****

**REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**CARPENTRY AND JOINERY**

**KNQF LEVEL 5**

**PROGRAMME ISCED CODE**: **0732 454 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 ………………… 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).

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 National 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

EMCA Environmental Management and Coordination Act

ICT Information Communication Technology

ISCED International Standard Classification of Education

ISO International Organization for Standardization

OS Occupational Standard

OSH Occupational Safety and Health

PPE Personal Protective Equipment

TVET Technical and Vocational Education and Training

# **KEY TO ISCED UNIT CODE**



# **COURSE OVERVIEW**

Carpentry and Joinery Level 5 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, cabinets, timber roofs, constructing and installing upholstery furniture, timber stairs, installing ceiling unit and constructing timber prefabricated buildings.

**Units of Learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit of Learning Code** | **Unit of Learning Title** | **Duration**  **in**  **Hours** | **Credit Factor** |
| **MODULE ONE** | | | |
| 0732 251 01A | TEMPORARY WORKS | 130 | 13.0 |
| 0732 251 02A | DOOR & WINDOW FRAMES | 100 | 10.0 |
| 0732 251 03A | CABINETRY WORKS | 120 | 12.0 |
| **Sub total** | | **350** | **35.0** |
| **MODULE TWO** | | | |
| 0732 351 04A | WORKPLACE ESSENTIAL SKILLS | 20 | 2.0 |
| 0732 351 05A | ROUGH CARPENTRY | 80 | 8.0 |
| 0732 351 06A | DOORS AND WINDOWS | 120 | 12.0 |
| 0732 351 07A | TIMBER FURNITURE ITEMS | 100 | 10.0 |
| 0732 351 08A | TIMBER FLOORS AND FRAMED STRUCTURES | 100 | 10.0 |
| 0732 351 09A | CABINETS | 80 | 8.0 |
| **Sub total** | | **500** | **50.0** |
| **MODULE THREE** | | | |
| 0732 451 10A | DIGITAL LITERACY | 40 | 4.0 |
| 0732 451 11A | BASIC MATHEMATICS | 80 | 8.0 |
| 0732 451 12A | TECHNICAL DRAWING | 40 | 4.0 |
| 0732 451 13A | TIMBER ROOFS CONSTRUCTION | 120 | 12.0 |
| 0732 451 14A | UPHOLSTERY FURNITURE | 120 | 12.0 |
| **Sub total** | | **420** | **42.0** |
| **MODULE FOUR** | | | |
| 0732 451 15A | TIMBER STAIRS CONSTRUCTION | 120 | 12.0 |
| 0732 451 16A | CEILING UNIT INSTALLATION | 130 | 13.0 |
| 0732 451 17A | TIMBER PREFABRICATED BUILDINGS | 150 | 15.0 |
| **Sub total** | | **450** | **45.0** |
| **INDUSTRIAL ATTACHMENT** | | **480** | **48.0** |
| **GRAND TOTAL** |  | **2200** | **220.0** |

**Entry Requirements**

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

1. Kenya Certificate of Secondary Education (KCSE) Grade, D plain and above.

**Or**

1. Carpentry and Joinery Level 4 Certificate

**Or**

1. Equivalent qualifications as determined by relevant regulatory body

**Trainer Qualification**

Qualifications of a trainer for this course include:

1. Possession of at least one level higher than Carpentry and Joinery Level 5 or in related trade area;
2. License by TVETA;

**Industry Training**

An individual enrolled in this course will be required to undergo Industry training for a minimum period of 480 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. During summative assessment basic and common units shall be integrated in the core units.
3. Summative assessment shall involve practical assessment focusing more on critical aspects of the respective unit of competency.
4. Theoretical and practical weight for each unit of learning shall be as follows;
5. 10:90 for units in module 1 and module 2
6. 30:70 for units in module 3 and module 4
7. Theoretical (written/oral) assessment shall have formative and summative assessments weighted at 60% and 40% respectively in the overall unit of learning score
8. 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 attain the full Carpentry and Joinery Level 5 certificate, the candidate must demonstrate competence in all the Units of Competency as given in the qualification pack. Statement of Attainment certificate may be awarded upon demonstration of competence in certifiable element within a unit.

These certificates will be issued by ……… (QAI)

**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:** 0732 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 |

**MODULE THREE**

**DIGITAL LITERACY**

**ISCED UNIT CODE:** 0732 451 10A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Apply Digital Literacy

**Duration of Unit:** 40 Hours

**Unit Description**

This unit covers the competencies required to demonstrate digital literacy. It involves operating computer devices, solving tasks using the Office suite, performing online communication and collaboration, online jobs and applying job entry techniques.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Operate computer devices | **8** |
|  | Solve tasks using Office suite | **16** |
|  | Perform online communication and collaboration | **4** |
|  | Perform online jobs | **8** |
|  | Apply job entry techniques | **4** |

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

| **Learning Outcome** | **Content** | **Suggested**  **Assessment Methods** |
| --- | --- | --- |
| 1. Operate computer devices | * 1. Meaning and importance of digital literacy   2. Functions and Uses of Computers   3. Classification of computers   4. Components of a computer system   5. Computer Hardware      1. The System Unit e.g. Motherboard, CPU, casing      2. Input Devices e.g. Pointing, keying, scanning, voice/speech recognition, direct data capture devices.      3. Output Devices e.g. hardcopy output and softcopy output      4. Storage Devices e.g. main memory e.g. RAM, secondary storage (Solid state devices, Hard Drives, CDs & DVDs, Memory cards, Flash drives      5. Computer Ports e.g. HDMI, DVI, VGA, USB type C etc.   6. Classification of computer software   7. Operating system functions   8. Procedure for turning/off a computer   9. Mouse use techniques   10. Keyboard Parts and Use Techniques   11. Desktop Customization   12. File and Files Management using an operating system   13. Computer Internet Connection Options       1. Mobile Networks/Data Plans       2. Wireless Hotspots       3. Cabled (Ethernet/Fiber)       4. Dial-Up       5. Satellite   14. Computer external devices management       1. Device connections       2. Device controls (volume controls and display properties) | * Practical assessment * Portfolio of Evidence * Written assessment * Project |
| 1. Solve tasks using Office suite | * 1. Meaning and Importance of Word Processing   2. Working with word documents      1. Open and close word processor      2. Create a new document      3. Save a document      4. Switch between open documents   3. Enhancing productivity      1. Set basic options/preferences      2. Help resources      3. Use magnification/zoom tools      4. Display, hide built-in tool bar      5. Using navigation tools   4. Typing Text   5. Document editing (copy, cut, paste commands, spelling and Grammar check)   6. Document formatting      1. Formatting text      2. Formatting paragraph      3. Formatting styles      4. Alignment      5. Creating tables      6. Formatting tables   7. Graphical objects      1. Insert object (picture, drawn object)      2. Select an object      3. Edit an object      4. Format an object   8. Document Print setup      1. Page layout,      2. Margins set up      3. Orientation.   9. Word Document Printing   10. Meaning & Importance of electronic spreadsheets   11. Components of Spreadsheets   12. Application areas of spreadsheets   13. Using spreadsheet application       1. Parts of Excel screen: ribbon, formula bar, active cell, name box, column letter, row number, Quick Access Toolbar.       2. Cell Data Types       3. Block operations       4. Arithmetic operators (formula bar (-, +, \*, /).       5. Cell Referencing   14. Data Manipulation       1. Using Functions (Sum, Average, SumIF, Count, Max, Max, IF, Rank, Product, mode etc)       2. Using Formulae       3. Sorting data       4. Filtering data       5. Visual representation using charts   15. Worksheet printing   16. Electronic Presentations   17. Meaning and Importance of electronic presentations   18. Examples of Presentation Software   19. Using the electronic presentation application       1. Parts of the PowerPoint screen (slide navigation pane, slide pane, notes, the ribbon, quick access toolbar, and scroll bars).       2. Open and close presentations       3. Creating Slides (Insert new slides, duplicate, or reuse slides.)       4. Text Management (insert, delete, copy, cut and paste, drag and drop, format, and use spell check).       5. Use magnification/zoom tools       6. Apply or change a theme.       7. Save a presentations       8. Switch between open presentations   20. Developing a presentation       1. Presentation views       2. Slides       3. Master slide   21. Text       1. Editing text       2. Formatting       3. Tables   22. Charts       1. Using charts       2. Organization charts   23. Graphical objects       1. Insert, manipulate       2. Drawings   24. Prepare outputs       1. Applying slide effects and transitions       2. Check and deliver       3. Spell check a presentation       4. Slide orientation       5. Slide shows, navigation   25. Print presentations (slides and handouts) | * Project * Practical assessment * Written assessment * Portfolio of Evidence |
| 1. Perform online communication and collaboration | * 1. Netiquette principles   2. Communication concepts      1. Online communities      2. Communication tools      3. Email concepts   3. Using email      1. Sending email      2. Receiving email      3. Tools and settings      4. Organizing email   4. Digital content copyright and licenses   5. Online collaboration tools      1. Online Storage (Google Drive)      2. Online productivity applications (Google Docs & Forms)      3. Online meetings (Google Meet/Zoom)      4. Online learning environments      5. Online calendars (Google Calendars)      6. Social networks (Facebook/Twitter - Settings & Privacy)   6. Preparation for online collaboration      1. Common setup features   7. Mobile collaboration      1. Key concepts      2. Using mobile devices      3. Applications      4. Synchronization | * Portfolio of Evidence * Project * Written assessment * Practical assessment |
| 1. Perform Online Jobs | * 1. Introduction to online working   2. Types of online Jobs   3. Online job platforms      1. Remotask      2. Data annotation tech      3. Cloud worker      4. Upwork      5. Oneforma      6. Appen   4. Online account and profile management   5. Identifying online jobs/job bidding   6. Online digital identity   7. Executing online tasks   8. Management of online payment accounts. | * Observation * Portfolio of Evidence * Project * Written assessment * Practical assessment |
| 1. Apply job entry techniques | * 1. Types of job opportunities      1. Self-employment      2. Service provision      3. product development      4. salaried employment   2. Sources of job opportunities   3. Resume/ curriculum vitae      1. What is a CV      2. How long should a CV be      3. What to include in a AC      4. Format of CV      5. How to write a good CV      6. Don’ts of writing a CV   4. Job application letter      1. What to include      2. Addressing a cover letter      3. Signing off a cover letter   5. Portfolio of Evidence      1. Academic credentials      2. Letters of commendations      3. Certification of participations      4. Awards and decorations   6. Interview skills      1. Listening skills      2. Grooming      3. Language command      4. Articulation of issues      5. Body language      6. Time management      7. Honesty   7. Generally knowledgeable in current affairs and technical area | * + Portfolio of evidence   + Third party report * Written assessment |

**Suggested Methods Instruction**

* + Demonstration
  + Practical
  + Viewing of related videos
  + Group discussions
  + Project
  + Role play

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Charts | * Flip Charts * Rules and Regulations | 5 | 1:5 |
|  | Report Writing Templates | Printed copies and softcopies | 25 | 1:1 |
|  | Markers | Whiteboard markers and permanent Markers | 50 | 1:1 |
|  | External Storage Media | Flash disks, Compass Disks; Re-Writable | 1 | 1:25 |
|  | Smartboard/Smart TV (Where Applicable) | LCD or projector | 20 | 1:25 |
| **B** | **Learning Facilities & Infrastructure** | | | |
|  | Lecture/Theory Room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (10\* 15 sq. metres) | 1 | 1:25 |
|  | Internet Connection | System | 1 | 1:25 |
| **C** | **Consumable Materials** | | | |
|  | Flashcards | Alphabet, Numbers, Math | 25 | 1:1 |
|  | Printing Papers | Sizes A4, A3, A2 etc | 5 reams | 1:5 |
| **D** | **Tools And Equipment** | | | |
|  | Computers/Laptops | Any model | 1 | 1:25 |
|  | Projector | LED.LCD, Laser | 5 | 1:5 |
|  | Printer | Inkjet, LaserJet | 1 | :25 |
|  | Computers Software: | •Windows/Linux/Macintosh Operating System  •Microsoft Office Software  •Google Workspace Account  Antivirus Software | 1 | 1:1 |
|  | Whiteboard | Glass, melamine, porcelain | 1 | 1:25 |
|  | Mobile Phones | Smartphones | 5 | 1:5 |

**BASIC MATHEMATICS**

**ISCED UNIT CODE:** 0732 451 11A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Apply basic mathematics

**Duration of Unit:** 80 Hours

**UNIT DESCRIPTION:**

This unit describes the competencies required in applying basic mathematics. It involves applying basic arithmetic, basic algebra, performing trigonometry calculations, geometrical calculations and carrying out mensuration.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Apply basic arithmetic | **8** |
|  | Carry out basic Mensuration | **12** |
|  | Apply basic Algebra | **12** |
|  | Perform trigonometry calculations | **24** |
|  | Perform geometric calculations | **24** |

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

|  |  |  |
| --- | --- | --- |
| **Carpentry and joinery level 5** | | |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| * + - 1. Apply basic arithmetic | * 1. Whole numbers   2. Simple fractions   3. Decimals   4. Percentage   5. Place value   6. Ranges   7. Rounding off   8. Percentages   9. Proportions   10. Decimals   11. Standard form | * Written assessments * Assignments * Supervised exercises |
| * + - 1. Apply basic Algebra | * 1. Indices   2. Linear equations   3. Use of a calculator solving problems   4. Simultaneous equations   5. Simple algebraic equations | * Written assessments * Assignments * Supervised exercises |
| * + - 1. Perform Trigonometry calculations | * 1. Trigonometric calculations   2. Trigonometric rules   3. Calculations | * Written assessments * Assignments * Supervised exercises |
| * + - 1. Perform geometric calculations | * 1. Geometrical figures   2. Areas of figures   3. Pythagoras’ theorem | * Written tests * Assignments * Supervised exercises |
| * + - 1. Carry out basic Mensuration | * 1. Units of measurement   2. Conversion of units   3. Perimeters and areas Volume and Surface area of solids   4. Area of irregular figures | * Written assessments * Assignments * Supervised exercises |

**Suggested Delivery Methods**

* Practical
* Projects
* Group discussion
* Direct instruction

**Recommended Resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Scientific Calculators | Casio FX-82MS | 25 | 1:1 |
|  | Rulers | 30 CM,15 CM | 25 | 1:1 |
|  | pencils | HB, H,2H | 25 | 1:1 |
|  | erasers | Staedtler | 25 | 1:1 |
|  | Charts | with presentations of data | 25 | 1:1 |
|  | Graph books | A4, A3 | 25 | 1:1 |

**TECHNICAL DRAWING**

**ISCED UNIT CODE:** 0732 451 12A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Prepare and interpret technical drawings

**Duration of Unit:** 40 Hours

**UNIT DESCRIPTION**

This unit covers the competencies required to prepare and interpret technical drawings. It involves selecting, using and maintaining drawing equipment and materials, producing plain geometry drawings, solid geometry drawings and pictorial and orthographic drawings.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Select, use, and maintain drawing equipment and materials | **4** |
|  | Produce plane geometry drawings | **8** |
|  | Produce solid geometry drawings | **12** |
|  | Produce orthographic and pictorial drawings | **16** |

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

| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| --- | --- | --- |
| 1. Use and maintain drawing equipment and materials | * 1. Identification of drawing equipment      1. Drawing boards      2. T and set squares      3. drawing sets   2. Identification of drawing materials      1. Drawing papers      2. Pencils      3. Erasers      4. masking tapes      5. paper clips   3. Use and maintenance of drawing equipment’s   4. Use of drawing materials   5. Waste material disposal-EMCA 1999 | * Practical * Projects * Written tests * Portfolio of evidence   Third party reports |
| 1. Produce plane geometry drawings | * 1. Types of lines used in drawings      1. Contour Lines      2. Gesture Lines      3. Hatching      4. Cross-Hatching      5. Dashed Lines      6. Straight Lines      7. Curved Lines   2. Construction of geometric forms      1. Square      2. Rectangle      3. Triangle      4. Circle      5. Ellipse      6. Polygon   3. Construction of different angles      1. Acute Angle      2. Right Angle      3. Obtuse Angle      4. Straight Angle      5. Reflex Angle      6. Full Rotation   4. Measurement of different angles   5. Bisection of different angles and lines   6. Freehand sketching of geometric forms | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Produce solid geometry drawings | * 1. Interpretation of sketches and drawings of patterns      1. Cylinders      2. Prisms      3. Pyramids   2. Truncated regular solids   3. Untruncated regular solids | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Produce orthographic drawings | * 1. Meaning of symbols and abbreviations   2. Drawing and interpretation of orthographic elevations      1. 1st angle      2. 3rd angle   3. Dimensioning of orthographic elevations   4. Isometric drawings interpretation   5. Oblique drawings interpretation. | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |

**Suggested Methods of Delivery**

* Projects
* Demonstration by trainer
* Practice by the trainee
* Group discussions
* Direct instruction

**Recommended Resources for 25 trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
| 1 | T-square | 800mm-plastic or wooden | 25 | 1:25 |
| 2 | Set squares | 30,60 degrees,  45 degrees by 300mm | 25 | 1:25 |
| 3 | Drawing sets | Helix technical drawing set | 25 | 1:25 |
| 4 | French curves | Hyperbola, parabola and elliptical (Clear Tint) | 25 | 1:25 |
| 5 | Drawing tables | Dimensions 600x800 wooden or plastic | 25 | 1:25 |
| **B** | **Learning Facilities & infrastructure** | | | |
| 6 | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
| 7 | Drawing room | 15\* 10 sq. metres) | 1 | 1:25 |

**TIMBER ROOFS CONSTRUCTION**

**ISCED UNIT CODE:** 0732 451 13A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct timber roofs.

**Duration of Unit:** 120 Hours

**UNIT DESCRIPTION**

This unit describes the competences required to construct timber roofs. It involves preparing construction materials, assembling truss members, erecting roof trusses, fixing timber roof members and fixing roof cover.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Prepare Construction materials | **30** |
|  | Assemble truss members | **30** |
|  | Erect roof trusses | **30** |
|  | Fix timber roof members | **20** |
|  | Fix roof cover | **10** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare Construction materials | * 1. Personal protective equipment (PPE)   2. Working drawings preparation.   3. Timber roof material   4. preparation tools and equipment   5. Timber roof materials’ cutting   6. list preparation.   7. Timber roof cutting plan preparation.   8. Timber roof materials selection.   9. Timber roof materials cutting out   10. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Assemble truss members | * 1. Timber roof assembling tools and equipment   2. Types of trusses      1. King post      2. Queen post      3. Pratt      4. Howe      5. Warren      6. Scissor      7. Fan      8. Bowstring   3. Setting out of truss members      1. Rafters      2. Braces      3. Struts      4. Ties      5. Ridge board      6. Cleats   4. Types of Joints cutting      1. Splice joint      2. Halving joint      3. Lap joint      4. Scarf joint      5. Splayed joint      6. Bird’s Mouth Joint      7. Mortise and tenon      8. Dovetail   5. Marking out truss members   6. Heads of the two rafters jointing   7. Rafters are joined to the tie beam   8. Truss members joined to the tie beam and rafters | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Erect roof trusses | * 1. Timber truss erecting tools and equipment   2. Roof truss erection      1. Wall plates fixing on the perimeter wall      2. Trusses placing on the wall plate      3. Plumbing and   levelling of the  first and last trusses   * + 1. plumbing and levelling of Intermediate trusses | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Fix timber roof members | * 1. Timber roof fixing tools and equipment   2. Roof member length determination   3. Roof members connection      1. King post      2. Purlins      3. Wall plate      4. Common Rafters      5. Ridge plate      6. Jack rafter      7. Ties      8. Struts      9. Fascia board      10. Purlins      11. Hip rafter      12. Valley rafter      13. Battens      14. Reapers   4. Roof members fixing   5. Roof members trimming | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| 1. Fix roof cover | * 1. Roof cover fixing tools and equipment.   2. Roof covering materials      1. Asphalt Shingles      2. Metal Roofing      3. Clay Tiles      4. Concrete Tiles      5. Slate      6. Wood Shingles or Shakes      7. Synthetic Roofing Materials      8. EPDM (Ethylene Propylene Diene Monomer)      9. TPO (Thermoplastic Olefin)      10. PVC (Polyvinyl Chloride)      11. Thatched Roofing      12. Green Roofs (Vegetative)      13. Rubber Roofing   3. Roof cover setting out   4. Roof covering materials fixing | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |

**Suggested Methods of Instruction**

* Practical
* Projects
* Demonstrations
* Group discussions
* Direct instruction

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Roofs and roofing | 5 | 1:5 |
|  | Manuals | * Roof construction manual: pitched roofs by Kiessl Kurt | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15\* 10 sq. metres) | 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 |
|  | Wood glue | litres | 10litres | 1:2 |
|  | Brushes | Sizes 2,3,4 and 5 inches | 25 sets | 1:1 |
|  | Nails | Ordinary nails (3,4,5 inches)  Roofing nails (4inches) | 25kg  10kgs | 1:25 |
| **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 | 1:1 |
|  | Tape measures | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Marking gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden/rubber mallets | Pieces | 25pcs | 1:1 |
|  | Clamps | Pieces | 25 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Horse pipe | 50metres | 5 | 1:5 |
|  | Drilling machine | Pieces | 5 | 1:5 |

**UPHOLSTERY FURNITURE**

**ISCED UNIT CODE:** 0732 451 14A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct and install upholstery furniture

**Duration of Unit:** 120 Hours

**Unit Description**

This unit describes the competences required to construct and install upholstery furniture. It involves; interpreting design specifications for upholstery furniture, preparing and assembling upholstery furniture frames, preparing and attaching upholstery padding and cushioning, cutting, sewing, and fitting upholstery coverings, installing and securing upholstery components, finishing and inspecting upholstered furniture.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Interpret Design Specifications for Upholstery Furniture | **10** |
|  | Prepare and Assemble Upholstery Furniture Frames | **40** |
|  | Prepare and Attach Upholstery Padding and Cushioning | **30** |
|  | Cut, Sew, and Fit Upholstery Coverings | **20** |
|  | Install and Secure Upholstery Components | **10** |
|  | Finish and Inspect Upholstered Furniture | **10** |

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

|  |  |
| --- | --- |
| **Learning Outcome** | **Content** |
| 1. Interpret Design Specifications for Upholstery Furniture | * 1. Personal protective equipment (PPE) is donned as per job requirements.      1. Identify hazards and risks associated with upholstery work.      2. Select and correctly use Personal Protective Equipment (PPE) such as gloves, goggles, safety boots, masks, and hearing protection.      3. Follow workplace safety guidelines and emergency procedures.   2. Design specifications are reviewed for compliance with client and job requirements.      1. Analyze job briefs and design documentation for clarity and accuracy.      2. Identify furniture type, dimensions, style, and client preferences.      3. Confirm all required information is present before proceeding.   3. Furniture style, dimensions, and features are interpreted as per drawings and documentation.      1. Common furniture styles (e.g., modern, traditional, mid-century)      2. Reading and interpreting technical drawings and diagrams      3. Recognizing measurements, proportions, and scaling   4. Upholstery materials and components are identified as per the design brief.      1. Identify required frame, padding, fabric, and fastening materials from the design specs.   5. Construction and assembly methods are confirmed based on specifications.      1. Confirm construction and assembly methods such as joint types, reinforcement details, and upholstery finish. |
| 1. Prepare and Assemble Upholstery Furniture Frames | * 1. Personal protective equipment (PPE) is donned as per job requirements      1. Identify appropriate PPE: gloves, goggles, safety boots, dust masks, hearing protection.      2. Follow procedures for correct donning, usage, and removal.      3. Ensure PPE is clean, functional, and suited to the specific task.   2. Frame materials and components are selected according to job specifications.      1. Identify frame materials such as hardwood, plywood, MDF, or metal.      2. Verify materials against job drawings and specifications.      3. Check materials for defects, warping, or inconsistencies.   3. Frame construction tools and equipment are selected and checked for serviceability as per the job requirement.      1. Select tools like saws, chisels, drills, clamps, and measuring tapes.      2. Inspect tools for damage, sharpness, and proper function.      3. Report and replace any faulty or unsafe tools before use.   4. Frame components are measured, marked, and cut as per working drawings.      1. Read and interpret technical drawings and cutting lists.      2. Use marking tools and measuring devices for accuracy.      3. Cut components using appropriate hand or power tools with precision.   5. Frame joints are prepared and assembled as per the construction plans.      1. Identify appropriate joining methods: mortise and tenon, dowel, lap joints, or screws.      2. Prepare joint surfaces for a tight and secure fit.      3. Assemble joints using glue, clamps, screws, or brackets as needed.   6. Frames are checked for squareness, alignment, and structural integrity as per the job requirement.      1. Use tools like try squares, spirit levels, and measuring tapes to check alignment.      2. Inspect for joint tightness, evenness, and stability.      3. Adjust or reinforce as necessary to ensure frame quality.   7. Housekeeping practices are carried out as per workplace procedures.      1. Clean up work area regularly to prevent accidents and maintain efficiency.      2. Store tools and unused materials properly after use.      3. Dispose of waste materials according to workplace policies. |
| 1. Prepare and Attach Upholstery Padding and Cushioning | * 1. Personal protective equipment (PPE) is donned as per job requirements.      1. Identify PPE needed for padding tasks: gloves, dust mask, safety goggles, and overalls.      2. Ensure correct use and fit of PPE during material handling and tool operation.      3. Follow safety procedures for maintaining and disposing of PPE where necessary.   2. Padding and cushioning materials are selected as per design specifications.      1. Choose materials like polyurethane foam, polyester fiber, cotton batting, latex, or felt.      2. Match material thickness, density, and firmness to comfort and design needs.      3. Confirm materials align with client or job requirements and furniture type.   3. Tools and equipment for fixing padding are selected and checked as per the job requirement.      1. Select suitable tools such as scissors, electric carving knives, spray adhesives, staple guns, and upholstery hammers.      2. Inspect tools for proper function and cleanliness before use.      3. Replace or report any damaged or malfunctioning equipment.   4. Padding and cushioning are measured, cut, and shaped as per furniture dimensions.      1. Use patterns, templates, or direct measurements to mark cutting lines.      2. Cut foam or fiber with precision using suitable cutting tools.      3. Shape materials to match furniture contours and avoid bulky or uneven finishes.   5. Padding is securely attached to the frame using appropriate methods as per the job requirement.      1. Apply adhesives, staples, webbing, or twine depending on the material and design.      2. Ensure padding is evenly fixed and free of gaps or sagging.      3. Secure edges and corners neatly for a clean base structure.   6. Cushioning layers are built up and shaped according to design contours.      1. Layer different materials (e.g., firm base foam with soft top fiber) to achieve desired comfort and form.      2. Shape layers gradually to follow armrests, seat curves, or backrest contours.      3. Compress and test cushioning for resilience and uniformity.   7. Work area is cleaned and maintained according to workplace practices.      1. Clear offcuts, dust, and adhesives from surfaces and tools.      2. Store leftover materials and tools in designated areas.      3. Maintain an organized and hazard-free environment. |
| 1. Cut, Sew, and Fit Upholstery Coverings | * 1. Upholstery fabrics are identified and selected as per job specifications.      1. Choose appropriate fabrics such as leather, vinyl, cotton, linen, polyester blends, or jacquard.      2. Match fabric type, color, pattern, and durability to design requirements and furniture use.      3. Verify fabric quantity and quality as per job specifications.   2. Fabric cutting tools and sewing equipment are selected and checked as per the job requirement.      1. Select tools such as fabric scissors, rotary cutters, measuring tapes, and chalks.      2. Choose sewing machines (manual or industrial) suitable for fabric type and thickness.      3. Inspect tools and machines for serviceability and safety before use.   3. Fabric patterns are measured and marked based on design and shape of furniture.      1. Use templates or direct measurement to transfer dimensions accurately to the fabric.      2. Mark cutting lines, seam allowances, and alignment points using fabric-safe marking tools.      3. Consider fabric grain direction, pattern alignment, and stretch behavior.   4. Fabric panels are cut and sewn as per job requirements.      1. Cut fabric along marked lines with accuracy to avoid waste or misalignment.      2. Sew fabric pieces using appropriate stitching techniques such as straight stitch, overlock, or topstitching.      3. Reinforce seams where necessary for added durability.   5. Seams, trims, and details are aligned according to design specifications.      1. Match pattern repeats, seam positions, and decorative trims with the design plan.      2. Ensure clean seam lines, even spacing, and secure stitching.      3. Apply welting, piping, or decorative borders as per design detail.   6. Upholstery coverings are trial-fitted for accuracy and finish as per job specifications.      1. Position the sewn covers onto the furniture frame or cushion to check fit.      2. Make necessary adjustments to ensure proper alignment and tension.      3. Check for wrinkles, bunching, or misaligned seams before final attachment. |
| 1. Install and Secure Upholstery Components | * 1. Personal protective equipment (PPE) is donned as per job requirements.      1. Wear appropriate PPE such as gloves, safety goggles, and masks when handling sharp tools and fastening equipment.      2. Ensure PPE is properly fitted and used throughout the installation process.      3. Follow safety protocols to prevent accidents and injuries.   2. Final upholstery coverings are fitted and adjusted for correct placement as per the job specifications.      1. Position the upholstery coverings carefully on furniture components.      2. Align seams, patterns, and edges to match the design layout.      3. Smooth out wrinkles and adjust fabric tension for a neat appearance.   3. Tacking, stapling, or fastening tools are used safely and appropriately as per job requirement.      1. Use appropriate fastening tools such as staple guns, tacking hammers, or pneumatic staplers.      2. Ensure tools are in good working condition and used according to safety guidelines.      3. Secure upholstery with consistent spacing and depth for a professional finish.   4. Components such as cushions, backrests, and armrests are installed as per job specifications.      1. Attach removable or fixed components securely using approved methods.      2. Verify the correct orientation, position, and alignment of each component.      3. Ensure comfort, functionality, and visual consistency with the design.   5. Attachments and fittings are checked for firmness and alignment as per job requirement.      1. Test all fittings, buttons, decorative studs, or trims for secure attachment.      2. Make necessary adjustments to correct loose or misaligned fittings.      3. Confirm structural stability and comfort.   6. Upholstery is trimmed and finished according to design requirements.      1. Neatly trim excess fabric or padding for clean edges.      2. Apply finishing details like piping, buttons, tufting, or decorative trims.      3. Perform final surface checks to ensure aesthetic and functional quality.   7. Housekeeping practices are carried out as per workplace procedures      1. Clean work area of leftover materials, fasteners, and tools.      2. Store tools and equipment properly after use.      3. Dispose of waste responsibly and maintain a tidy, safe workspace. |
| 1. Finish and Inspect Upholstered Furniture | * 1. Completed furniture is inspected for alignment, finish, and defects as per the job specification.      1. Check the overall shape and structure for straightness, squareness, and balance.      2. Inspect seams, fabric tension, pattern alignment, and overall finish.      3. Identify any defects such as wrinkles, loose fittings, uneven padding, or visible staples.   2. Upholstery surfaces are cleaned and any protective treatments are applied as per job specification.      1. Remove dust, lint, or adhesive residues using suitable cleaning tools and products.      2. Apply protective coatings (e.g., fabric protector sprays, leather conditioner) as required.      3. Follow manufacturer guidelines for treatment compatibility and drying times.   3. Touch-ups and corrections are carried out to meet quality standards as per the specifications.      1. Adjust or re-secure any misaligned or loose components.      2. Replace or repair any damaged or defective fabric sections or trims.      3. Ensure the final product meets design expectations and quality benchmarks.   4. Workplace documentation is completed and recorded as per requirement.      1. Fill in job completion forms, inspection checklists, or quality control records.      2. Document materials used, modifications made, and any issues encountered.      3. Submit documentation for approval or future reference as required by the workplace.   5. Final housekeeping is performed as per workplace procedures      1. Clean the workspace thoroughly and return tools to storage.      2. Safely dispose of waste and leftover materials.      3. Maintain a tidy and organized work environment in readiness for the next task. |

**Suggested Methods of Instruction**

* Discussion
* Direct Instruction
* Lecture
* Question and answer
* Site visits
* Practicals

**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 | 1:25 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15\* 10 sq. metres) | 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 |
|  | Plastic (Acrylic and/or PVC) | Pieces | 5 | 1:5 |
|  | Epoxy (Resin + Hardner) | Liters | 6 | 1:5 |
|  | Pigments and Dyes | Kilograms | 1 | 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 | 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 |
|  | Painting Tools | Rollers and Brushes | 25 | 1:1 |
|  | Power tools | Circular saw, Table saw, Jig Saw, Band saw, Thicknesser, Mortiser, Spindle moulder, Router, Compound Mitre saw, Surface Planer, Drill, Nail gun, Belt Sander, Wood Lathe, Heat Gun, Paint Mixer Attachment, Spray Gun | 25 | 1:1 |

**MODULE FOUR**

**TIMBER STAIRS CONSTRUCTION**

**ISCED UNIT CODE:** 0732 451 15A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct timber stairs

**Duration of Unit:** 120 Hours

**UNIT DESCRIPTION**

This unit describes the competences required to construct timber stairs. It entails preparing materials, tools and equipment, cutting out timber joints, fixing staircase members and performing finishing processes.**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Prepare materials, tools and equipment | **20** |
|  | Cut-out timber joints | **40** |
|  | Fix staircase members | **40** |
|  | Perform staircase finishes | **20** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| Prepare materials, tools, and equipment | * 1. Personal protective equipment (PPEs)   2. Working drawings preparation.   3. Timber stair material preparation tools and equipment      1. Planes      2. Square      3. Saws      4. chisel saws      5. claw hammer      6. mallet      7. tape measure      8. screw driver   4. Timber stair materials’ cutting list preparation.   5. Timber stair material cutting plan preparation.   6. Timber stair materials cutting out and planning   7. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Cut-out timber joints | * 1. Cutting-out tools and equipment   2. Marking of timber joints   3. Cutting out of timber joints | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Fix staircase members | * 1. Staircase fixing tools and equipment   2. Setting out of the staircase   3. Staircase members assembly      1. Stringers      2. Treads      3. Risers      4. Newel Posts      5. Handrails      6. Balusters      7. Nosing      8. Stringer Trims      9. Landing      10. Winders   4. Staircase members fixing.   5. Timber floor cover laying. | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Perform staircase finishes | * 1. Surface preparation      1. Scrapping      2. Planning      3. Filling      4. Sanding   2. Surface coating      1. Varnishing      2. Painting      3. Laminating      4. Staining      5. Epoxy application   3. Housekeeping practices | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |

**Suggested Methods of Instruction**

* Practical
* Projects
* Demonstrations
* Group discussions
* direct instruction

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Simply stairs * Second edition stairs | 5  5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15\* 10 sq. metres) | 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 | * Block board * Plywood * MDF boards | 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 |
|  | Saws | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measures | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden/rubber mallets | Pieces | 25pcs | 1:1 |
|  | Clamps | Pieces | 25 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

**CEILING UNIT INSTALLATION**

**ISCED UNIT CODE:** 0732 451 16A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Install ceiling unit

**Duration of Unit:** 130 Hours

**UNIT DESCRIPTION**

This unit describes the competences required to Install ceiling unit. It entails Setting Out and Installing Ceiling Joists, Installing Ceiling Covering and Applying Ceiling Finishes.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Set Out and Install Ceiling Joists | **50** |
|  | Install Ceiling Covering | **40** |
|  | Apply Ceiling Finishes | **40** |

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Set Out and Install Ceiling Joists | * 1. Interpret Drawings and Specifications for Ceiling Joist Layout      1. Read and understand construction drawings showing joist layout, dimensions, and orientation.      2. Identify required materials, connection points, and support systems.      3. Determine ceiling height, span, and load requirements as per design.   2. Mark Out Positions for Ceiling Joists and Ensure Proper Alignment      1. Use measuring tools (tape, chalk line, spirit level) to mark joist positions on wall plates or beams.      2. Ensure markings follow correct spacing (e.g., 400mm or 600mm centers) and are level.      3. Check alignment against reference lines or control points.   3. Select and Prepare Appropriate Timber Sizes and Materials      1. Choose timber or steel joists according to span and loading needs.      2. Check for straightness, defects, and proper treatment (e.g., anti-termite, moisture resistance).      3. Cut joists to required lengths and angles using appropriate tools.   4. Fix Ceiling Joists Securely to Wall Plates or Roof Framing      1. Position joists according to marked layout and secure using nails, screws, joist hangers, or straps.      2. Ensure tight connections to prevent movement or sagging.      3. Use braces or temporary supports during installation if needed.   5. Ensure Correct Spacing and Bracing for Structural Stability      1. Check joist spacing using a measuring rod or template.      2. Install noggings, struts, or bridging as required by code or design.      3. Inspect the joist system for squareness, rigidity, and overall integrity. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project   Practical |
| 1. Install Ceiling Covering | * 1. Select Suitable Ceiling Materials (e.g., Gypsum Board, Plywood, MDF, or Timber Planks)      1. Identify appropriate ceiling materials based on design, function, and environmental conditions.      2. Consider fire rating, moisture resistance, acoustic properties, and aesthetics.      3. Inspect materials for damage, warping, or manufacturing defects.   2. Measure, Cut, and Fix Ceiling Panels to Joists or Furring ChannelsUse hand and power tools to accurately cut components to size.      1. Take accurate measurements of ceiling area to determine panel sizes and layout.      2. Use tools such as hand saws, circular saws, or utility knives for cutting.      3. Fix panels securely onto joists, battens, or furring channels using recommended fasteners.   3. Ensure Proper Jointing, Leveling, and Alignment      1. Align panels edge-to-edge or tongue-and-groove for a flush finish.      2. Leave suitable gaps where required for thermal expansion.      3. Use a level or string line to maintain uniformity across the ceiling plane.      4. Stagger joints where necessary for added strength and visual appeal.   4. Provide Necessary Openings for Lighting, Ventilation, and Access Panels      1. Mark and cut openings accurately for light fixtures, fans, diffusers, or inspection panels.      2. Reinforce edges of cutouts to avoid weakening the ceiling structure.      3. Ensure openings align with pre-installed services or plans.   5. Apply Appropriate Fixing Techniques (e.g., Nailing, Screwing, or Adhesive Bonding)      1. Select suitable fixing method depending on material type and support system.      2. Space fasteners appropriately to prevent sagging or detachment.      3. Conceal fasteners where applicable using putty, joint compound, or decorative trims. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |
| 1. Apply Ceiling Finishes | * 1. Prepare Ceiling Surface for Finishing (e.g., Sanding, Priming)      1. Clean the ceiling surface of dust, debris, and moisture.      2. Fill joints, cracks, or screw holes with appropriate filler or joint compound.      3. Sand surfaces smoothly and apply primer or base coat as required for finishing materials.   2. Apply Finishes Such as Painting, Staining, or Decorative Textures      1. Select finish type based on client preference and ceiling material.      2. Mix and apply paint, stain, or texture evenly using brushes, rollers, or spray equipment.      3. Apply multiple coats where necessary, ensuring proper drying between layers.   3. Install Additional Ceiling Features (e.g., Cornices, Molding, Medallions)      1. Cut and fit decorative features accurately to size and design layout.      2. Fix cornices, crown molding, ceiling medallions, or other elements using adhesive or mechanical fasteners.      3. Ensure clean joints and consistent alignment with ceiling edges and corners.   4. Inspect and Ensure Smooth, Defect-Free Finishing      1. Check for brush marks, bubbles, uneven textures, or color inconsistencies.      2. Perform necessary touch-ups and corrections.      3. Verify decorative features are securely fixed and visually appealing.   5. Conduct Final Quality Checks and Clean the Work Area      1. Confirm that finishing meets aesthetic and functional expectations.      2. Remove masking materials, clean tools, and tidy up workspace.      3. Hand over finished ceiling area for final client or supervisor inspection. | * Observation * Oral assessment * Portfolio of evidence * Third party report * Written assessment * Project * Practical |

**Recommended Resources for 25 Trainees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No.** | **Category/Item** | **Description/ Specifications** | **Quantity** | **Recommended Ratio**  (Item: Trainee) |
| **A** | **Learning Materials** | | | |
|  | Textbooks | * Simply stairs * Second edition stairs | 5  5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5  5 | 1:5 |
| **B** | **Learning Facilities & infrastructure** | | | |
|  | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15\* 10 sq. metres) | 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 | * Block board * Plywood * MDF boards | 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 |
|  | Saws | Assorted | 25 pcs | 1:1 |
|  | Squares | Assorted | 25 pcs | 1:1 |
|  | Benches with two vices | Pieces | 13 pcs | 1:1 |
|  | Tape measures | Pieces | 25 pcs | 1:1 |
|  | Spirit levels | Pieces | 5 pcs | 1:5 |
|  | Mortise gauges | Pieces | 5 pcs | 1:5 |
|  | Claw hammers | Pieces | 25 pcs | 1:1 |
|  | Chisels | Pieces | 25pcs | 1:1 |
|  | Wooden/rubber mallets | Pieces | 25pcs | 1:1 |
|  | Clamps | Pieces | 25 | 1:2 |
|  | Plumb bobs | Pieces | 10 | 1:2 |
|  | Drilling machine | Pieces | 5 | 1:5 |

**TIMBER PREFABRICATED BUILDINGS**

**ISCED UNIT CODE:** 0732 451 17A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct Timber prefabricated buildings

**Duration of Unit:** 150 Hours

**UNIT DESCRIPTION**

This unit describes the competences required to construct timber prefabricated buildings. It entails interpreting drawings, selecting materials, tools, and equipment, setting and constructing timber-framed and prefabricated structures, performing second fixing and applying finishes.

**Summary of Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| S/No. | Learning Outcome | Duration (Hours) |
|  | Interpret Drawings | **20** |
|  | Select Materials, Tools, and Equipment | **30** |
|  | Set and Construct Timber Prefabricated Structures | **40** |
|  | Perform Second Fixing | **40** |
|  | Apply Finishes | **20** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| Interpret Drawings | * 1. Types of architectural and structural drawings      1. Site Plan      2. Floor Plan      3. Elevation      4. Sections      5. Detail Drawings      6. Foundation Plan      7. Framing Plan      8. Column and Beam Layout      9. Module Layout      10. Assembly Drawings      11. Transport and Handling Plan   2. Symbols, notations, and abbreviations   3. Measurement conversions and scaling   4. Building codes and standards      1. Load bearing capacity      2. Bracing and Stability      3. Fastening and Jointing      4. Fire Safety Regulations      5. Energy Efficiency      6. Ventilation      7. Eco-Friendly Materials      8. Prefabrication and Modular building standards | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Select Materials, Tools, and Equipment | * 1. Types and properties of timber and prefabricated materials      1. Types of Timber         1. Hardwood         2. Softwood         3. Engineered boards      2. Properties of Timber         1. Strength         2. Density         3. Moisture Content         4. Durability         5. Workability         6. Fire resistance      3. Types of Prefabricated Materials         1. Prefabricated Timber Panels         2. Wood Plastic Composite (WPC)         3. Cross-Laminated Timber      4. Properties of Prefabricated Materials         1. Lightweight         2. Strength and Stability         3. Moisture and Fire Resistance         4. Precision and Uniformity         5. Sustainability      5. Comparison of Timber vs. Prefabricated Materials         1. Workability         2. Durability         3. Customization         4. Cost         5. Environmental Impact   2. Tools and equipment for timber construction   3. Selection criteria for energy-efficient materials      1. Sustainability & Environmental Impact      2. Moisture and Humidity Resistance      3. Energy Efficiency in Prefabricated Components      4. Fire and Safety Ratings      5. Cost and Availability   4. Safe handling and storage procedures      1. Safe Handling         1. Manual Lifting         2. Mechanical Handling         3. Cutting and Shaping         4. Fastening and Joining      2. Storage Procedures         1. Store in a dry, covered area to prevent warping.         2. Stack with spacers for air circulation.         3. Elevate off the ground to avoid moisture absorption.         4. Keep away from direct sunlight and moisture.         5. Cover edges to prevent chipping.         6. Stack vertically with support frames.         7. Protect edges with foam or padding.         8. Store in designated areas to avoid accidental damage. | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Set and Construct Timber Prefabricated Structures | * 1. Setting out and levelling procedures      1. Site Preparation      2. Establishing Reference Points (Benchmarking)      3. Setting Out Grid Lines      4. Marking Foundation Positions      5. Checking Angles and Alignment      6. Establishing Height Levels      7. Checking Ground Level      8. Floor and Base Levelling      9. Wall and Column Plumb Checks   2. Prefab component      1. Frame Component Assembly Procedures         1. Preparing Materials         2. Laying Out Frame         3. Securing the Frame         4. Adding Bracing and Noggins         5. Assembling Prefabricated Panels (If used)         6. Checking Alignment and Plumb         7. Securing Permanent Bracing   3. Bracing and reinforcement techniques      1. Diagonal Bracing      2. Shear wall bracing      3. Cross bracing      4. K-Bracing      5. Portal Frame Bracing      6. Let-in Bracing      7. Temporary Bracing   4. Door and window framing   5. Prefabricated panel installation      1. Site Preparation      2. Lifting and Positioning Panels      3. Securing Wall Panels      4. Connecting Panels      5. Bracing and Stabilization      6. Roof and Floor Panel Installation      7. Final Adjustments and Inspection | * Practical * Projects * Written tests * Portfolio of evidence * Third party reports |
| Perform Second Fixing | * 1. Second fixing components      1. Skirting and mouldings      2. Ironmongery      3. Noggins      4. WPC      5. Wainscoting      6. Fluted Panels      7. Dado rail      8. Picture rail      9. Cornice      10. Architrave      11. Pelmet box   2. Structural reinforcements installed   3. Decorative and functional interior components      1. Skirting Boards      2. Mouldings & Trims      3. Architraves      4. Cornices      5. Dado Rails      6. Picture Rails      7. Pelmet Boxes      8. Fluted Panels      9. Wainscoting      10. WPC Panels   4. Final adjustments and alignments carried out      1. Vertical and horizontal alignment      2. Proper fitting and sealing      3. Even surface and gap-free installation      4. Skirting, mouldings, trims, and panels alignment | * Practical * Projects * Written tests * Portfolio of evidence   Third party reports |
| Apply Finishes | * 1. Surface preparation      1. Sanding      2. Sealing      3. Priming   2. Protective coatings and treatments      1. Wood Preservatives      2. Sealants and Varnishes      3. Paints and Stains      4. Fire Retardants      5. Waterproofing Oils      6. UV-Resistant Coatings   3. Cladding and insulation      1. Timber Cladding      2. WPC Cladding      3. Vinyl Cladding      4. Fiberglass Insulation      5. Mineral wool (Rockwool) Installation      6. Spray Foam Insulation      7. Rigid Foam Board Insulation      8. Reflective Foil Insulation   4. Painting, varnishing, and aesthetic treatments      1. Paint (Water-Based & Oil-Based)      2. Varnish (Glossy, Satin, Matte)      3. Wood Stains      4. Lacquer      5. Wood Wax & Oils (e.g., Danish Oil, Linseed Oil) | * Practical * Projects * Written tests * Portfolio of   evidence   * Third party reports |

Suggested Methods of Instruction

* practical
* Projects
* Demonstrations
* Group discussions

Recommended Resources for 25 Trainees

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/No. | Category/Item | Description/ Specifications | Quantity | Recommended Ratio  (Item: Trainee) |
| A | Learning Materials | | | |
|  | Manuals | Manual of First and Second Fixing | 5 | 1:5 |
|  | Charts | * Flip Charts * Rules and Regulations | 5 | 1:5 |
| B | Learning Facilities & infrastructure |  |  |  |
|  | Lecture/theory room | (9\* 8 sq. metres) | 1 | 1:25 |
|  | Workshop | (15\* 10 sq. metres) | 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 |