  - Reasons for applying finishes
  - Application of finishes

- **SUGGESTED RESOURCES**
  - Samples of finishes
  - Tools used for finishing
  - Solvents
  - Recommended textbooks
  - ICT tools
  - Print Media

- **SUGGESTED NOTES AND ACTIVITIES**
  - Defining terms relating to finishes
  - Stating reasons for applying finishes
  - Applying finishes correctly
  - Cleaning brushes correctly

- **SUGGESTED RESOURCES**
  - Samples of finishes
  - Tools used for finishing
  - Solvents
  - Recommended textbooks
  - ICT tools
  - Print Media
### 8.11.1 Freehand Sketches

**OBJECTIVES**
- State types of grid paper
- Freehand drawing of isometric and oblique drawings using grid paper and plain paper
- Use plain paper to draw sketches

**SUGGESTED NOTES AND ACTIVITIES**
- Stating types of grid paper
- Freehand drawing of isometric and oblique drawings using grid paper and plain paper
- Using plain paper to draw sketches

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks

**CONTENT**
- Types of grid paper
- Pictorial drawing

**SUGGESTED NOTES AND ACTIVITIES**
- Stating types of grid paper
- Freehand drawing of isometric and oblique drawings using grid paper and plain paper
- Using plain paper to draw sketches

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks

### 8.11.2 Drawing with Instruments

**OBJECTIVES**
- Name equipment used in drawing
- Differentiate isometric from oblique angles
- Insert dimensions correctly
- Print names legibly

**SUGGESTED NOTES AND ACTIVITIES**
- Name equipment used in drawing
- Differentiate isometric from oblique angles
- Insert dimensions correctly
- Print names legibly

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks

**CONTENT**
- Different types of lines
- Oblique drawing
- Isometric drawing
- Dimensioning
- Lettering

**SUGGESTED NOTES AND ACTIVITIES**
- Name equipment used in drawing
- Differentiate isometric from oblique angles
- Insert dimensions correctly
- Print names legibly

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks

**CONTENT**
- Different types of lines
- Oblique drawing
- Isometric drawing
- Dimensioning
- Lettering

**SUGGESTED NOTES AND ACTIVITIES**
- Name equipment used in drawing
- Differentiate isometric from oblique angles
- Insert dimensions correctly
- Print names legibly

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks

### Notes and Activities
- Drawing equipment
- Naming of drawing instruments
- Different types of lines
- Oblique drawing
- Isometric drawing
- Dimensioning
- Lettering
- Drawing of isometric and oblique projection of wood blocks
- Printing of names in the title block

### Resources
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks
- Set squares, ruler, square and drawing board, drawing clips, ICT tools

### Key Concepts
- Freehand Sketches
- Drawing with Instruments

**OBJECTIVES**
- Learners should be able to:
  - State types of grid paper
  - Use grid paper to draw sketches in isometric and oblique projections
  - Use plain paper to draw sketches

**SUGGESTED NOTES AND ACTIVITIES**
- Stating types of grid paper
- Freehand drawing of isometric and oblique drawings using grid paper and plain paper
- Using plain paper to draw sketches

**SUGGESTED RESOURCES**
- Print media
- Drawing instruments and papers
- Electronic media and papers
- Blocks of woodbricks
### 8.12 TOPIC 12: DESIGN

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.12.1 Design process | • define the term design  
• describe the design process  
• compile a design folio  
• make an artefact following the design process  
• discuss intellectual property rights | • Definition of design  
• Stages  
  - Situation  
  - Design brief  
  - Investigation  
  - Possible solutions  
  - Chosen solution  
  - Justification of choice  
  - Development of chosen solution  
  - Model production  
  - Evaluation of model  
  - Realization  
  - Evaluation  
• Design folio  
• Projects – Pot stand  
  Broom Rack, Coat Hook, Pencil stand | • Defining the term design  
• Describing stages of the design process  
• Compiling design folios  
• Making artefacts  
• Discussing intellectual property rights | • Print media  
• Samples of design folios  
• Electronic media  
• Samples of artefacts  
• Patents Act |
### 8.13 TOPIC 13: MANAGEMENT OF RESOURCES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.13.2 Sustainability** | - explain sustainability  
- identify primary resources  
- identify secondary resources  
- discuss value addition and beneficiation | - Definition of sustainability  
- Primary resources  
- Secondary resources  
- Value addition and beneficiation | - Explaining sustainability  
- Identifying primary resources  
- Identifying secondary resources  
- Discussing value addition and beneficiation  
- Conducting educational tours | - Resource person such as:  
- EMA personnel  
- Wildlife and parks personnel  
- School yard  
- Community  
- Print media  
- ICT tools |
| **8.13.2 Afforestation** | - define afforestation  
- state methods of conserving the natural resources and man-made resources  
- plant trees | - Definition of afforestation  
- Methods of conservation  
- Tree planting  
- Fire guards | - Defining afforestation  
- Stating methods of conservation  
- Planting trees  
- Explaining the importance of fire guards  
- Preparing fire guards | - Resource persons such as:  
- EMA personnel  
- Wildlife and parks personnel  
- School yard  
- Community  
- Print media |
### 8.13.3 Recycling

- Define recycling
- State methods of recycling
- Identify materials that can be recycled

- Definition of recycling
- Methods of recycling
- Materials that can be recycled

- Defining the term recycling
- Stating the methods of recycling
- Identifying materials that can be recycled

- Natural resources
- Man-made resources
- Resource person such as:
  - EMA personnel
  - Wildlife and parks personnel
  - School yard
  - Community
  - Print media
  - ICT tools

---

### 8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.14.2 Wood Carving | • Define the term wood carving  
state wood carving tools and their uses | • definition of wood carving  
Wood carving tools | • Defining wood carving  
Stating wood carving tools and their uses | • Realia – tools for carving  
Print media  
ICT tools  
Resource persons |
| 8.14.2 Wood Sculpture | • Define the term wood sculpture  
state wood sculpting tools and their uses | • definition of wood sculpture  
Wood sculpting tools | • Defining wood sculpture  
Stating wood sculpting tools and their uses | • Realia – tools for carving  
Print media  
Suitable wood for sculpting  
ICT tools |
### 8.0 COMPETENCY MATRIX

#### 8.1 Topic 1: Health and Safety

<table>
<thead>
<tr>
<th><strong>KEY CONCEPTS</strong></th>
<th><strong>OBJECTIVES</strong></th>
<th><strong>CONTENT</strong></th>
<th><strong>SUGGESTED NOTES AND ACTIVITIES</strong></th>
<th><strong>SUGGESTED RESOURCES</strong></th>
</tr>
</thead>
</table>
| 8.1.1 Tool Safety-storage | - demonstrate safe storage of tools | - Safe storage of tools | - Demonstrating safe storage of tools  
- Watching videos on proper tool storage | - Tool kit  
- Storerooms  
- Racks  
- Print Media |

| 8.1.2 Portable power tools | - demonstrate safe methods of operating and caring for portable power tools | - Portable power tools  
- power drill  
- portable power jig-saw  
- portable power sander  
- portable power planer | - Demonstrating safe methods of operating and caring for portable power tools | - Print media  
- ICT Tools  
- Portable power tools |
# Wood Technology & Design (Form 1 - 4) Syllabus

## Key Concepts

### Objectives
Learners should be able to:

<table>
<thead>
<tr>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felling</td>
<td>- describing felling, conversion and seasoning</td>
<td></td>
</tr>
<tr>
<td>Conversion of timber</td>
<td>Watching videos of felling</td>
<td></td>
</tr>
<tr>
<td>Seasoning of timber</td>
<td>Illustrating the conversion and seasoning methods</td>
<td></td>
</tr>
<tr>
<td>Identification of advantages and disadvantages of</td>
<td>ICT tools</td>
<td></td>
</tr>
</tbody>
</table>

| 8.2 TO PIC 2: MATERIAL TECHNOLOGY |

<table>
<thead>
<tr>
<th>8.2. Wood-processing - felling, conversion and seasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners should be able to:</td>
</tr>
<tr>
<td>- Describe the processing of timber from felling, conversion to seasoning</td>
</tr>
<tr>
<td>- Illustrate conversion and seasoning methods</td>
</tr>
<tr>
<td>- Identify the advantages and disadvantages of</td>
</tr>
<tr>
<td>- Print media</td>
</tr>
<tr>
<td>- Plantations</td>
</tr>
<tr>
<td>- Sawmills</td>
</tr>
<tr>
<td>- ICT tools</td>
</tr>
<tr>
<td>8.2.2 Metal- properties</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>8.2.3 Plastic- properties</td>
</tr>
<tr>
<td>8.2.4 Ceramics- properties</td>
</tr>
</tbody>
</table>

- identify advantages and disadvantages of conversion and seasoning methods
- Conducting educational tours

- Properties of Metals
- Print media
- ICT tools
- Print media
- ICT tools
- Print media
- ICT tools
### Key Concepts

#### 8.2.5 Finishes - Purposes

<table>
<thead>
<tr>
<th>Suggested Resources</th>
<th>Suggested Notes and Activities</th>
<th>Content (Attitudes, Skills and Knowledge)</th>
<th>Objectives Learners should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishes</td>
<td>Describing the term wood finishing</td>
<td>Wood Finishes</td>
<td>Describe wood finishing</td>
</tr>
<tr>
<td>Print Media</td>
<td>Explaining the purposes of finishing artefacts</td>
<td>purposes of finishes</td>
<td>Explain the purposes of finishing artefacts</td>
</tr>
<tr>
<td></td>
<td>Identifying different types of finishes</td>
<td>Types of finishes such as:</td>
<td>Identify different types of finishes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paint, stains, varnishes and polishes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describing the term wood finishing</td>
<td>Wood Finishes</td>
<td>Describe wood adhesives</td>
</tr>
<tr>
<td></td>
<td>Explaining the purposes of finishing artefacts</td>
<td>purposes of finishes</td>
<td>List examples of wood adhesives</td>
</tr>
<tr>
<td></td>
<td>Identifying different types of finishes</td>
<td>Types of finishes such as:</td>
<td>List examples of wood adhesives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Synthetic resin, impact/contact</td>
<td></td>
</tr>
</tbody>
</table>

#### 8.2.6 Adhesives

<table>
<thead>
<tr>
<th>Suggested Resources</th>
<th>Suggested Notes and Activities</th>
<th>Content (Attitudes, Skills and Knowledge)</th>
<th>Objectives Learners should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishes</td>
<td>Describing the term wood finishing</td>
<td>Wood Finishes</td>
<td>Describe wood finishing</td>
</tr>
<tr>
<td>Print Media</td>
<td>Explaining the purposes of finishing artefacts</td>
<td>purposes of finishes</td>
<td>Explain the purposes of finishing artefacts</td>
</tr>
<tr>
<td></td>
<td>Identifying different types of finishes</td>
<td>Types of finishes such as:</td>
<td>Identify different types of finishes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paint, stains, varnishes and polishes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describing the term wood finishing</td>
<td>Wood Finishes</td>
<td>Describe wood adhesives</td>
</tr>
<tr>
<td></td>
<td>Explaining the purposes of finishing artefacts</td>
<td>purposes of finishes</td>
<td>List examples of wood adhesives</td>
</tr>
<tr>
<td></td>
<td>Identifying different types of finishes</td>
<td>Types of finishes such as:</td>
<td>List examples of wood adhesives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Synthetic resin, impact/contact</td>
<td></td>
</tr>
</tbody>
</table>
### 8.3 TOPIC 3: ENTERPRISE SKILLS

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.3.1 Materials and Artefacts** | • Draw up a materials cost  
• Calculate labour hours  
• Calculate profit | • Materials cost  
• Labour hours  
• Profit | • Drawing up a material cost  
• Calculating the labour hours  
• Calculating profit | • Realia – such as Bill of Quantities  
• Quotations  
• Print media  
• ICT tools |
| **8.3.2 Business Ethics** | • Explain the soft skills involved in business | • Soft skills  
- Leadership  
- Team building  
- Innovation | • Explaining the soft skills | • Print media  
• Resource persons |
| **8.3.3 Marketing** | • Explain the strategies necessary for marketing | • Marketing strategies  
- Promotions  
- Sales persons | • Explaining the strategies  
• Creating product awareness  
• Conducting road shows at school level | • Product pamphlets  
• Print media  
• Realia |
| **8.3.4 Material Orders** | • Draw up material orders | • Ordering materials  
• Costing materials | • Drawing up material orders | • Quotations  
• Realia such as:  
- Orders of materials  
• Print media  
• ICT Tools |
### 8.4 TOPIC 4: TOOLS AND TOOL TECHNOLOGY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4.1 Holding and Supporting tools</td>
<td>• Identify holding and supporting tools • construct some of the holding and supporting tools • identify the uses of the holding and supporting tools • use holding and supporting tools</td>
<td>• The Holding and supporting tools - G cramp - Sash cramp - Mitre box - Shooting board - Trestle/sawing horse • Tool construction • Uses</td>
<td>• Identifying the holding and supporting tools • Illustrating structure of the holding and supporting tools • Constructing some of the holding and supporting tools • identifying the uses • Using holding and supporting tools</td>
<td>• Print media • Holding and supporting tools</td>
</tr>
</tbody>
</table>
### 8.4.2 Measuring and Marking Out Tools

- Identify measuring and marking tools
  - Name the parts
  - Explain the uses of the measuring and marking out tools
  - Use the tools
- Measuring and marking out tools
  - Mortise gauge
  - Sliding bevel
  - Templates
  - Measuring tape
  - Cutting gauge
  - Panel gauge
- Parts and uses of the tools

### 8.4.3 Spokeshaves

- Identify the two types of spokeshaves
  - Explain the use of spokeshaves
  - Identify the parts of a spokeshave
  - Use the spokeshave
- Spokeshaves
  - Flat bottomed
  - Round bottomed
  - Correct use of spokeshave
- Parts of spokeshaves

### Additional Resources

- Print media
- Realia such as measuring and marking out tools
- ICT tools

- Identifying measuring and marking out tools
- Naming parts of the tools
- Explaining the use of the tools
- Using the tools
- Identifying the two types of spokeshaves
- Explaining the uses of the spokeshaves
- Identifying the parts of a spokeshave
- Using the spokeshave

- Spokeshave
<table>
<thead>
<tr>
<th>8.4.4 Saws-Backsaws</th>
<th>8.4.5 Mortise chisels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identifying back saws</strong>&lt;br&gt;Back saws&lt;br&gt;Tenon saw&lt;br&gt;Dovetail saw</td>
<td><strong>Identifying different types of mortise chisels</strong>&lt;br&gt;Mortise&lt;br&gt;Registered mortice&lt;br&gt;Sketches of mortise chisels</td>
</tr>
<tr>
<td><strong>Sketching the backsaws</strong>&lt;br&gt;sketches of the back saws</td>
<td><strong>Identifying uses of the chisels</strong>&lt;br&gt;Identifying uses of the mortise chisels</td>
</tr>
<tr>
<td><strong>Stating uses of the back saws</strong>&lt;br&gt;Demonstration of uses of back saw</td>
<td><strong>Identifying uses of the chisels</strong>&lt;br&gt;Identifying uses of the mortise chisels</td>
</tr>
<tr>
<td><strong>Using the back saws</strong>&lt;br&gt;use the backsaws</td>
<td><strong>Uses of the mortise chisels</strong>&lt;br&gt;Uses of the mortise chisels</td>
</tr>
<tr>
<td><strong>Sketch the back saws</strong>&lt;br&gt;state the uses of back saws</td>
<td><strong>Identify different types of mortise chisels</strong>&lt;br&gt;Identify the uses of the mortise chisels</td>
</tr>
<tr>
<td><strong>Identify back saws</strong>&lt;br&gt;identify the uses of back saws</td>
<td><strong>Sketch the different types of mortise chisels</strong>&lt;br&gt;Identify the uses of the mortise chisels</td>
</tr>
<tr>
<td><strong>Print media</strong>&lt;br&gt;ICT tools</td>
<td><strong>Print media</strong>&lt;br&gt;ICT tools</td>
</tr>
</tbody>
</table>
8.4.6 Percussion and impelling tools

- Identify percussion and impelling tools
- State the uses of percussion and impelling tools
- Sketch percussion and impelling tools
- Use percussion and impelling tools

- Print media
- ICT Tools

- Percussion and impelling tools
  - mallet
  - phillips
  - ratchet screwdriver
  - flat screw driver (engineers screwdrivers)
  - tack hammer

- Sketching percussion and impelling tools
- Uses percussion and impelling tools
### 8.5 TOPIC 5: MACHINES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.5 Portable power tools | Learners should be able to: | • Explain safety precautions observed when using the power tools  
• Identify parts of the power tools  
• State uses of the power tools  
• Operate the power tools | • Explaining safety precautions  
• Electric plane  
• Router  
• Operation of the power tools | • Print media  
• Electronic media  
• Realia such as the power tools |

### 8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.6.1 Marking out and cutting joints | Learners should be able to: | • Identify appropriate tools for marking out and cutting the joints  
• Select appropriate tools for marking out and cutting joints  
• Mark out and cut the joints | • Correct sequence of marking out and cutting of:  
- Dovetail halving  
- Through mortice and tenon  
- Bridle joints  
- Single dovetail joint  
- Through housing joints | • Identifying and selecting the correct tools  
• Marking out and cutting the joints | • Print media  
• Realia such as marking out tools, cutting tools, holding and supporting tools  
• ICT tools |
### 8.6.2 Assembly
- Identify the correct tools for assembling and testing artefacts
- Test artefacts for squareness and flatness
- Clean excess glue
- Trial assembly
- Closed assembly
- Cleaning excess glue
- Identifying the correct tools.
- Testing artefacts for squareness and flatness
- Cleaning excess glue
- Assembling tools
- Testing tools
- Cloth
- Print media

### 8.6.3 Forms of Construction
- Identify joints used in flat frame and stool construction
- Identify parts of a stool construction
- Sketch the joints
- Construct the joints in their correct proportions
- Identify artefacts that can be made using stool construction
- Flat frame construction
- Stool construction
  - Parts
  - Mortice and tenon joints and bridle joints
- Artefacts that can be made from stool construction
- Identifying the joints
- Identifying the parts
- Identifying the artefacts
- Sketching the joints
- Observing the joints on finished products
- Constructing the joints
- Identifying the artefacts
- Print media
- Samples of artefacts
- ICT tools

### 8.6.4 Fixing Tops and Seats
- Identify each method
- Describe each method
- Sketch the methods
- Use the methods for fixing tops and seats
- Direct screwing
- Counter boring
- Pocket screwing
- Glued blocks
- Identifying and describing the methods
- Sketching the methods
- Applying the methods
- Repairing school furniture
- Tools for screwing
- Boring tools
- Print media
- Samples of artefacts
- ICT tools

### 8.6.5 Fasteners
- Identify common types of screws
- Describe common types of screws
- Screws
  - Types
  - Uses
  - Ordering
- Identifying and describing types of screws
- Samples of screws
- Print media
- ICT tools
<table>
<thead>
<tr>
<th>Wood Technology &amp; Design Form 1-4 Syllabus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stating uses of screws</strong></td>
</tr>
<tr>
<td>• Identify the parts of the screws</td>
</tr>
<tr>
<td>• Identify holes when drilling for screws</td>
</tr>
<tr>
<td>• Sketch the screws</td>
</tr>
<tr>
<td>• Drawing an order for screws</td>
</tr>
<tr>
<td><strong>Holes for screws</strong></td>
</tr>
<tr>
<td>• State uses of the screws</td>
</tr>
<tr>
<td>• Identify the parts of screws</td>
</tr>
<tr>
<td>• Identify holes when drilling for screws</td>
</tr>
<tr>
<td>• Sketch the types of screws</td>
</tr>
<tr>
<td>• Draw up an order for screws</td>
</tr>
</tbody>
</table>
## 8.7 TOPIC 7: JOINERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.7.1 Doors</strong></td>
<td>Learners should be able to:</td>
<td>• Identifying and describing types of doors • Identifying parts of doors • Sketching doors</td>
<td>• Types • Parts</td>
<td>• Realia such as doors • Print media • ICT tools</td>
</tr>
<tr>
<td></td>
<td>• identify types of doors • describe types of doors • identify the parts of doors • sketch the doors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.7.2 Windows</strong></td>
<td>Learners should be able to:</td>
<td>• Identifying and describing types of windows • Identifying parts of windows • Sketching the windows • Visiting local communities</td>
<td></td>
<td>• Realia such as windows • Print media • Resource persons • ICT tools</td>
</tr>
<tr>
<td></td>
<td>• identify types of windows • describe types of windows • identify the parts of windows • sketch the windows</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.7.3 Wall Fittings</strong></td>
<td>Learners should be able to:</td>
<td>• Fixing artefacts to the wall using the method • Observing ready fixed artefacts</td>
<td></td>
<td>• Wall plugs • Print media • Resource persons • ICT tools</td>
</tr>
<tr>
<td></td>
<td>• fix artefacts to the wall using the wall plug method</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 8.8 TOPIC 8: CARPENTRY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.8.1 Roofs** | • identify types of roofs  
                      • describe types of roofs  
                      • identify parts of roofs  
                      • sketch the roofs  
                      • make miniature roofs | • Types  
                      • Parts  
                      • Model roofs | • Identifying and describing roof types  
                      • Identifying parts of roofs  
                      • Sketching the roofs  
                      • Making miniature roofs  
                      • Visiting local communities | • Realia such as roofs  
                      • Resource persons  
                      • ICT tools  
                      • Print media |
| **8.8.2 Formwork** | • identify materials used in formwork  
                        • describe the formwork methods | • Formwork materials  
                        • Cast in-situ  
                        • Pre-cast | • Identifying materials used in formwork  
                        • Describing the formwork methods  
                        • Visiting construction sites | • Resource persons  
                        • Print media  
                        • ICT tools |
| **8.8.3 Ceilings** | • state the materials used for ceilings  
                        • describe the properties of the materials used on ceilings | • Materials used  
                        • Properties of the materials | • Stating and describing the materials  
                        • Visiting local industries/construction sites | • Realia such as ceilings  
                        • Resource persons  
                        • ICT tools |
### 8.9 TOPIC 9: UPHOLSTERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.9.1 Upholstery</strong></td>
<td>• explain the terms related to upholstery • identify the materials used in upholstery</td>
<td>• Terms related to upholstery • Materials used</td>
<td>• Explaining upholstery terms • Identifying materials used in upholstery • Visiting local industries</td>
<td>• Realia such as upholstered furniture and materials • Resource persons • ICT tools • Print Media</td>
</tr>
</tbody>
</table>
## 8.10 TOPIC 10: WOOD FINISHING

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.10.1 Abrasives | • identify the abrasives  
• describe how the abrasives are manufactured  
• use the abrasives | • Coated abrasives  
- Emery cloth  
- Aluminum oxide  
- Silicon carbide  
- Tungsten carbide | • Identifying and describing the abrasives  
• Describing how the abrasives are manufactured  
• Using the abrasives | • Samples of the abrasives  
• Print media  
• ICT tools |
| 8.10.2 Finishes | • identify the types of finishes  
• describe types of finishes  
• state the uses of each finish  
• thin finishes using correct solvents  
• apply the finishes  
• clean the brushes | • Types  
• Uses  
• Thinning finishes  
• Application  
• Cleaning brushes | • Identifying and describing types of finishes  
• Stating the uses of the finishes  
• Thinning finishes  
• Applying the finishes  
• Cleaning the brushes | • Samples of finishes  
• Tools/equipment for finishing  
• Solvents  
• ICT tools  
• Print Media |
## 8.11 Topic 11: Graphics

<table>
<thead>
<tr>
<th>KEEP CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.11.1 Freehand Sketches** | • sketch joints in isometric and oblique projection | • Isometric and oblique joints | • Sketching joints | • Print media  
• Reali-a-samples of joints  
• Electronic media |
| **8.11.2 Drawing with Instruments** | • draw objects in pictorial view  
• draw objects in orthographic projection  
• insert dimensions | • Pictorial drawing  
• Orthographic drawing  
• Dimensioning | • Drawing objects in pictorial view  
• Drawing objects in orthographic projection  
• Inserting dimensions | • Print media  
• Reali-a such as wood blocks  
• drawing instruments  
• Electronic media |
### 8.12. Design process

#### KEY CONCEPTS

**8.12.1 Design process**

<table>
<thead>
<tr>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Design folio stages</td>
</tr>
<tr>
<td>- Situation</td>
</tr>
<tr>
<td>- Design brief</td>
</tr>
<tr>
<td>- Investigation</td>
</tr>
<tr>
<td>- Possible solutions</td>
</tr>
<tr>
<td>- Chosen solution</td>
</tr>
<tr>
<td>- Justification of choice</td>
</tr>
<tr>
<td>- Development of chosen solution</td>
</tr>
<tr>
<td>- Model production</td>
</tr>
<tr>
<td>- Evaluation of model production</td>
</tr>
<tr>
<td>- Realization</td>
</tr>
<tr>
<td>- Evaluation</td>
</tr>
<tr>
<td>- Projects such as: stools, tea tray, shoe rack, fruit tray, magazine rack, jewellery boxes</td>
</tr>
</tbody>
</table>

#### OBJECTIVES

Learners should be able to:

- compile a design folio
- make an artefact following the design process

#### SUGGESTED RESOURCES

- Print media
- Samples of design folios
- ICT tools
- Samples of artefacts

#### SUGGESTED NOTES AND ACTIVITIES

- Compiling design folios
- Making artefacts

- Projects such as: stools, tea tray, shoe rack, fruit tray, magazine rack, jewellery boxes
## 8.13 TOPIC 13: MANAGEMENT OF RESOURCES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.13.1 Material Economics</strong></td>
<td>Learners should be able to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>draw up a cutting list with rough and final measurements</td>
<td>Cutting list:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rough and final sizes</td>
<td>Drawing up a cutting list</td>
<td>Electronic media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Print media</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.13.2 Waste Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>state different types of waste materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>discuss how the waste materials can be reused</td>
<td>Waste material:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Plastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- wood chips</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Shavings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Saw dust</td>
<td>Stating different types of waste materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Discussing briefly, how waste materials can be reused</td>
<td>EMA personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>School yard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Print media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>ICT tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8.13.3 Afforestation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>explain the term afforestation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>name indigenous trees facing extinction in the community</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>suggest ways of preventing the extinction of indigenous trees</td>
<td>Afforestation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indigenous trees facing extinction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ways of preventing extinction of trees</td>
<td>Explaining the term afforestation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Naming indigenous trees that face extinction in the community</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suggesting ways of preventing the extinction of indigenous trees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>EMA personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>School yard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Electronic media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>Print media</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.14.1 Wood Carving</td>
<td>• decorate an artefact using carving tools • apply a finish to the artefact</td>
<td>• Decorate artefacts • Finish</td>
<td>• Decorating an artefact • Applying a finish</td>
<td>• Projects • Print media • ICT tools • Resource person such as the Wood Carver</td>
</tr>
<tr>
<td>8.14.2 Wood Sculpture</td>
<td>• Sculpt an artefact using carving tools • Appropriate finish</td>
<td>• Sculpt artefacts • Appropriate finish</td>
<td>Sculpting artefacts • Finishing artefacts</td>
<td>• Print media • ICT tools</td>
</tr>
</tbody>
</table>

- Resource persons
### KEY CONCEPTS

8.1.1 Regulations and acts governing Safety and health at workplaces

<table>
<thead>
<tr>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| • Outline the rules, Regulations and Acts governing health and safety at work | • Rules, regulations and Acts governing health and safety at work | • Outlining rules, regulations and acts governing health and safety at work | • Factories Act  
• Resource persons  
• Print media  
• Recommended textbooks  
• ICT tools |

8.1.2 Code of practice for safe use of machinery

<table>
<thead>
<tr>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| • Demonstrate safe use and care of woodworking machinery | • Woodworking machinery - planer, - thickness - band saw - wood turning lathe | • Demonstrating the safe operations and care of the woodworking machines  
• Videos on safe operation and care of woodworking machinery | • Recommended textbooks  
• Print media  
• Woodworking machinery  
• Videos  
• Electronic media |
## 8.2 Topic 2: Material Technology

<table>
<thead>
<tr>
<th>Key Concepts</th>
<th>Objectives</th>
<th>Content</th>
<th>Suggested Notes and Activities</th>
<th>Suggested Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.2.1 Wood</strong></td>
<td>Learners should be able to:</td>
<td>• Veneer</td>
<td>• Defining veneer</td>
<td>• ICT tools</td>
</tr>
<tr>
<td></td>
<td>• define veneer</td>
<td>- Definition</td>
<td>• Explaining stages involved in veneer manufacture</td>
<td>• Print media</td>
</tr>
<tr>
<td></td>
<td>• explain the stages involved in veneer manufacture</td>
<td>- Methods of manufacture</td>
<td>• Samples of veneers</td>
<td></td>
</tr>
<tr>
<td><strong>8.2.2 Methods of integrating</strong></td>
<td>Describe methods of integrating other materials to wood</td>
<td>• Methods of integrating</td>
<td>• Conducting educational tours</td>
<td>• Samples of finishes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Metal</td>
<td>• Describing methods of integrating other materials to wood</td>
<td>• Compressor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Plastic</td>
<td>• Demonstrating the methods of integrating metal, plastic and ceramics to wood.</td>
<td>• Spray cans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ceramics</td>
<td></td>
<td>• Brushes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Rubber</td>
<td></td>
<td>• Adhesives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Samples of materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Print media</td>
</tr>
<tr>
<td><strong>8.2.3 Finishes</strong></td>
<td>Demonstrate surface preparation for finishing</td>
<td>• Finishes</td>
<td>• Demonstrating surface preparation for finishing</td>
<td>• Samples of finishes</td>
</tr>
<tr>
<td></td>
<td>Apply finishes</td>
<td>- Preparation for finishing</td>
<td></td>
<td>• Compressor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Stages of applying finishes</td>
<td></td>
<td>• Spray cans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Brushes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Print media</td>
</tr>
<tr>
<td>8.2.4 Adhesives</td>
<td>8.2.5 Defects</td>
<td>8.2.6 Timber diseases</td>
<td>8.2.7 Timber preservation</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-----------------------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>• Explain adhesive terms</td>
<td>• Adhesive terms - shelf life - cramping time - pot life</td>
<td>• Defects in timber - Definition - Growth/natural - Artificial - Other defects</td>
<td>• identify wood boring insects - discuss the diseases in wood</td>
<td></td>
</tr>
<tr>
<td>• Outline the precautions in the use of adhesive</td>
<td>• Precautions - Care of skin and eyes - Protection from inhalation - Application of adhesives</td>
<td></td>
<td>• Outline the methods of preservation</td>
<td></td>
</tr>
<tr>
<td>• Applying adhesives</td>
<td></td>
<td>• Identifying defects in timber - Describing defects in timber - Illustrating defects in timber</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Timber preservation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Identifying wood boring insects and diseases - Discussing diseases in wood - Outlining the methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Disease causing insects</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Adhesives - Print media - ICT Tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.8 Built-up materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Identify different types of built-up materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>ply wood</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>hardboard</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>laminboard</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>chipboard</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain the manufacture of built-up materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Illustrate the structure of different built-up materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>State the uses of the built-up materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8.2.8 Built-up materials

- Identify different types of built-up materials
- Explain the stages in the manufacture of built-up materials
- Illustrate the structure of different built-up materials
- State the uses of the built-up materials

- Plywood
- Hardboard
- Laminate board
- Chipboard

### Realia such as built-up materials

- Plywood
- Hardboard
- Laminate board
- Chipboard

### Print Media
### 8.3.2 Marketing - Strategies

- Describe marketing strategies
- Marketing mix
  - Product, promotion, packaging, advertisements

### 8.3.3 Business Proposal - Purposes of

- Explain the purpose of a business proposal
- Project proposal
  - Definition of a business proposal

### 8.3.4 Business Growth - Needs and ways

- Identify the requirements for business growth
- Explain the ways in which a business can grow
- Business growth
  - Internal growth
  - External growth

- Explain the importance of Intellectual Property Rights
  - Identifying the requirements for business growth
  - Explaining the ways in which a business grows
  - Intellectual Property Rights

- Print media
- ICT tools
### 8.4 TOPIC 4: TOOLS AND TOOL TECHNOLOGY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.4.1 Tool Maintenance - Grinding and honing</strong></td>
<td>• identify grinding and honing tools&lt;br&gt;• describe materials for grind stone and oil stone&lt;br&gt;• Outline the stages followed in tool maintenance&lt;br&gt;• discuss precautions observed when using grind stone and oil stone</td>
<td>• Grinding and honing tools&lt;br&gt;  - Grind stone&lt;br&gt;  - Oil stone&lt;br&gt;  - Material for grind stone and oil stone&lt;br&gt;  • Tool maintenance - Flat blades&lt;br&gt;  • Precautions on using grinding stone and oilstone</td>
<td>• Identifying grinding and honing tools&lt;br&gt;  • Describing materials for grind stone and oil stone&lt;br&gt;  • Outlining the stages in tool maintenance&lt;br&gt;  • Discussing precautions observed when using grind and oilstone</td>
<td>• Print media&lt;br&gt;  • Grind stone and oil stone&lt;br&gt;  • ICT Tools</td>
</tr>
<tr>
<td><strong>8.4.2 Special purpose planes</strong></td>
<td>• name special purpose planes&lt;br&gt;• identify the uses of special purpose planes&lt;br&gt;• use the special purpose planes</td>
<td>• Types of special purpose planes&lt;br&gt;  • Uses</td>
<td>• Naming special purpose planes&lt;br&gt;  • Identifying the uses of special purpose planes&lt;br&gt;  • Using the special purpose planes</td>
<td>• Print media&lt;br&gt;  • Realia such as Special purpose planes&lt;br&gt;  • ICT tools</td>
</tr>
<tr>
<td>8.3 Gouges</td>
<td>8.4 Saws - Curve cutting</td>
<td>8.5 Gears</td>
<td>8.6 Levers</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>-----------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Classify gouges according to their uses</td>
<td>Outline curve cutting saws maintenance</td>
<td>Outline how a machine uses gears</td>
<td>Outline how a machine uses gears</td>
<td></td>
</tr>
<tr>
<td>Types of gouges</td>
<td>Curve cutting saws Uses</td>
<td>Gears</td>
<td>Levers</td>
<td></td>
</tr>
<tr>
<td>Gouge maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Print media**
- Gouges
- Electronic media

**8.4.3 Gouges**
- Classify gouges according to their uses
- Outline gauge maintenance

**8.4.4 Saws - Curve cutting**
- Identify curve cutting saws
- Explain the uses of curve cutting saws
- Use the curve cutting saws

**8.4.5 Gears**
- Demonstrate use of gears

**8.4.6 Levers**
- Demonstrate use of levers
<table>
<thead>
<tr>
<th>8.4.7 Pulleys</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Pulley</td>
</tr>
<tr>
<td>- Demonstrating usefulness of pulleys</td>
</tr>
<tr>
<td>- Print media</td>
</tr>
<tr>
<td>- Pulleys</td>
</tr>
<tr>
<td>- Demonstrating usefulness of pulleys</td>
</tr>
</tbody>
</table>

**Demonstrate usefulness of pulleys**
### 8.5 TOPIC 5: MACHINES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.5.1 Machines tools | • explain safety precautions observed when using the machines  
• explain the use of the machine parts  
• state the uses of the machines  
• operate the machines | • Safety  
- Circular saw  
- Surface planer  
- Pillar drill  
- Thicknesser  
- Grinder  
- Spindle moulder  
• Machine operation | • Explaining safety precautions  
• Explaining uses of machine parts  
• Stating uses of the machines  
• Operating machines | • Print media  
• Electronic media  
• Realia such as the machines |

### 8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.6.1 Marking Out and Cutting Joints | • select the correct tools for marking out and cutting the joints  
• use correct tools for marking out and cutting the joints | • Correct sequence of marking out and cutting  
- Haunched mortice and tenon joints  
- Stopped housing joints  
- Common dovetail joints  
- Widening joints (Simple butt joint, | • Selecting and using the tools | • Print media  
• Tools  
• Work pieces  
• ICT tools |
### 8.6.2 Assembly

- Identify the correct tools for assembly
- Assemble the artefacts and test for squareness and flatness
- Wipe off excess glue

### 8.6.3 Forms of Construction

- Identify the forms of carcase construction
- Name the members that make up a carcase
- Sketch the forms of carcase construction
- Identify the joints used in carcase construction
- Identify the artefacts made using carcase construction
- Make artefacts using carcase construction

#### Rebated butt joint, Dowelled joint

- Trial assembly
- Closed assembly
- Test for squareness and flatness
- Clean excess glue

#### Identifying the correct tools for assembly

- Assembling tools
- Testing tools
- Cloth
- Print media
- Realia - the artefacts
- ICT tools

#### Samples of different forms of carcase construction

- Simple framed carcase
- Framed and paneled carcase
- Solid end carcase
- Solid carcase

#### Carcase construction

- Carcase construction
- Sample of different forms of carcase construction
- Identifying the forms of carcase construction
- Naming the members that make up a carcase
- Sketching the forms of carcase construction
- Identifying the joints used in carcase construction
- Identifying the artefacts made using carcase construction
- Making artefacts using carcase construction

#### Identifying the forms of carcase construction

- Identify the forms of carcase construction
- Name the members that make up the carcase
- Identify the artefacts made using carcase construction
- Make artefacts using carcase construction

#### Samples of different forms of carcase construction

- Print media
- Electronic media
| 8.6.4 Fixing Tops and Seats | • identify the methods of fixing the tops  
  • sketch the methods of fixing the tops  
  • apply the methods of fixing the tops  
| Wooden button method  
  Shrinkage plates | • Identifying the methods of fixing tops  
  • Sketching the methods of fixing tops  
  • Applying the methods of fixing tops  
| Realia – buttons, shrinkage plates  
  Print media  
  Electronic media |
| 8.6.5 Machine Operations | • use machine tools to plane and saw pieces of wood  
| Machine planing  
  Machine sawing | • Planing using a surfacer/jointer  
  • Using the sawing machines  
| Planing machines  
  Sawing machines  
  Print media  
  ICT tools |
| 8.6.6 Fittings | • identify the hinges and locks  
  • illustrate the hinges and locks  
  • use the hinges and locks on artefacts  
| Hinges  
  - Types  
  - Uses  
  - Parts  
  Locks  
  - Types  
  - Uses  
  - Parts | • Identifying the hinges and locks  
  • Illustrating the hinges and locks  
  • Labelling the hinges and locks  
  • Using the hinges and the locks  
| Realia – hinges, locks  
  Print media  
  Electronic media |
<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED RESOURCES</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.7.1 Doors</td>
<td>Learners should be able to:</td>
<td>Design of doors</td>
<td>Realia – doors and ironmongery</td>
<td>Producing different designs of doors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Door joints</td>
<td>Print media</td>
<td></td>
</tr>
</tbody>
</table>

8.7.1 Doors

- Design of doors
- Door joints
- Ironmongery
<table>
<thead>
<tr>
<th>Wood Technology &amp; Design Form 1-4 Syllabus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.7.2 Windows</strong></td>
</tr>
<tr>
<td>- Selecting appropriate joints to be used in door construction</td>
</tr>
<tr>
<td>- Applying the joints in the construction of doors</td>
</tr>
<tr>
<td>- Using the appropriate ironmongery on doors</td>
</tr>
<tr>
<td>- Producing different designs of windows</td>
</tr>
<tr>
<td>- Selecting appropriate joints to be used in window construction</td>
</tr>
<tr>
<td>- Applying the joints in the construction of windows</td>
</tr>
<tr>
<td>- Using the appropriate ironmongery on windows</td>
</tr>
<tr>
<td>- Design of windows</td>
</tr>
<tr>
<td>- Window joints</td>
</tr>
<tr>
<td>- Ironmongery</td>
</tr>
<tr>
<td><strong>8.7.3 Wall Fittings</strong></td>
</tr>
<tr>
<td>- Fixing an artefact on the wall using the bracket method</td>
</tr>
<tr>
<td>- Method of fixing artefacts to the walls - Brackets</td>
</tr>
<tr>
<td>- Fix an artefact on the wall using the bracket method</td>
</tr>
<tr>
<td>- Realia - brackets, artefacts, hammers</td>
</tr>
<tr>
<td>- Print media</td>
</tr>
<tr>
<td>- Electronic media - tools</td>
</tr>
</tbody>
</table>

- Electronic media tools
- Realia - windows and ironmongery
- Print media
- Electronic media
- Realia – brackets, artefacts, hammers
- Print media
- ICT tools
## 8.8 TOPIC 8: CARPENTRY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.8.1 Roofs</strong></td>
<td>• produce different designs of roofs • state different covering materials used on roofs • identify the different roof trusses • state the parts of different roof trusses • sketch different roof trusses</td>
<td>• Roof designs • Covering materials • Roof trusses - Parts</td>
<td>• Producing different designs of roofs • Stating different types of covering materials used on roofs • Identifying different types of roof trusses • Sketching and labelling different roof trusses</td>
<td>• Print media • Resource person – carpenter • Realia – roofs on buildings, miniature roof trusses • ICT tools</td>
</tr>
<tr>
<td><strong>8.8.2 Formwork</strong></td>
<td>• identify types of release agents used in formwork • explain the purpose of release agents • identify the methods used to dismantle formwork</td>
<td>• Release agents • Dismantling</td>
<td>• Identifying types of release agents • Explaining the purpose of release agents • Identifying the methods used to dismantle formwork</td>
<td>• Print media • Resource person – builder • ICT tools</td>
</tr>
<tr>
<td><strong>8.8.3 Ceilings</strong></td>
<td>• follow the correct procedures when fitting a ceiling</td>
<td>• Fitting ceilings</td>
<td>• Fitting ceilings</td>
<td>• Tools used in fixing ceilings • Resource person – joiner/carpenter • ICT tools</td>
</tr>
</tbody>
</table>
### 8.9 TOPIC 9: UPHOLSTERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.9.1 Upholstery** | • select appropriate tools for upholstering  
• use simple methods to upholster artefacts | • Application of upholstery techniques | • Selecting the appropriate tools used to upholster artefacts  
• Using methods that are used to upholster artefacts | • Realia such as upholstery tools, artefacts and materials  
• Print media  
• ICT tools |
## 8.10 Topic 10: Wood Finishing

<table>
<thead>
<tr>
<th>Key Concepts</th>
<th>Objectives</th>
<th>Content (Attitudes, Skills and Knowledge)</th>
<th>Suggested Notes and Activities</th>
<th>Suggested Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.10.1 Sanding Machines</strong></td>
<td>• prepare wood surfaces for finishing using the orbital sander</td>
<td>• Use of sanding machines</td>
<td>• Preparing wood surfaces for finishing using the orbital sander</td>
<td>• Realia – orbital sander, abrasive materials, artefacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Orbital sander</td>
<td></td>
<td>• Print media</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Using sanding machines</td>
<td></td>
<td>• ICT tools</td>
</tr>
<tr>
<td><strong>8.10.2 Finishes</strong></td>
<td>• apply finishes on the artefacts</td>
<td>• Application of clear finishes</td>
<td>• Applying the clear finishes on to the wood surfaces</td>
<td>• Realia – brushes, correct solvents</td>
</tr>
<tr>
<td></td>
<td>• clean brushes using solvents</td>
<td>• Use of solvents to clean brushes</td>
<td>• Cleaning brushes using solvents</td>
<td>• Artefacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Print media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• ICT tools</td>
</tr>
</tbody>
</table>
# 8.11 TOPIC 11: GRAPHICS

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.11.1 Drawing with instruments** | - draw orthographic elevations of artefacts to scale | - Orthographic drawing of frames, cabinets and tables or stools | - Drawing orthographic elevations of artefacts | - Print media  
- Electronic media |
|                           | - draw sectional views of artefacts    | - Sectional drawing                      | - Drawing sectional views of artefacts |                       |
|                           | - draw diagrams in perspective         | - Perspective drawing                    | - Drawing diagrams in perspective |                       |
|                           |                                       | - shapes                                 |                                 |                     |
|                           |                                       | - artefacts                              |                                 |                     |
| **8.11.2 Computer aided Drawing** | - produce pictorial drawings, exploded views and orthographic views using CAD | - CAD  
- Pictorial drawing  
- Exploded views  
- Orthographic views | - Producing pictorial drawings, exploded views and orthographic views using CAD | - Print media  
- Electronic media  
- Resource person |
<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED RESOURCES</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.12.1 Design process</td>
<td>Learners should be able to:</td>
<td>Design process stages: Situation - Design Brief - Investigation - Possible solutions - Chosen solution - Justification of choice - Development of chosen solution - Model production of model - Realization - Evaluation - Realization</td>
<td>Print media - Samples of design folios - Electronic media - Samples of artefacts</td>
<td>Compiling design folios - Making artefacts</td>
</tr>
<tr>
<td>8.12.1 Design process</td>
<td></td>
<td></td>
<td></td>
<td>Projects that include flat, stool and carcass construction</td>
</tr>
</tbody>
</table>

**SUGGESTED RESOURCES**
- Print media
- Samples of design folios
- Electronic media
- Samples of artefacts

**SUGGESTED NOTES AND ACTIVITIES**
- Compiling design folios
- Making artefacts

**CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)**
- Design process stages:
  - Situation
  - Design Brief
  - Investigation
  - Possible solutions
  - Chosen solution
  - Justification of choice
  - Development of chosen solution
  - Model production of model
  - Realization
  - Evaluation
- Projects that include flat, stool and carcass construction
### 8.13 TOPIC 13: MANAGEMENT OF RESOURCES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.13.1 Waste Management | • Explain waste management  
• state by-products manufactured from waste materials  
• describe how the by-products are processed | • Waste management  
• By-products from waste material  
• Padding materials                                            | • Explaining the term waste management  
• Stating by-products of waste materials  
• Describing how the by-products are processed                | • Print media  
• Electronic media                                              |
| 8.13.2 Material Cost  | • cost materials required to make an artefact                                                        | • Material cost (metre run, square metre, cubic metre)                         | • Costing of materials used to make an artefact                                              | • ICT tools  
• Print media                                               |
| 8.13.3 Calculations    | • calculate the cost of a finished product                                                            | • Finished product  
- Cost of materials  
- Labour  
- Time                                                                  | • Calculating the cost of a finished product                                            | • Print media  
• Electronic media                                             |
| 8.13.4 Afforestation   | • maintain planted trees  
• plant more trees yearly                                      | • Maintenance of planted trees  
• Plant more trees                                                   | • Maintaining planted trees  
• Planting more trees  
• Forming conservation clubs                                      | • EMA personnel  
• Print media  
• Electronic media  
• Tree seedlings                                                  |
### 8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.14.1 Wood Turning | Learners should be able to: | • identify the parts of a wood turning lathe  
• state the safety precautions to be observed when using the lathe  
• describe the methods of turning  
• state the wood turning tools and their uses  
• decorate pieces of wood using a lathe  
• describe the finishing process of a turned piece | • Wood turning lathe  
- Parts  
- Methods of turning  
- Safety  
- Wood turning tools and their uses  
- Finishing turned work | • Identifying the parts of a wood turning lathe  
• Stating the safety precautions observed when turning  
• Describing the methods of turning  
• Stating the wood turning tools and their uses  
• Decorating pieces of wood using a lathe  
• Describing finishing of turned pieces | • Print media  
• Lathe machines  
• Wood turning tools  
• ICT tools |
| 8.14.2 Ornamentation | Learners should be able to: | • Explain ornamentation  
• Illustrate methods of ornamentation  
• Mould pieces of wood using a spindle moulder | • Definition of ornamentation  
• Methods  
- Inlaying  
- Spindle moulding | • Explaining the term ornamentation  
• Illustrating methods of ornamentation  
• Moulding pieces of timber | • Realia – spindle moulder machine and tools  
• Models of spindle moulded pieces of wood  
• Print media  
• Electronic media |
### 8.0 COMPETENCY MATRIX

#### 8.1 TOPIC 1: HEALTH AND SAFETY

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1.1 Careers in health and Safety</td>
<td>• Identify careers in health and safety</td>
<td>• Careers in health and safety - Safety Health Environment officer - Health Safety Inspector - Factory Inspector, - First Aid Personnel - Fire Technicians</td>
<td>• Identifying careers in health and safety • Conducting educational tours</td>
<td>• Resource person • Print media • ICT tools</td>
</tr>
<tr>
<td>8.1.2 Hazardous substances</td>
<td>• List hazardous substances • explain the safe storage of hazardous substances • use the hazardous substances safely</td>
<td>• Thinners, turpentine, glues, paint, methylated spirits, varnishes and lacquer finishes • Storage of hazardous substances • Safe use of hazardous substances</td>
<td>• Listing hazardous substances • Explaining safe storage of hazardous substances • using hazardous substances safely</td>
<td>• Resource person • Print media • ICT tools • Hazardous substances</td>
</tr>
<tr>
<td>TOPIC</td>
<td>OBJECTIVES</td>
<td>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</td>
<td>SUGGESTED RESOURCES</td>
<td>SUGGESTED NOTES AND ACTIVITIES</td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
<td>------------------------------------------</td>
<td>---------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>8.2.1 Wood</td>
<td>Learners should be able to:</td>
<td>- Conduct scientific tests on wood</td>
<td>ICT tools, print media, realia such as pieces of wood, testing equipment</td>
<td>Conducting tests on wood</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Scientific tests on wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Strength of wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Moisture content</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Effectiveness of joints</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Suitability of stains, dyes, finishes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.2 Metal</td>
<td></td>
<td></td>
<td>ICT tools, print media, realia such as metals and testing equipment</td>
<td>Conducting tests on metals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapter</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.3 Plastic</td>
<td>Conducting tests on plastics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.4 Ceramics</td>
<td>Conducting tests on ceramics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.5 Rubber</td>
<td>Conducting tests on rubber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.6 Finishes</td>
<td>Conducting tests on finishes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- ICT tools
- Print media
- Realia such as
- Equipment
- Resource person

- Conducting tests on plastics
- Conducting tests on ceramics
- Conducting tests on rubber
- Conducting tests on finishes

- Properties of finishes

- Experimenting on strength of rubber

- Properties of finishes

- Resources person

- ICT tools
- Print media
- Realia such as
- Equipment
- Resource person

- Conducting tests on plastics
- Conducting tests on ceramics
- Conducting tests on rubber
- Conducting tests on finishes

- Resources person
### 8.2.7 Adhesives

<table>
<thead>
<tr>
<th>Testing Equipment</th>
<th>Resource Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT tools</td>
<td>Print media</td>
</tr>
<tr>
<td>Realia such as</td>
<td>Adhesives and</td>
</tr>
<tr>
<td></td>
<td>testing</td>
</tr>
<tr>
<td></td>
<td>equipment</td>
</tr>
</tbody>
</table>

- Conducting tests on adhesives
- Properties of adhesives
- Conduct tests on properties of adhesives
8.3 TOPIC 3: ENTERPRISE SKILLS

<table>
<thead>
<tr>
<th>KEY CONCEPT</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.1 Business Ethics (unhu/ubuntu)</td>
<td>• discuss business ethics</td>
<td>• Code of conduct • Making ethical decisions</td>
<td>• Discussing business ethics</td>
<td>• Resource person • ICT • Print Media</td>
</tr>
<tr>
<td>8.3.2 Marketing</td>
<td>• Identify challenges in marketing</td>
<td>• Challenges</td>
<td>• Identifying challenges faced in marketing products</td>
<td>• Resource person • ICT tools • Print media</td>
</tr>
<tr>
<td>8.3.3 Project Proposal</td>
<td>• write a business proposal</td>
<td>• Business proposal</td>
<td>• Writing a business proposal</td>
<td>• Resource persons • Business proposals • ICT tools</td>
</tr>
<tr>
<td>8.3.4 Company Formation</td>
<td>• Explain legal requirements in company formation • Describe the different types of businesses</td>
<td>• Legal requirements • Types of businesses</td>
<td>• Explaining legal requirements • Describing the different types of businesses</td>
<td>• Resource person • Print media • ICT tools</td>
</tr>
<tr>
<td>8.3.5 Business Growth</td>
<td>Explain ways of sourcing finances</td>
<td>Finance sources - Internal and external sources of capital - Challenges of a growing business - Patenting</td>
<td>Explaining the ways of sourcing finance - Identifying challenges of business growth - Discussing the importance of patenting</td>
<td>Print media - ICT tools - Resource person</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Identify challenges associated with business growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>discuss the importance of patenting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOPIC</td>
<td>OBJECTIVES</td>
<td>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</td>
<td>SUGGESTED RESOURCES</td>
<td>SUGGESTED NOTES AND ACTIVITIES</td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
<td>------------------------------------------</td>
<td>---------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>8.4.1 Boring Tools</td>
<td>Learners should be able to:</td>
<td>Boring tools and bits</td>
<td>Print media</td>
<td>Identifying boring tools and bits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sketch the boring tools and bits</td>
<td>Boring bits</td>
<td>Sketching boring tools and bits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using boring tools and bits</td>
<td>ICT Tools</td>
<td>Explaining uses of boring tools and bits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use boring tools and bits</td>
<td></td>
<td>Using boring tools and bits</td>
</tr>
<tr>
<td>8.4.2 Multi-purpose Planes</td>
<td></td>
<td>Multi-purpose planes</td>
<td>Print media</td>
<td>Describing functions of multi-purpose plane</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multi-purpose planes</td>
<td>Constructing woodworking tools</td>
</tr>
<tr>
<td>8.4.4 Appropriate Technology</td>
<td></td>
<td>Multi-purpose planes</td>
<td>Print media</td>
<td>Constructing woodworking tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Appropriate technology</td>
<td>Making mallets</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Making gauge</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rules</td>
<td></td>
</tr>
</tbody>
</table>

Print media
- Boring bits
- Boring tools
- ICT Tools

Multi-purpose planes
- Multi-purpose planes
- Multi-purpose planes

Appropriate technology
- Making mallets
- Making gauge
- Rules
### 8.5 TOPIC 5: MACHINES

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>OBJECTIVES</th>
<th>CONTENT</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.4.1 Machine Tools | Learners should be able to: | • Explain safety precautions observed when using the machines  
• Identify the parts of the machines  
• State the use of the machine parts  
• Operate the machines | • Safety precautions  
-Morticer  
-Band saw  
• Operations of the machines | • Explaining the safety precautions  
• Identifying the machine parts  
• Stating the uses of the machines  
• Operating the machines | • Print media  
• Electronic media  
• Realia such as morticer and band saw |

### 8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 7.6.1 Marking out and cutting Joints | Learners should be able to: | • select the correct tools for marking out the joints  
• mark out joints  
• cut the joints following the correct sequence  
• Identify the methods of strengthening mortise and tenon joints | • Correct sequence of marking out and cutting of  
- Widening joints (Loose tongue and groove, Tongue and grooved Slot screwing)  
- Lap dovetail joint  
- Twin mortise and tenon joint | • Selecting and using appropriate tools for marking out and cutting  
• Identifying the methods of strengthening the joints  
• Describing the methods  
• Applying the methods | • Print media  
• Realia such as:  
- actual joints  
- Work pieces  
- ICT tools |
<table>
<thead>
<tr>
<th>8.6.2 Machine Operations</th>
<th>8.6.3 Assembly</th>
<th>8.6.4 Forms of Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>describe the methods of strengthening mortise and tenon joints</td>
<td>identify the correct tools for assembly</td>
<td>identify drawer parts</td>
</tr>
<tr>
<td>illustrate the methods of strengthening mortise and tenon joints</td>
<td>assemble the artefacts and test for squareness and flatness</td>
<td>identify support members</td>
</tr>
<tr>
<td>use the methods on artefacts</td>
<td>wipe off excess glue</td>
<td>explain the purpose of drawer support members</td>
</tr>
<tr>
<td>operate the machines</td>
<td>trial assembly</td>
<td>identify drawer parts</td>
</tr>
<tr>
<td>machines</td>
<td>closed assembly</td>
<td>support members</td>
</tr>
<tr>
<td>band saw</td>
<td>test for squareness and flatness</td>
<td></td>
</tr>
</tbody>
</table>
### 8.6.5 Fixing Tops and Seats
- **identify the methods of fixing tops and seats**
- **sketch the methods**
- **Apply the methods on an artefact**
- **Slot screwing**
- **Modern methods**
- **Identifying the methods**
- **Sketching the methods**
- **Applying the methods on an artefact**
- **Realia – tools, artefacts**
- **Electronic media**
- **Recommended textbooks**

### 8.6.6 Fittings
- **identify the fittings**
- **sketch the fittings**
- **apply the fittings on artefacts**
- **Catches**
- **Other fittings**
- **Identifying the fittings**
- **Sketching the fittings**
- **Applying the fittings on artefacts**
- **Print media**
- **Realia such as:**
  - Catches
  - Hasp and staple
  - Barrel bolts
  - Cabin hook and eye
  - **ICT tools**
### 8.7 TOPIC 7: JOINERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.7.1 Doors** | • construct doors  
• compile cutting lists  
• prepare working rods  
• hang doors | • Construction of doors  
• Cutting list  
• Working rods  
• Door fitting | • Constructing doors  
• Compiling cutting lists  
• Preparing working rods  
• Hanging doors at school/community | • Print media  
• Resource persons  
• Realia such as: doors  
• ICT tools |
| **8.7.2 Windows** | • construct windows  
• compile cutting lists  
• prepare working rods  
• Fix windows | • Construction of windows  
• Cutting lists  
• Working rods  
• Fixing windows | • Constructing windows  
• Compiling cutting lists  
• Preparing working rods  
• Fixing windows at school/community | • Print media  
• Resource person  
• ICT tools  
• Realia such as: windows |
| **8.7.3 Wall Fittings** | • fix an artefact on the wall using rawl bolts | • Rawl bolts | • Fixing articles on the wall using rawl bolts at school/community | • Print media  
• Realia such as:  
- Rawl bolts, tools  
- ICT tools |
<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED RESOURCES</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.8.1 Roofs</td>
<td>Learners should be able to:</td>
<td>• determine roofs</td>
<td>Print media</td>
<td>Determining roofs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• set out roofs</td>
<td>Resource persons</td>
<td>Setting out roofs at school/community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• construct roofs</td>
<td>Trusses</td>
<td>Constructing roofs at school/community</td>
</tr>
<tr>
<td>8.8.2 Formwork</td>
<td>• construct formwork</td>
<td>• construction of formwork</td>
<td>Print media</td>
<td>Constructing formwork at school/community</td>
</tr>
<tr>
<td></td>
<td>• dismantle formwork</td>
<td>• methods of dismantling</td>
<td>Resource persons</td>
<td>Dismantling formwork at school/community</td>
</tr>
<tr>
<td>8.8.3 Ceiling</td>
<td>• follow the correct procedure when fitting a ceiling</td>
<td>• fitting ceilings</td>
<td>ICT tools</td>
<td>Fitting ceilings at school and community</td>
</tr>
</tbody>
</table>

SUGGESTED RESOURCES:
- Print media
- Resource persons
- Realia such as: roofs, trusses, ICT tools, realia such as formwork, ICT tools, roof template
- ICT tools

SUGGESTED NOTES AND ACTIVITIES:
- Constructing formwork at school/community
- Fitting ceilings at school and community
- Fitting ceilings
- Tools used in fixing ceilings
### 8.9 TOPIC 9: UPHOLSTERY

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.9.1 Upholstery | • apply techniques of upholstery | • Application of techniques | • Upholstering at school/community | • Print media  
• Resource persons  
• Realia such as: upholstered artefacts and upholstery material  
• ICT tools |

### 8.10 TOPIC 10: WOOD FINISHING

<table>
<thead>
<tr>
<th>KEY CONCEPT</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| 8.10.1 Sanding Machines | • prepare wood surfaces for finishing using belt sanders and drum sanders | • Sanding machines  
- Belt sander  
- Drum sander | • Preparing wood surfaces for finishing using a belt sander and drum sander | • Realia – drum sander, Belt sander, artefacts |
| 8.10.2 Finishes | • Apply opaque finishes on wood surfaces  
• Clean brushes using solvents | • Application of opaque finishes on wood surfaces  
• Use of solvents to clean brushes | • Applying the opaque finishes on wood surfaces  
• Cleaning brushes using solvents | • Realia – brushes, solvents, artefacts, opaque finishes  
• Print media  
• ICT tools |
### 8.11 TOPIC 11: GRAPHIC COMMUNICATION

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.11.1 Drawing with Instruments</td>
<td>• draw elevations of artefacts in first angle or third angle</td>
<td>• Orthographic drawing</td>
<td>• Drawing elevations of artefacts</td>
<td>• Print media&lt;br&gt;• Electronic media</td>
</tr>
<tr>
<td>8.11.2 Computer Aided Drawing</td>
<td>• use CAD to draw</td>
<td>• CAD</td>
<td>• using CAD to draw</td>
<td>• Print media&lt;br&gt;• Electronic media&lt;br&gt;• Resource person</td>
</tr>
</tbody>
</table>

### 8.12 TOPIC 12: DESIGN

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.12.1 Design process</td>
<td>• compile a design folio&lt;br&gt;• make an artefact following the design process</td>
<td>• Design folio&lt;br&gt;- Stages&lt;br&gt;- Situation&lt;br&gt;- Design brief&lt;br&gt;- Investigation&lt;br&gt;- Possible solutions&lt;br&gt;- Chosen solution&lt;br&gt;- justification of choice&lt;br&gt;- development of chose solution&lt;br&gt;- Model production&lt;br&gt;- Evaluation of model&lt;br&gt;- Realization&lt;br&gt;- Evaluation</td>
<td>• Compiling design folios&lt;br&gt;• Making artefacts</td>
<td>• Print media&lt;br&gt;• Samples of design folios&lt;br&gt;• ICT tools&lt;br&gt;• Samples of artefacts</td>
</tr>
</tbody>
</table>
Projects that include flat frame, carcase and stool construction using wood and other materials
## 8.13 TOPIC 13: MANAGEMENT OF RESOURCES

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.13.1 Artefact Costing**  | • compile a cutting list for the continuous assessment project  
• cost all the materials on the cutting list  
• cost the labour, time and overheads  
• calculate profit and Value Added Tax  
• calculate the selling price of the artefact | • Materials cost  
- Labour  
- Time  
- Overheads  
- Profit and VAT  
- Project unit price | • Compiling a cutting list  
• Costing of the materials  
• Costing of labour, time and overheads  
• Calculating the profit and Value Added Tax  
• Calculation of the selling price of the article | • Print media  
• Electronic media  
• Resource person  
• Realia such as: artefacts |
<table>
<thead>
<tr>
<th>8.13.2 Calculations</th>
<th>8.13.3 Afforestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculate moisture content in wet or dry timber</td>
<td>State purpose of fire guards</td>
</tr>
<tr>
<td>Moisture content calculations</td>
<td>Prepare fire guards</td>
</tr>
<tr>
<td>Calculate moisture content in wet or dry timber</td>
<td>Prepare fire guards</td>
</tr>
<tr>
<td>Stating the purpose of the fire guards</td>
<td>Maintain the tree basins</td>
</tr>
<tr>
<td>Print media</td>
<td>Electronic media</td>
</tr>
<tr>
<td>Visits to kiln plants</td>
<td>Electronic media</td>
</tr>
<tr>
<td>Resource person</td>
<td>School tree plantation</td>
</tr>
<tr>
<td>Resource person</td>
<td>Planting of trees at school/community</td>
</tr>
<tr>
<td>Print media</td>
<td>Electronic media</td>
</tr>
<tr>
<td>Electronic media</td>
<td>Electronic media</td>
</tr>
<tr>
<td>School tree plantation</td>
<td>Planting of trees at school/community</td>
</tr>
<tr>
<td>Resource person</td>
<td>School tree plantation</td>
</tr>
<tr>
<td>Resource person</td>
<td>Planting of trees at school/community</td>
</tr>
</tbody>
</table>
### 8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

<table>
<thead>
<tr>
<th>KEY CONCEPTS</th>
<th>OBJECTIVES Learners should be able to:</th>
<th>CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)</th>
<th>SUGGESTED NOTES AND ACTIVITIES</th>
<th>SUGGESTED RESOURCES</th>
</tr>
</thead>
</table>
| **8.14.1 Wood Turning** | ● describe face plate turning and turning between centers  
● adjust lathe speed  
● drill centre holes on long pieces of timber | ● Wood turning lathe  
- Face plate turning  
- Turning between centers  
- Speed adjustment  
- Centre boring | ● Describing face plate turning and spindle turning  
● Adjusting lathe speed  
● Drilling centre holes | ● Realia such as lathe and lathe tools  
● Models of face plate turned and spindle turned artefacts  
● Print media  
● Electronic media  
● Resource person |
| **8.14.2 Ornamentation** | ● explain parquetry and marquetry  
● Illustrate parquetry and marquetry by | ● Parquetry  
● Marquetry  
● Wooden floors maintenance | ● Explaining parquetry and marquetry  
● Illustrating parquetry and marquetry | ● Realia such as mosaic wood blocks, veneers  
● Print media |
<table>
<thead>
<tr>
<th>ICT tools</th>
<th>Resource persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maintaining of wooden floors at school/community</th>
<th>Explaining wood bending at school/community</th>
</tr>
</thead>
<tbody>
<tr>
<td>• means of lash ups and drawings</td>
<td>• Definition</td>
</tr>
<tr>
<td>• Maintain wooden floors</td>
<td>• Methods</td>
</tr>
<tr>
<td>• Realia – wood bending tools and equipment</td>
<td>• Steam box</td>
</tr>
<tr>
<td>• Models of decorated projects</td>
<td>• Kerf</td>
</tr>
<tr>
<td>• Print media</td>
<td>• Laminating</td>
</tr>
<tr>
<td>• Electronic media</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8.14.3 Wood Bending</th>
</tr>
</thead>
<tbody>
<tr>
<td>explain wood bending</td>
</tr>
<tr>
<td>describe the methods</td>
</tr>
<tr>
<td>bend wood using the different methods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Realia</th>
</tr>
</thead>
<tbody>
<tr>
<td>± wood bending tools and equipment</td>
</tr>
<tr>
<td>Models of decorated projects</td>
</tr>
<tr>
<td>Print media</td>
</tr>
<tr>
<td>Electronic media</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Models of decorated projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print media</td>
</tr>
<tr>
<td>Electronic media</td>
</tr>
</tbody>
</table>


9.0 ASSESSMENT

Forms 1-3 Wood Technology and Design is assessed through continuous assessment. Form 4 is assessed through continuous and summative assessment. Arrangements, modifications and provisions for the assessment of candidates with special needs will be made to allow equal opportunities in accurate performance and measurement of abilities. The scheme of assessment is based on the principle of inclusivity.

Forms 1-3 learners are required to design and realize one major community based project at each level as continuous assessment. They are also required to write 1 major exercise per term based on theory sections, 1 major exercise per term based on drawing and design and carry out 1 major practical exercise per term at each level that should be submitted as continuous assessment at the end of each year. Form 4 learners are also required to design and realize one major community based project as continuous assessment. They are required to write 1 major exercise per term, in terms 1 and 2 based on theory sections, 1 major exercise per term, in terms 1 and 2 based on drawing and design and carry out 1 major practical exercise per term, in terms 1 and 2 that should be submitted as continuous assessment at the end of the year. The subject teacher will set and mark the exercises, as well as record the marks using ZIMSEC guides.

ZIMSEC will also provide a template for the assessment of soft skills. Subject teachers will be required to provide a file for each learner where each of the practical exercises and marked scripts will be kept. In addition, subject teachers will also be required to create a file where exercises / question papers and marking guides for each exercise administered as well as recorded marks will be kept. ZIMSEC and Ministry of Primary and Secondary Education personnel will monitor the programme.

School heads will submit continuous assessment marks at the end of the year in Forms 1-4 as provided for by ZIMSEC.

(a) Assessment Objectives

Learners will be assessed on their ability to:

9.1.1 explain principles of occupational health and safety precautions in using hand and machine tools, materials and equipment

9.1.2 identify appropriate tools, equipment and materials for specific tasks

9.1.3 demonstrate processes and technical skills involved in the making of artefacts

9.1.4 calculate quantities and cost of materials required for projects

9.1.5 design useful projects as solutions to problems using technologies

9.1.6 use resources in a sustainable manner in the design and realisation of artefacts working within the constraints of cost and time

9.1.7 describe conservation of trees in relation to the ecosystem, environment and climate

9.1.8 demonstrate graphical communication skills relating to artefacts or systems using ICT tools
9.1.9 practise wood technology and design as an enterprise

9.1.10 demonstrate patriotism through community development projects

9.1.11 demonstrate an understanding of properties of materials used in Wood Technology and Design

9.1.12 apply scientific principles and technology in solving real life problems

9.1.13 demonstrate desirable interpersonal dimensions, attitudes and moral values underlying attributes of Unhu/Ubuntu/Vumunhu philosophy

(c) SPECIFICATION GRID

<table>
<thead>
<tr>
<th>Assessment Objectives</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.1</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.1.2</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.3</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.4</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>9.1.5</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.6</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.7</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.8</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>9.1.9</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>9.1.10</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.1.11</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>9.1.12</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>9.1.13</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Weighting: 30% 30% 40%

<table>
<thead>
<tr>
<th>Objectives/Components</th>
<th>Paper 1</th>
<th>Paper 2</th>
<th>Paper 3 Continuous Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge with understanding</td>
<td>50%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Practical Skills and their application</td>
<td>30%</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>Decision making and judgment</td>
<td>20%</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Description of Papers

Three papers will be set.

**Paper 1**  
Theory, Graphics and Design (3 hours)

The Paper has 3 sections:
- **Section A** Ten short questions from all sections of the syllabus (20 marks)
- **Section B** Five questions from which candidates answer three. (30 marks)
- **Section C** Compulsory question on graphics and design based on a piece of furniture or other wooden construction within the experience of the candidates. (30 marks)

**Paper 2**  
Practical (3 hours)

The paper requires the use of common materials and practical skills proficiency using hand tools and machinery. Details of the materials, tools, equipment and machinery required will be provided before the examination (80 marks)

**Paper 3**  
Continuous Assessment (Design Project) Learners will work from tasks provided by ZIMSEC

---

**ASSESSMENT MODEL**

**ASSESSMENT OF LEARNER PERFORMANCE IN WOOD TECHNOLOGY AND DESIGN 100%**

**CONTINUOUS ASSESSMENT 40%**

- **PROFILE**
- **EXIT PROFILE**

**DRAWING AND DESIGN 15%**

- **THEORY EXERCISES 5%**
- **PRACTICAL EXERCISES 20%**

**PRACTICAL ASSESSMENT 20%**

- **DESIGN PROJECT FORM 4 20%**
- **THEORY AND DESIGN GRAPHICS 20%**

**EXAMINATION MARK 60%**

**FINAL MARK 100%**