

**REPUBLIC OF KENYA**

**COMPETENCY BASED MODULAR CURRICULUM**

**FOR**

**CARPENTRY AND JOINERY**

**KNQF LEVEL 4**

**PROGRAMME ISCED CODE**: **0732 354 A**

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# **FOREWORD**

The provision of quality education and training is fundamental to the Government’s overall strategy for social and economic development. Quality education and training contribute to the achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary to achieve Kenya Vision 2030 and meet the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution, and this resulted in the formulation of the Policy Framework for Reforming Education and Training in Kenya (Sessional Paper No. 14 of 2012). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency-based, curriculum development be industry-led, certification be based on demonstration of competence, and the mode of delivery allow for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed. For trainees to build their skills on foundational hands-on activities of the occupation, units of learning are grouped in modules. This has eliminated duplication of content and streamlined exemptions based on skills acquired as a trainee progresses in the up-skilling process, while at the same time allowing trainees to be employable in the shortest time possible through the acquisition of part qualifications.

It is my conviction that this curriculum will play a great role in developing competent human resources for the Construction Sector’s growth and development.

**PRINCIPAL SECRETARY**

**STATE DEPARTMENT FOR TVET**

**MINISTRY OF EDUCATION**

**PREFACE**

Kenya Vision 2030 aims to transform Kenya into a newly industrializing middle-income country, providing high-quality life to all its citizens by the year 2030. Kenya intends to create globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through lifelong education and training. TVET has a responsibility to facilitate the process of inculcating knowledge, skills, and worker behaviour necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency-Based Education and Training (CBET).

TVET Act, CAP 210A and Sessional Paper No. 1 of 2019 on Reforming Education and Training in Kenya for Sustainable Development emphasized the need to reform curriculum development, assessment, and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry, as well as increase the global competitiveness of the Kenyan labour force.

This curriculum has been developed in adherence to the Kenya National Qualifications Framework and CBETA standards and guidelines. The curriculum is designed and organized into Units of Learning with Learning Outcomes, suggested delivery methods, learning resources, and methods of assessing the trainee’s achievement. In addition, the units of learning have been grouped in modules to concretize the skills acquisition process and streamline upskilling.

I am grateful to all expert trainers and everyone who played a role in translating the Occupational Standards into this competency-based modular curriculum.

# **ACKNOWLEDGMENT**

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support were received from expert trainers, institutions and organizations.

I recognize with appreciation the role of the Nation Construction Sector Skills Committee (NSSC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Construction sector for their valuable input and everyone who participated in developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that individuals aspiring to work in the Construction Sector acquire competencies to perform their work more efficiently and effectively.

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# **ABBREVIATIONS AND ACRONYMS**

CBET Competency Based Education and Training

ISCED International Standard Classification of Education

ISO International Organization for Standardization

PPE Personal Protective Equipment

TVET Technical and Vocational Education and Training

# **KEY TO ISCED UNIT CODE**



# **COURSE OVERVIEW**

Carpentry and Joinery Level 4 qualification consist of competencies that a person must achieve to enable him/her perform carpentry works. It involves constructing temporary works, fixing door and window frames, installing cabinetry works, carrying out rough carpentry, constructing doors & windows, fabricating timber furniture items, constructing timber floor and framed structures and cabinets.

**Units of Learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Unit of Competency Title** | **Unit Duration (Hours)** | **Credit Factor** |
| **MODULE 1** | | | |
| 0732 251 01A | **TEMPORARY WORKS** | **130** | **13** |
| 0732 251 02A | **DOOR & WINDOW FRAMES** | **100** | **10** |
| 0732 251 03A | **CABINETRY WORKS** | **120** | **12** |
| **MODULE 2** | | | |
| 0732 351 04A | **WORKPLACE ESSENTIAL SKILLS** | **20** | **2** |
| 0732 351 05A | **ROUGH CARPENTRY** | **80** | **8** |
| 0732 351 06A | **DOORS AND WINDOWS** | **120** | **12** |
| 0732 351 07A | **TIMBER FURNITURE ITEMS** | **100** | **10** |
| 0732 351 08A | **TIMBER FLOORS AND FRAMED STRUCTURES** | **100** | **10** |
| 0732 351 09A | **CABINETS CONSTRUCTION** | **80** | **8** |
|  | **SUB TOTAL** | **850** | **85** |
|  | **INDUSTRIAL MENTORSHIP** | **320** | **32** |
|  | **GRAND TOTAL** | **1170** | **117** |

**Entry Requirements**

An individual entering this course should have any of the following minimum requirements:

1. Kenya Certificate of Secondary Education (KCSE)

**Or**

1. Carpentry and Joinery Level 3 Certificate.

**Trainer Qualification**

Qualifications of a trainer for this course include:

1. Possession of a higher qualification than Carpentry and Joinery Level 4 or in related trade area; and
2. License by TVETA

**Industry Training**

An individual enrolled in this course will be required to undergo Industry training for a minimum period of 320 hours in construction sector. The industrial training may be taken after completion of all units for those pursuing the full qualification or be distributed equally in each unit for those pursuing part qualification. In the case of dual training model, industrial training shall be as guided by the dual training policy.

**Assessment**

The course shall be assessed formatively and summatively:

1. During formative assessment all performance criteria shall be assessed based on performance criteria weighting.
2. Number of formative assessments shall minimally be equal to the number of elements in a unit of competency
3. Assessment of basic and common competencies shall be integrated in the core units
4. Theoretical assessment shall be integrated in practical assessment and conducted orally in both formative and summative assessments.
5. Theoretical and practical weight shall be 10:90 respectively for each unit of learning.
6. Formative and summative assessments shall be weighted at 60% and 40% respectively in the overall unit of learning score
7. Assessment performance rating for each unit of competency shall be as follows:

|  |  |
| --- | --- |
| **MARKS** | **COMPETENCE RATING** |
| 80 -100 | Attained Mastery |
| 65 - 79 | Proficient |
| 50 - 64 | Competent |
| 49 and below | Not Yet Competent |
| Y | Assessment Malpractice/irregularities |

1. Assessment for Recognition of Prior Learning (RPL) may lead to award of part and/or full qualification.

**Certification**

A candidate will be issued with a Certificate of Competency upon demonstration of competence in a core Unit of Competency. To be issued with Kenya **National Certificate** in Carpentry and Joinery Level 4 the candidate must demonstrate competence in all the Units of Competency as given in the qualification pack. A Statement of Attainment certificate may be issued upon demonstration of competence in a certifiable element within a unit.

The certificates will be issued by the Qualification Awarding Institution

# **MODULE 1**

**TEMPORARY WORKS**

**UNIT CODE :** 0732 251 01A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Construct temporary works

**Duration of Unit:** 130 Hours

**UNIT DESCRIPTION**

This unit describes the competencies required to construct temporary works. It involves setting out and preparing for temporary works, installing trench timbering for excavation support, constructing and erecting form work for concrete structures, installing and securing shuttering for concrete works, dismantling and removing temporary works.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Set Out and Prepare for Temporary Works | 35 |
|  | Install Trench Timbering for Excavation Support | 25 |
|  | Construct and Erect Form work for Concrete Structures | 25 |
|  | Install and Secure Shuttering for Concrete Work | 25 |
|  | Dismantle and Remove Temporary Works | 20 |
| Total | | 130 |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** | |
| * + - 1. Set Out and Prepare for Temporary Works | * 1. Personal protective equipment      1. gloves      2. helmet      3. safety boots   2. Drawings for temporary structures      1. units’ conversion      2. symbols and abbreviation      3. drawing equipment      4. freehand sketching   3. Tools, equipment s and Materials,      1. hand tools      2. portable power tools      3. timber      4. manufactured boards      5. material handling   4. Measuring and marking out      1. tools and equipment      2. measuring      3. marking out      4. cutting out      5. joining the components   5. Safety regulation and risk management      1. safety      2. materials quality standards      3. workshop safety standards      4. site safety standards      5. general safety standards   6. housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports | |
| * + - 1. Install Trench Timbering for Excavation Support | * 1. Trench timbering materials      1. Identify materials      2. Tools and equipment      3. Select temporary works materials      4. Prepare temporary works members      5. Install temporary work      6. Safety checks   2. Timber walling boards, poling boards, struts for trench support      1. Tools and equipment      2. Selection of appropriate struts      3. Placement of struts      4. Safety checks   3. Securing and bracing      1. tools and equipment      2. selection of appropriate braces      3. placement of braces      4. safety checks   4. Safe access and stability of trench timbering      1. identify entry points      2. identify appropriate materials for entry points      3. placement of supports      4. safety checks   5. inspecting and maintaining timbering throughout excavation works      1. identify critical areas      2. tools and equipment      3. selection of appropriate materials      4. reinforce critical areas      5. safety checks   6. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports | |
| * + - 1. Construct and Erect Formwork for Concrete Structures | * 1. Formwork materials      1. identify formwork materials      2. prepare formwork materials   2. Assembling and positioning formwork for construction elements (beams, columns, walls and slabs)      1. identify construction elements      2. select appropriate materials      3. prepare materials      4. assemble formwork members      5. install formwork members      6. safety checks   3. Securing formwork      1. selection of appropriate formwork support members      2. prepare materials      3. install support to formwork      4. safety checks   4. dimensions, alignment and plumb levels      1. interpret working drawing      2. tools and equipment      3. correct errors      4. safety checks   5. release agents      1. identify release agents      2. select appropriate release agents      3. prepare release agents      4. tools and equipment      5. apply release agents      6. inspection   6. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports | |
| 1. Install and Secure Shuttering for Concrete Work | * 1. Shuttering materials      1. identify shuttering materials      2. select shuttering materials      3. tools and equipment      4. prepare shuttering materials      5. assemble shuttering members      6. safety checks   2. Positioning and fitting shuttering      1. identification of concrete elements      2. tools and equipment      3. select shuttering members      4. prepare shuttering members      5. position shuttering members      6. install shuttering members      7. safety checks   3. reinforcement access      1. identify reinforcement access points      2. selection of materials      3. reinforce access points      4. safety checks   4. Reinforcing shuttering before pouring concrete      1. identify critical areas      2. section of appropriate materials      3. tools and equipment      4. reinforce critical areas      5. safety checks   5. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports | |
| 5. Dismantle and remove temporary works | * 1. Concrete curing      1. Inspect concrete      2. Reporting the condition of the concrete   2. Dismantling and removing supports      1. members to dismantle      2. tools and equipment      3. Safety measures      4. strike off supports to formwork      5. strike off the formwork      6. site clearance   3. Reusable materials      1. select materials      2. tools and equipment      3. store reusable materials      4. house keeping   4. Waste materials disposal      1. identify materials on site      2. tools and equipment      3. dispose of non-reusable materials      4. housekeeping practices | | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |

**Suggested Methods of Instruction**

1. Practical
2. Demonstration
3. Project based learning
4. Group discussion
5. Hands on practice

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Carpentry and joinery | 5 | 1:5 |
|  | Temporary works manuals | Temporary works | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | (30\* 40 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Timber | Plank (4\*2) 7ft long  Battens (6\*1-long 7ft) | 3pcs  5pcs | 1:25 |
|  | Sand paper | Rolls/ pieces | 4 rolls/25 pcs | 1:1 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | Wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Ordinary nails 1.5 inches  Lost head nails 1.5 inches | 5kg  5kgs | 1:25 |
|  | Glazing | Panels | 5 panels | 1:1 |
|  | Ironmongery | Hinges  Latches  Locks | 75pcs  75pcs  25pcs | 3:1  3:1  1:1 |
| D | **Tools and Equipment** | | | |
|  | Planes | Jack planes | 25 pcs | 1:1 |
|  | Saw | Hand saws | 25 pcs | 1:1 |
|  | Squares | Tri square | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:2 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden mallets | Pieces | 25pcs | 1:1 |
|  | Sash clamps | Pieces | 5 | 1:5 |
|  | G-clamps | Pieces | 13 | 1:2 |
|  | Plumb bobs | Pieces | 13 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

**DOOR AND WINDOW FRAMES**

**UNIT CODE:** 0732 251 02A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Fix door and window frames

**Duration of Unit:** 100 Hours

**Unit Description**

This unit describes the competence required to fix door and window frames. It involves setting out and preparing openings for frames, positioning and securing door and window frames, applying fixings and reinforcements and finishing and inspecting installed frames.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Set Out and Prepare Openings for Frames | 30 |
|  | Position and Secure Door and Window Frames | 20 |
|  | Apply Fixings and Reinforcements | 30 |
|  | Finish and Inspect Installed Frames | 20 |
| Total | | 100 |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Set Out and Prepare Openings for Frames | * 1. Drawings for door and window frame installation      1. Read architectural and technical drawings.      2. Frame positioning, dimensions, and clearance requirements.   2. Dimensions of Openings Against Design Requirements      1. Measure and mark the correct frame positions.      2. Check width, height, and depth of the opening.      3. Compare actual site measurements with specified dimensions.   3. Materials, tools and equipment   4. Alignment of Openings      1. Use levelling tools (spirit level, plumb bob, laser level) to check accuracy.      2. -Ensure the opening is square to prevent misalignment of doors/windows.   5. Surface preparations and treatments      1. Clear the opening of debris, dust, and obstructions.      2. Ensure a smooth, even surface for frame installation.      3. Treat timber frames with anti-termite and moisture-resistant coatings where applicable. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Position and Secure Door and Window Frames | * 1. Type of door and window frames      1. Standard Single Frame      2. Double Door Frame      3. Pocket Door Frame      4. Bi-fold Frame      5. Pivot Frame      6. Knock-Down (KD) Frame      7. Welded Frame      8. Rabbeted Jamb      9. Flat Jamb      10. Split Jamb      11. Cased Opening Frame   2. lifting techniques      1. Align the frame within the designated opening as per specifications.      2. Use support aids like temporary props if necessary.   3. Securing Frames Using Wedges or Clamps      1. Place wooden wedges or clamps at key points to hold the frame in place.      2. Ensure the frame remains stable during adjustments and fastening.      3. Avoid over-tightening, which may cause frame distortion.   4. Checks ie Plumbness, Level, and Correct Alignment      1. Use a spirit level and plumb bob to verify vertical and horizontal alignment.      2. Adjust wedges and supports as needed to maintain accuracy.      3. Ensure proper clearance for doors and windows to operate smoothly.   5. Fixing Frames      1. Select fasteners suitable for the material and structural requirements.      2. Secure the frame at designated fixing points to ensure stability.      3. Use corrosion-resistant screws, nails, or anchors for durability.   6. Expansion Gaps and Appropriate Packing      1. Leave adequate space for frame expansion and contraction.  Use packing materials (e.g., shims, spacers) to maintain even gaps.      2. Seal gaps. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Apply Fixings and Reinforcements | * 1. Fixings and Reinforcements      1. Identify suitable fixings      2. based on frame material and structure.  Choose fasteners such as screws, nails, bolts, and anchors.      3. Select reinforcements like brackets, braces, and corner blocks.   2. Installing Fixings to Secure Frames      1. Position and drill pilot holes for fixings where necessary.      2. Insert and tighten fasteners to ensure firm attachment.      3. Check for movement or misalignment and make adjustments.   3. Reinforcing StructuralStability      1. Install additional braces or support plates as required.      2. Use adhesives or bonding agents for extra reinforcement.      3. Ensure all joints and connections are firm and secure.   4. Inspection and Testing of Fixings and Reinforcements      1. Verify that all fastenings are tight and secure.      2. Check for proper weight distribution and load-bearing capacity.      3. Test door/window operation to ensure stability and smooth function. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Finish and Inspect Installed Frames | * 1. Surface preparation      1. Remove excess adhesives, sealants, and debris.   Sand rough edges and surfaces for a smooth finish.      2. Fill gaps or holes using appropriate fillers   2. Protective and Decorative Finishes      1. Select appropriate finishes (paint, varnish, stain, or sealant).      2. Apply finishing materials evenly for aesthetic appeal and durability.      3. Allow adequate drying time and apply additional coats if necessary.   3. Inspection      1. Verify alignment, level, and plumb positioning.      2. Check for smooth operation of doors and windows.      3. Assess durability and structural integrity.   4. Adjustments and Corrections      1. Rectify minor defects such as uneven surfaces or misalignment.      2. Reinforce weak points or loose fixings.      3. Ensure compliance with project specifications and industry standards.   5. Cleaning and Maintenance of Installed Frames      1. Remove protective coverings and excess finishing materials.      2. Wipe down surfaces to enhance appearance.      3. Advise on long-term care and maintenance of frames. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

1. Practical
2. Demonstration
3. Project based learning
4. Group discussion
5. Hands on practice

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Woodworking hand book * Woodworking basics * Woodwork technology Motivate * Carpentry and joinery * Ebooks | 5 | 1:5 |
|  | Manuals | * Tools and equipment use * Painting * Safety in workshops | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations * Safety in workshops | 5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | (30\* 40 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Timber | Planks, boards, frames batten as per the furniture to be made | Sufficient | 1:1 |
|  | Glue | Kilograms | 25 | 1:5 |
|  | Varnish | Litres | 5 | 1:5 |
|  | Paint | Litres | 13 | 1:2 |
|  | Thinner | Litres | 13 | 1:2 |
|  | Sand paper | Pieces or Rolls | 4 rolls/50 pcs | 1:25 |
|  | Filler | Kilograms | 10 | 1:25 |
|  | Nails | Ordinary nails 1.5 inches  Lost head nails 1.5 inches | 5kg  5kgs | 1:5  1:5 |
|  | Screws | Assorted Self-tapping screws | 5 | 1:5 |
| **D** | **Tools and Equipment** | | | |
|  | Plane | Jack plane, smoothening plane, block plane, plough plane, bullnose, spoke shave, rebate plane | 25 | 1:1 |
|  | Saws | Crosscut saw, Ripsaw, Dovetail saw, Mortise and Tenon saw, Coping saw, Compass saw, Hack saw | 25 | 1:1 |
|  | Squares | Try square, bevel square, framing square, speed square, engineer square | 25 | 1:1 |
|  | Working bench | Wooden | 13 | 1:2 |
|  | Hammer | Claw hammers, ball pein hammer, engineers hammer | 25 | 1:1 |
|  | Chisels | Assorted Wood chisels, cold chisel | 25 | 1:1 |
|  | Mallet | Wood mallet, rubber mallet | 25 | 1:1 |
|  | Clamps | Sash Camp, G-clamp, F-clamp, Quick action clamps, corner clamps | 5 | 1:5 |
|  | Brace | Carpenters brace, rachet brace | 5 | 1:5 |

**CABINETRY WORKS**

**UNIT CODE:** 0732 251 03A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Carry out cabinetry works.

**Duration of Unit:** 120 Hours

**UNIT DESCRIPTION**

This unit specifies the competencies required to carry out cabinetry works. It involves setting out and preparing work area, assembling and preparing cabinet units, installing built in cabinets, kitchen cabinets, and wardrobes.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Set Out and Prepare Work Area | **40** |
|  | Assemble and Prepare Cabinet Units | **50** |
|  | Install Built-in Cabinets, Kitchen Cabinets, and Wardrobes | **30** |
| Total | | **120** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Set Out and Prepare Work Area | * 1. Interpretation of drawings and measurements for cabinetry installation.      1. Symbols and abbreviations         1. Doors         2. Windows         3. Concrete         4. Wrot Timber         5. Unwrot Timber         6. Brick work         7. Block work         8. Reinforcement      2. Unit conversion         1. Metres         2. Millimeters         3. Centimeters         4. kilometers   2. Site conditions, wall, and floor levels for cabinet fitting.      1. Site Conditions      2. Floor levels      3. Wall conditions   3. Tools, equipment, and materials      1. Tools and equipment         1. Hand tools         2. Power tools      2. Materials         1. Timber         2. Manufactured boards         3. Iron Mongery   4. Cleaning and removing workplace obstructions      1. Housekeeping activities         1. Clearing the working area         2. Sweeping the working area         3. Tools cleaning         4. Tools organization         5. Proper material storage         6. Proper waste disposal | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Assemble and Prepare Cabinet Units | * 1. Personal protective equipment      1. Types      2. Uses   2. Checking and sorting cabinet components      1. Cabinet components         1. Cabinet box (carcass)         2. Cabinet doors         3. Cabinet Drawers         4. Cabinet back panels         5. Shelves      2. Design Specifications         1. Size         2. Shape         3. Material   3. Joinery techniques      1. Joinery Techniques         1. Nails         2. Screws         3. Dowels         4. Bolts and Nuts         5. Clamps         6. Wood glue         7. Rivets   4. Structurally sound assembly.      1. Squareness      2. Levelness      3. Plumbness      4. Rigidity      5. Accuracy   5. Pre-drill holes for hardware, handles, and fittings.      1. Drilling      2. Cutting   6. Background preparation materials      1. Sponges      2. Clean cloths      3. Medium-grit sandpaper      4. Fine-grit sandpaper      5. Sanding block or orbital sander      6. Sanding sponges      7. Dust mask or respirator      8. High-quality primer      9. Cabinet paint      10. Paintbrushes      11. Paint rollers      12. Paint tray and liners      13. Painter's tape   7. Setting out of cabinetry background   8. Templating of cabinetry background      1. Pilot hole drilling      2. Plugging      3. Tracing   9. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Install Built-in Cabinets, Kitchen Cabinets, and Wardrobes | * 1. Tools, equipment and materials   2. Construction of cabinetry frame   3. Positioning of cabinets according to layout.      1. Fix base      2. Fix wall      3. Fix top   4. Supporting structures for cabinets using appropriate fasteners.      1. Supporting structures         1. walls         2. floors      2. Fasteners         1. Nails         2. Screws   5. Alignment, leveling, and spacing between units.      1. Alignment      2. Spacing      3. Levels   6. Housekeeping activities      1. Clearing the working area      2. Sweeping the working area      3. Tools cleaning      4. Tools organization      5. Proper material storage      6. Proper waste disposal | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |

**Suggested Methods of Instruction**

1. Practical
2. Demonstration
3. Project based learning
4. Group discussion Hands on practice

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Modern cabinet making * Hand crafted cabinetry | 5  5 | 1:5 |
|  | Manuals | Manual on cabinetry works | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | 1 (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | 1 (35\* 50 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** | | | |
|  | Timber | Plank (4\*2) 7ft long  Battens (2\*1-long 7ft) | 3pcs  10pcs | 1:25 |
|  | Manufactured boards | * Plywood * Fibreboard * Block board * Soft board | 5pcs each | 1:5 |
|  | Sand paper | Rolls/ pieces | 4 rolls/25 pcs | 1:1 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Ordinary nails 1.5 inches  Lost head nails 1.5 inches  Panel pins | 5kg  10kgs  5 kgs | 1:25 |
| **D** | **Tools and Equipment** | | | |
|  | Planes | assorted | 25 pcs | 1:1 |
|  | Saw | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden mallets | Pieces | 25pcs | 1:1 |
|  | Sash clamps | Pieces | 5 | 1:5 |
|  | G-clamps | Pieces | 13 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

# **MODULE 2**

**WORKPLACE ESSENTIAL SKILLS**

**UNIT CODE: 0417 351 04A**

**Relationship to Occupational Standards**

This unit addresses the Unit of Learning: Apply workplace essential skills

**Duration of Unit:** 20 Hours

**Unit Description**

This unit covers the competencies required to apply workplace essential skills. It involves, applying communication skills, promoting ethical work practices and values, and applying entrepreneurial skills.

**Summary of Learning Outcomes**

By the end of this unit, the trainee should be able to;

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Apply Communication Skills | **8** |
|  | Promote work ethical practices and values | **4** |
|  | Apply Entrepreneurial skills | **8** |

**Learning Outcomes, Content, and Suggested Assessment Methods**

| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| --- | --- | --- |
| 1. Apply communication skills | * 1. Communication process:      1. Sender      2. Message      3. Channel      4. Receiver      5. Feedback   2. Principles of effective communication:      1. Courtesy      2. Correctness      3. Completeness   3. Communication barriers:      1. Language      2. Emotions      3. Channel   4. Flow of communication:      1. Downward      2. Upward   5. Sources of information:      1. Employee      2. Customers’ feedback      3. Organization documents   6. Organizational policies   7. Workplace etiquette   8. Channels/medium/mode of communication   9. Written communication:      1. Letters      2. SMS      3. Notices      4. Memo   10. Non-verbal cues:       1. Posture       2. Gestures       3. Facial expression   11. Dressing/grooming   12. Oral communication:       1. Face-to-face       2. Telephone conversation   13. Group discussion techniques | * Oral assessment * Practical Assessments * Written assessment |
| 1. Promote ethical work practices and values | * 1. Personal Management      1. Self-Awareness      2. Self Esteem      3. Stress Management      4. Assertiveness      5. Drug and Substance abuse      6. Time Management   2. Integrity   3. Core Values and beliefs   4. Professionalism   5. Organizational codes of conduct   6. Teamwork   7. Conflict Resolution   8. Customer Care | * Oral assessment * Written assessment * Third-party reports * Practical assessment |
| 1. Apply entrepreneurial skills | * 1. Personal finances management      1. Simple bookkeeping (sales, purchases debts, and profits)      2. Budgeting   2. Savings management   3. Sources of personal and business funds   4. Investments   5. Entrepreneurial roles and characteristics   6. Salaried employment and self-employment   7. Requirements for entry into self-employment   8. Regulatory requirements   9. Benefits of business planning | * Written assessment * Oral assessment * Third party report * Practical assessment |

**Suggested Methods of Instruction**

* Assignments
* Brainstorming
* Case studies
* Demonstration
* Group Discussion
* Guest speakers
* Presentations
* Question and answer
* Role play

**Recommended Resources for 25 trainees**

|  |  |  |
| --- | --- | --- |
| **General Resources** | **Tools and Equipment** | **Materials and Supplies** |
| * 25 Desktop computers/laptops | 25 mobile phones | * Flashcards |
| * Internet connection | Telephone | * Flip charts |
| * 1 Projector * 1 Printer |  | * 2 packets of assorted colors of whiteboard marker pens |
| * 1 Whiteboard |  | * Printing papers |
| * 5 Business plan templates * 1 Overhead projectors * Internet * Video clips * 5 Newspapers and Handouts * 5 Business Journals |  | * 25 sets of Writing materials Stationery * Charts |

# **ROUGH CARPENTRY**

**UNIT CODE:** 0732 351 05A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Carry out Rough Carpentry

**Duration of Unit:** 80 Hours

**Unit Description**

This unit describes the competences required to carry out rough carpentry. It involves setting out rough carpentry, fixing rough carpentry members and dismantling rough carpentry members

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Set Out rough carpentry | **30** |
|  | Fix rough carpentry members | **25** |
|  | Dismantle rough carpentry members | **25** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| Set out rough carpentry | * 1. Personal protective equipment (PPE)   2. Types Rough carpentry      1. Hoarding      2. Shoring      3. Scaffolding   3. Rough carpentry setting out tools.   4. Site clearance   5. Rough carpentry marking out   6. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| Fix rough carpentry members | * 1. Rough carpentry erecting tools and equipment      1. Marking tools      2. Measuring and testing tools      3. Driving tools      4. Boring tools      5. Cutting tools      6. Setting out tools   2. Rough carpentry materials      1. Plywood      2. Timber poles      3. Iron sheets      4. Fibre boards   3. Rough carpentry members      1. Props      2. Studs      3. Struts      4. Runners      5. Ties   4. Rough carpentry construction      1. Placing      2. Aligning      3. Bracing and fixing | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| Dismantle rough carpentry members | * 1. Rough carpentry dismantling tools and equipment   2. Rough carpentry support members   3. Rough carpentry fasteners   4. Rough carpentry dismantling   5. Reuse of rough carpentry members   6. Collection, sorting and disposal of rough carpentry members. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

* Instructor-led facilitation
* Demonstration by trainer
* Practical work by trainees
* Group discussions
* Presentations
* Projects
* Case studies
* Problem based learning
* Experiential learning
* Question and answer
* Team training
* Team learning
* E-learning
* Field trips

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Wood Flooring * Successful timber floors * Timber Flooring Installation Guide | 5  5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | (35\* 50 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** | | | |
|  | Timber | Plank (4\*2) 10ft long ( for joists and runners)  Battens (6\*1 to 12\* 1)-long 10ft) | 20pcs  20pcs | 1:25 |
|  | Manufactured boards | * Plywood * Fibreboard * Block board * Soft board | 5pcs each | 1:5 |
|  | Sand paper | Rolls/ pieces | 4 rolls/25 pcs | 1:1 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Ordinary nails (1.5, 2,3,4,5 inches)  Lost head nails 1.5 inches  Panel pins | 25kg  10kgs  5 kgs | 1:25 |
| **D** | **Tools and Equipment** | | | |
|  | Planes | assorted | 25 pcs | 1:1 |
|  | Saw | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden mallets | Pieces | 25pcs | 1:1 |
|  | Sash clamps | Pieces | 5 | 1:5 |
|  | G-clamps | Pieces | 13 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

# **DOORS AND WINDOWS**

**ISCED CODE:** 0732 351 06A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Construct Doors and Windows

**Duration of Unit:** 120 Hours

**UNIT DESCRIPTION**

This unit describes the competence required to construct doors and windows. It involves, marking and cutting out door & window component profile, fitting door & window joints, performing door & window finishes and erecting doors and windows.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Mark and cut out door and window component profile | **50** |
|  | Fit door & window joints | **20** |
|  | Perform doors & windows finishes | **30** |
|  | Erect Doors and Windows | **20** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| * + - 1. Mark and Cut out door & window component profile | * 1. Personal protective equipment (PPE)   2. Types of doors      1. Batten doors      2. Framed/panel doors      3. Flush doors   3. Types of windows      1. Casement Windows      2. Sliding Sash Windows      3. Awning Windows      4. Hopper Windows      5. Louvered Windows   4. Door and Window materials      1. Hard wood      2. Soft wood      3. Manufactured boards      4. Ironmongery   5. Door and Window component marking and cutting out      1. Marking tools      2. Cutting out tools and equipment   6. Housekeeping practices      1. Collecting and sorting timber wastes      2. Saw dust      3. Chippings      4. Timber cuttings      5. Proper care and maintenance of tools and equipment | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| * + - 1. Fit door & window joints | * 1. Doors & Window fixing tools   2. Types of joints      1. Dove tails      2. Dowels      3. Tongue and groove      4. Mortise and tenon      5. Bridle   3. Cutting of timber joints   4. Sawing      1. Chamfering      2. Planing      3. Rebating      4. Scribing   5. Fixing and assembling of timber joints      1. Methods of fixing         1. Dowelling         2. Nailing         3. Glueing         4. Screwing      2. Quality control         1. Strength         2. Stability         3. Workmanship   6. Housekeeping practices      1. Collecting and sorting timber wastes         1. Saw dust         2. Chippings         3. Timber cuttings      2. Proper care and maintenance of tools and equipment | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| * + - 1. Perform door & window finishes | * 1. Door & door frame finishing tools and materials   2. Surface preparation tasks      1. Scrapping      2. Planing      3. Filling      4. Sanding   3. Surface coatings      1. Painting      2. Varnishing      3. Waxing      4. Laminating      5. Staining   4. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| * + - 1. Erect doors and windows | * 1. Personal protective equipment (PPEs)   2. Doors and Window erecting tools and equipment   3. Doors and Window hardware      1. Hinges      2. Handles      3. Locks      4. Latches   4. Background preparation      1. Chasing      2. Pilot hole drilling      3. Plugging   5. Erecting doors and windows      1. Door and window frames fixing methods      2. Doors and Windows fixing methods   6. Quality checks      1. Levelness      2. Plumbness      3. Squareness   7. Fixing architraves      1. Types of architraves         1. Straight         2. Curved      2. Architrave fixing methods   8. Housekeeping practices      1. Collecting and sorting timber wastes      2. Proper care and maintenance of tools and equipment   9. Recycling of timber waste      1. Handicrafts      2. Consumer goods | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

* Instructor-led facilitation
* Demonstration by trainer
* Practical work by trainees
* Group discussions
* Presentations
* Projects
* Case studies
* Problem based learning
* Experiential learning
* Question and answer
* Team training
* Team learning
* E-learning
* Field trips

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Carpentry and joinery | 5 | 1:5 |
|  | Installation manuals | Door installation | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | (30\* 40 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** |  |  |  |
|  | Timber | Plank (4 x 2) 7 ft long  Battens (6 x 1) 7 ft long | 3pcs  5pcs | 1:25 |
|  | Sand paper | Rolls/pieces | 4 rolls/  25 pcs | 1:1 |
|  | Brushes | Size 2, 3, 4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | Wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Wire nails:  2 inches  3 inches  Lost head nails  2 inches | 5 Kgs  5 Kgs  5 Kgs | 1:25 |
|  | Ironmongery | Hinges  Latches  Locks | 75pcs  75pcs  25pcs | 1:1 |
| D | **Tools and Equipment** | | | |
|  | Planes | assorted | 25 pcs | 1:1 |
|  | Saws | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:2 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25 pcs | 1:1 |
|  | Wooden mallets | Pieces | 25 pcs | 1:1 |
|  | Sash clamps | Pieces | 5 pcs | 1:5 |
|  | G-clamps | Pieces | 13 pcs | 1:2 |
|  | Plumb bobs | Pieces | 10 pcs | 1:2 |
|  | Drilling machine | Pieces | 5 pcs | 1:5 |

# **TIMBER FURNITURE ITEMS**

**ISCED CODE:** 0732 351 07A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Fabricate Timber Furniture Items

**Duration of Unit:** 100 Hours

**Unit Description**

This unit describes the competences required to Fabricate timber furniture items. It involves interpreting working drawings, making up furniture components, assembling furniture components and performing furniture finishes

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Interpret working drawings | **10** |
|  | Make-up furniture components | **40** |
|  | Assemble furniture components | **30** |
|  | Perform furniture finishing | **20** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Interpret working drawings. | 1. Introduction to Working Drawings 2. Definition and Purpose    * 1. Role in Furniture Fabrication      2. Communication Tool      3. Importance of Accuracy 3. Types of Drawings   1.2.1 Orthographic Projections  1.2.1.1 Plan Views  1.2.1.2 Elevation Views  1.2.1.3 Section Views  1.2.2 Isometric/Perspective Drawings  1.2.3 Detail Drawings   1. Drawing Scales   1.3.1 Concept of Scale  1.3.2 Calculating Actual Dimensions  1.3.3 Using Architectural Scales   1. Key Components of Working Drawings   1.4.1 Title Block  1.4.2 Information Contained  1.4.3 Checking for Accuracy  1.4.4 Dimensions and Tolerances  1.4.5 Types of Dimensions  1.4.6 Concept of Tolerances  1.4.7 Units of Measure   1. Reading and Interpreting Drawings 2. Identifying Key Features 3. Extracting Information | * Written Tests * Practical Exercises * oral Assessment * projects |
| 1. Make-up furniture components | * 1. Personal protective equipment (PPE)   2. Types of furniture      1. Chairs      2. Tables      3. Beds      4. TV stands      5. Shoe racks   3. Furniture components      1. Table legs      2. Table tops      3. Trestles      4. Drawers      5. Table bases      6. Headboards   4. Furniture hardware materials      1. Furniture handles      2. Plates      3. Braces      4. Nails      5. Brackets   5. Furniture component cutting out tools      1. Marking tools      2. Measuring tools      3. Cutting tools      4. Planning and shaping tools      5. Boring tools      6. Holding tools   6. Furniture joints      1. Carcasing joints      2. Framing joints      3. Widening joints      4. Lengthening joints   7. Furniture component materials      1. Wood/timber      2. Bamboo      3. Upholstery fabrics      4. Plywood      5. Manufactured boards      6. Furniture foils   8. Furniture material cutting and Shaping      1. Cutting techniques      2. Shaping designs   9. Dry fitting the components   10. Housekeeping       1. Collecting and sorting timber wastes       2. Proper care and maintenance of tools and equipment | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Assemble furniture components | * 1. Furniture assembly tools and equipment      1. Marking tools      2. Measuring and testing tools      3. Driving tools      4. Cutting tools      5. Fixing tools      6. Planning and shaping tools   2. Furniture joints fixing      1. Methods of fixing      2. Qualities of a good joint   3. Furniture material assembling      1. Materials for fixing         1. Glues and adhesives         2. Nailing         3. Dowelling   4. Quality control      1. Furniture strength      2. Furniture stability      3. Workmanship | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Perform furniture finishes | * 1. Furniture finishing tools and equipment   2. Filling of Furniture surface gaps      1. Types of wood fillers      2. Process of applying a wood filler   3. Furniture surface preparation      1. Scrapping      2. Planning      3. Sanding   4. Surface coating      1. Varnishing      2. Painting      3. Laminating      4. Staining      5. Waxing   5. Housekeeping practices      1. Collecting and sorting timber wastes      2. Proper care and maintenance of tools and equipment   6. Recycling of timber waste      1. Handicrafts      2. Consumer goods | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

* Instructor-led facilitation
* Demonstration by trainer
* Practical work by trainees
* Group discussions
* Presentations
* Projects
* Case studies
* Problem based learning
* Experiential learning
* Question and answer
* Team training
* Team learning
* E-learning
* Field trips

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Woodworking hand book * Woodworking basics * Woodwork technology Motivate * Carpentry and joinery * E-books | 5 | 1:5 |
|  | Manuals | * Tools and equipment use * Painting * Safety in workshops | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations * Safety in workshops | 5 | 1:25 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | (30\* 40 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** | | | |
|  | Timber | Planks, boards, frames batten as per the furniture to be made | Sufficient | 1:1 |
|  | Glue | Kilograms | 20 | 1:25 |
|  | Varnish | Litres | 5 | 1:25 |
|  | Paint | Litres | 10 | 1:25 |
|  | Thinner | Litres | 10 | 1:25 |
|  | Sand paper | Pieces or Rolls | 4 rolls/50 pcs | 1:25 |
|  | Filler | Kilograms | 10 | 1:25 |
|  | Nails | Ordinary nails 1.5 inches  Lost head nails 1.5 inches | 5kg  5kgs | 1:25 |
|  | Screws | Assorted Self-tapping screws | 5 | 1:25 |
| **D** | **Tools and Equipment** | | | |
|  | Plane | Jack plane, smoothening plane, block plane, plough plane, bullnose, spoke shave, rebate plane | 25 | 1:1 |
|  | Saws | Crosscut saw, Ripsaw, Dovetail saw, Mortise and Tenon saw, Coping saw, Compass saw, Hack saw, band saw | 25 | 1:1 |
|  | Squares | Try square, bevel square, framing square, speed square, engineer square | 25 | 1:1 |
|  | Working bench | Wooden | 13 | 1:2 |
|  | Hammer | Claw hammers, ball pein hammer, engineers hammer | 25 | 1:1 |
|  | Chisels | Assorted Wood chisels, cold chisel | 25 | 1:1 |
|  | Mallet | Wood mallet, rubber mallet | 25 | 1:1 |
|  | Clamps | Sash Camp, G-clamp, F-clamp, Quick action clamps, corner clamps | 5 | 1:5 |
|  | Brace | Carpenters brace, rachet brace | 5 | 1:5 |
|  | Power tools | Router, Belt sander, Table saw, band saw, circular saw, Nail gun, Mortiser, Thicknesser, surface planers, Wood lathe | 2 | 1:13 |

# **TIMBER FLOORS AND FRAMED STRUCTURES**

**UNIT CODE:** 0732 351 08A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct timber floors and framed structures

**Duration of Unit:** 100 Hours

**Unit Description**

This unit describes the competences required to construct timber floors and timber framed buildings. It entails interpreting working drawing, constructing timber floors, finishing on timber floors, constructing timber framed structures and finishing on timber framed structures.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Interpret working drawings | **10** |
|  | Construct timber floors | **30** |
|  | Finishing on timber floors | **20** |
|  | Construct timber framed structures | **30** |
|  | Finishing on timber framed structures | **10** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Interpret working drawings | * 1. Conversion of measurements   2. Scale   3. Parts of a timber floor   4. Symbols for door and window openings | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Construct timber floors | * 1. Personal protective equipment   2. Timber flooring material      1. Joists      2. Sill plates      3. Bearer      4. Battens   3. Timber flooring setting out tools and equipment      1. Marking tools      2. Measuring and testing tools      3. Driving tools      4. Cutting tools      5. Planning and shaping tools      6. Setting out tools      7. Floor dimensions determination.      8. Floor Marking      9. Vertical controls      10. Horizontal controls   4. Timber floor material preparation.      1. Cutting      2. Planing   5. Timber floor fixing materials, tools and equipment   6. Floor plumbs and level checking.   7. Timber floor cover laying.      1. Types of covering materials   8. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Finishing on timber floors | * 1. Timber floor finishing materials, tools and equipment Surface preparation      1. Scrapping      2. Planning      3. Filling      4. Sanding   2. Surface coating      1. Varnishing      2. Painting      3. Staining      4. Waxing      5. Laminating   3. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Construct timber framed structures | * 1. Personal protective equipment   2. Methods of timber frame construction      1. Ballon construction      2. Platform construction   3. Materials used in timber frame construction      1. Timber/ wood      2. Manufactured boards      3. Plywood      4. Bamboo   4. Setting out of timber framed structures      1. Setting out tools      2. Setting out procedure      3. Marking tools      4. Marking dimensions   5. Preparation of the timber frame construction materials      1. Cutting procedures      2. Cutting tools      3. Assembly procedures      4. Assembly tools and materials   6. Erecting and fixing timber frame structures      1. Safety precautions      2. Fixing tools and materials      3. Levelling and squareness   7. Building regulations for timber framed structures | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Finishing on timber framed structures | * 1. Personal protective equipment   2. Surface treatments and preservatives      1. Pest control treatments         1. Chemical treatments         2. Borate treatment         3. Creosote         4. Metallic salts      2. Moisture protection         1. Oiling         2. Painting         3. Proper storage         4. Seasoning   3. Cladding materials for timber frame structures      1. Timber      2. Manufactured boards      3. G.I Sheets   4. Installation of wall second fixtures      1. Picture rails      2. Dado rails      3. Pelmet box   5. Housekeeping practices      1. Collecting and sorting timber wastes      2. Proper care and maintenance of tools and equipment   6. Recycling of timber waste      1. Handicrafts      2. Consumer goods | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

* Instructor-led facilitation
* Demonstration by trainer
* Practical work by trainees
* Group discussions
* Presentations
* Projects
* Case studies
* Problem based learning
* Experiential learning
* Question and answer
* Team training
* Team learning
* E-learning
* Field trips

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Wood Flooring * Successful timber floors * Timber Flooring Installation Guide * Methods of timber frame construction * Timber framed structure construction guide | 5  5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (9x8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15x10 sq. metres) | 1 | 1:25 |
| **C** | **Consumable materials** | | | |
|  | Timber | Planks  (4x2) 10ft long  (for joists and runners)  Battens  (6x1 to 12x1)  10 ft long | 25pcs  25pcs | 1:1  1:1 |
|  | Manufactured boards | * Plywood * Fibreboard * Block board * Soft board | 5pcs each | 1:5 |
|  | Sand paper | Rolls/ pieces | 4 rolls/  25 pcs | 1:1 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Ordinary nails (1.5, 2,3,4,5 inches)  Lost head nails 1.5 inches  Panel pins | 25kg  10kgs  5 kgs | 1:25 |
| **D** | **Tools and Equipment** | | | |
|  | Planes | assorted | 25 pcs | 1:1 |
|  | Saw | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden mallets | Pieces | 25pcs | 1:1 |
|  | Sash clamps | Pieces | 5 | 1:5 |
|  | G-clamps | Pieces | 13 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

# **CABINETS CONSTRUCTION**

**ISCED CODE:** 0732 351 09A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct Cabinets.

**Duration of Unit:** 80 Hours

**Unit Description**

This unit describes the competences required to carry out cabinetry works. It involves interpreting working drawings, cutting out cabinetry members, preparing cabinetry background and performing cabinetry finishes.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Interpret working drawings | **10** |
|  | Cut out cabinetry members | **40** |
|  | Prepare cabinetry background | **20** |
|  | Perform cabinetry finishes | **10** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1.Interpret working drawings | * 1. Introduction to Working Drawings   2. Definition and Purpose      1. Role in cabinet fabrication      2. Communication Tool      3. Importance of Accuracy   3. Types of Drawings      1. Orthographic Projections         1. Plan Views         2. Elevation Views         3. Section Views      2. Isometric/Perspective   Drawings   * + 1. Detail Drawings   1. Drawing Scales      1. Concept of Scale      2. Calculating Actual Dimensions      3. Using Architectural Scales   2. Key Components of Working Drawings      1. Title Block      2. Information Contained      3. Checking for Accuracy      4. Dimensions and Tolerances      5. Types of Dimensions      6. Concept of Tolerances      7. Units of Measure   3. Reading and Interpreting Drawings      1. Identifying Key Features      2. Extracting Information   4. Free hand sketching | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project   Practical |
| Cut out cabinetry members | * 1. Carpentry Personal protective equipment (PPE)   2. Types of cabinetries      1. Fixed      2. Portable   3. Cabinetry construction materials      1. Plywood      2. Fibre boards      3. Block boards      4. Soft boards   4. Cabinetry tools and equipment      1. Marking tools      2. Measuring and testing tools      3. Driving tools      4. Boring tools      5. Cutting tools   5. Marking out Cabinetry members      1. Drawers      2. Shelves      3. Cabinet doors      4. Bases   6. Cutting out Cabinetry members      1. Quality checks      2. Cutting pattern   7. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| Prepare cabinetry background | * 1. Cabinetry background preparation tools and equipment   2. Cabinetry background preparation materials   3. Cabinetry background setting out   4. Cabinetry background templating      1. Pilot hole drilling      2. Plugging      3. Tracing   5. Housekeeping practices | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| Perform cabinetry finishes | * 1. Cabinetry finishing tools and equipment   2. Cabinetry finishing materials assembling   3. Cabinetry surface preparation performing      1. Scrapping      2. Planing      3. Filling      4. Sanding   4. Cabinetry second fixtures      1. Fixing cabinets      2. Cornice      3. Skirting   5. Cabinetry surface preparation   6. Cabinetry surface coating      1. Varnishing      2. Painting      3. Laminating      4. Staining      5. Waxing   7. Housekeeping practices   8. Recycling of timber waste      1. Handicrafts      2. Consumer goods | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Suggested Methods of Instruction**

* Instructor-led facilitation
* Demonstration by trainer
* Practical work by trainees
* Group discussions
* Presentations
* Projects
* Case studies
* Problem based learning
* Experiential learning
* Question and answer
* Team training
* Team learning
* E-learning
* Field trips

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Modern cabinet making * Hand crafted cabinetry | 5  5 | 1:5 |
|  | Manuals | Manual on cabinetry works | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | 1 (30\* 40 sq. feet) | 1 | 1:25 |
|  | Workshop | 1 (35\* 50 sq. feet) | 1 | 1:25 |
| **C** | **Consumable materials** | | | |
|  | Timber | Plank (4\*2) 7ft long  Battens (2\*1-long 7ft) | 3pcs  10pcs | 1:25 |
|  | Manufactured boards | * Plywood * Fibreboard * Block board * Soft board | 5pcs each | 1:5 |
|  | Sand paper | Rolls/ pieces | 4 rolls/25 pcs | 1:1 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Varnish | Litres | 10 | 1:25 |
|  | wood glue | Kilograms | 20 | 1:25 |
|  | Nails | Ordinary nails 1.5 inches  Lost head nails 1.5 inches  Panel pins | 5kg  10kgs  5 kgs | 1:25 |
| **D** | **Tools and Equipment** | | | |
|  | Planes | assorted | 25 pcs | 1:1 |
|  | Saw | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measure | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Bevel squares | Pieces | 13 pcs | 1:2 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden mallets | Pieces | 25pcs | 1:1 |
|  | Sash clamps | Pieces | 5 | 1:5 |
|  | G-clamps | Pieces | 13 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |