	Curriculum Document	
Curriculum Code	**Curriculum Title**	
682201-001-00-00	**National Occupational Certificate: Furniture Maker**	

	Name	Email	Phone	Logo
Development Quality Partner	**Fibre Processing and Manufacturing SETA**	**AnsieN@fpmseta.org.za**	**0114031700**	

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Learner QDF Signature **Date**

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QDF Signature **Date**

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DQP Representative Signature **Date**

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SECTION 1: CURRICULUM SUMMARY

1. Occupational Information

1.1 Associated Occupation

682201: Cabinet Maker

1.2 Occupation or Specialisation Addressed by this Curriculum

682201001: Furniture Maker

1.3 Alternative Titles used by Industry

- None

2. Curriculum Information

2.1 Curriculum Structure

This qualification is made up of the following compulsory Knowledge and Practical Skill Modules:

Knowledge Modules:

- 682201001-00-KM-01, Introduction to Furniture Manufacturing, NQF Level 2, Credits 2
- 682201001-00-KM-02, Wood Machining Department and Operations, NQF Level 2, Credits 8
- 682201001-00-KM-03, Furniture Assembling Department and Operations, NQF Level 2, Credits 4
- 682201001-00-KM-04, Wood Finishing Department and Operations, NQF Level 2, Credits 8
- 682201001-00-KM-05, Crafted Furniture Machine Operation and Safety in the Furniture Machining Department, NQF Level 4, Credits 16
- 682201001-00-KM-06, Crafted Furniture Assembling Department and Operations, NQF Level 3, Credits 9
- 682201001-00-KM-07, Furniture Prototypes, Repaired furniture and Completed Crafted furniture, NQF Level 4, Credits 48
- 682201001-00-KM-08, Computer Technology and Operations, NQF Level 2, Credits 4
- 682201001-00-KM-09, Leadership and Supervision, NQF Level 3, Credits 3
- 682201001-00-KM-10, Conceptualising and Developing a Business Venture and Product, NQF Level 4, Credits 6
- 682201001-00-KM-11, Business Management and Growth, NQF Level 4, Credits 6

Total number of credits for Knowledge Modules: 114

Practical Skill Modules:

- 682201001-00-PM-01, Operate a Range of Machines in the Wood Machine Shop to Cut Components for Furniture Manufacturing, NQF Level 2, Credits 20
- 682201001-00-PM-02, Join and Assemble cut Components in Furniture Manufacturing, NQF Level 2, Credits 10
- 682201001-00-PM-03, Operate a Range of Furniture Finishing Equipment to Mix and Apply Furniture Finishing Materials to Finish Assembled Furniture Products or Components, NQF Level 3, Credits 15

- 682201001-00-PM-04, Operate Advanced Woodwork Machines in a Machining Department to Produce Bored, Edged, Profiled, Turned and Jointed timber, board or components, NQF Level 4, Credits 28
- 682201001-00-PM-05, Prepare, Join and Assemble cut components in the Manufacturing Process of Crafted Furniture, NQF Level 4, Credits 24
- 682201001-00-PM-06, Establish Specifications of Articles to be Constructed or Repaired or Plan Methods or Operations for Shaping or Assembling Parts, based on Drawings/Sketches, Diagrams, Oral or Written instructions, NQF Level 4, Credits 40
- 682201001-00-PM-07, Guide Teams in a Fair and Consistent Manner to Achieve Set Targets and Outputs, NQF Level 3, Credits 2
- 682201001-00-PM-08, Conceptualise and Develop the Business Concept, NQF Level 4, Credits 4
- 682201001-00-PM-09, Manage and Grow the Business, NQF Level 4, Credits 4

Total number of credits for Practical Skill Modules: 147

This qualification also requires the following Work Experience Modules:

- 682201001-00-WM-01, Furniture Machining Operations, NQF Level 2, Credits 30
- 682201001-00-WM-02, Furniture Assembling Operations, NQF Level 2, Credits 24
- 682201001-00-WM-03, Furniture Finishing Operations, NQF Level 2, Credits 25
- 682201001-00-WM-04, Crafted Furniture Machining Operations, NQF Level 4, Credits 70
- 682201001-00-WM-05, Crafted Furniture Assembling Operations, NQF Level 3, Credits 55
- 682201001-00-WM-06, Prototype and Crafted Furniture making and Furniture repairing Processes, NQF Level 4, Credits 85

Total number of credits for Work Experience Modules: 289

2.2 Entry Requirements

NQF 1

3. Assessment Quality Partner Information

Name of body: National Artisan Moderation Body

Address of body: Higher Education and Training 123 Francis Baard Street Pretoria 0001

Contact person name: Mr Nick Louw

Contact person work telephone number: 011 206 1015

4. Part Qualification Curriculum Structure

None

SECTION 2: OCCUPATIONAL PROFILE

1. Occupational Purpose

A Cabinet Maker (Furniture Maker) cut, shape, assemble and finish wooden articles, set up and operate a variety of woodworking machines, such as power saws, jointers, mortises and tenon to surface, cut, or shape lumber and fabricate wooden products such as pedestals, chairs, tables, desks, cabinets, wall units, cupboards, bookcases and parts for wooden articles.

Typical graduate attributes include accuracy, attention to detail, dexterity and problem solving characteristics.

2. Occupational Tasks

- Perform breakout, planning, sanding and laminating operations to produce components for wood products by operating cross-cut saws, rip saws, surface and thickness planers, panel saws, radial arm saws, band saws, edge and stroke sanders (NQF Level 2)
- Assemble carcases and case goods and fit hinges, handles, runners and legs using power tools such as drills, routers, biscuit jointers, jig saws and mitre saws and hand tools such as hammers, screwdrivers, hand saws, etc. (NQF Level 2)
- Prepare the product for final finishing and perform the hand finishing and spray applications (conventional and pumps), performing colour matching to produce finished wooden furniture (NQF Level 2)
- Perform joining, profiling, cutting of components using jigs, turning operations by operating spindles, overhead routers, mortise and tenon, multi borers and lathes (NQF Level 3)
- Produce decorative joints, curved laminated components and fit fixtures using power tools, pneumatic tools and hand tools (NQF Level 3)
- Manufacture furniture prototypes, repair damaged furniture and produce jigs and templates for furniture manufacturing process (NQF Level 4)

3. Occupational Task Details

3.1. Perform breakout, planing, sanding, laminating operations to produce components for wood products by operating cross-cut saws, rip saws, surface and thickness planers, panel saws, radial arm saws, band saws, edge and stroke sanders. (NQF Level 2)

Unique Product or Service:

- Cut components for wood products

Occupational Responsibilities:

- Operate a range of woodwork machines to produce components for wood products

Occupational Contexts:

- Machining department

3.2. Assembles carcases and case goods and fit hinges, handles, runners and legs using power tools such as drills, routers, biscuit jointers, jig saws and mitre saws and hand tools such as hammers, screwdrivers, hand saws, etc. (NQF Level 2)

Unique Product or Service:

- Assembled components, carcasses, case goods and furniture

Occupational Responsibilities:

- Operate a range of tools and equipment to produce assembled carcases and case goods

Occupational Contexts:

- Assembling department

3.3. Prepare the product for final finishing and perform the hand finishing and spray applications (conventional and pumps), performing colour matching to produce finished wooden furniture. (NQF Level 2)

Unique Product or Service:

- Finished wooden furniture components and furniture

Occupational Responsibilities:

- Operate a range of tools and equipment to produce finished wooden furniture

Occupational Contexts:

- Furniture finishing department

3.4. Perform jointing, profiling, cutting components using jigs, turning operations by operating spindles, overhead routers, mortise, tenon, multi borers, lathes and CNC machines. (NQF Level 3)

Unique Product or Service:

- Cut, moulded or shaped woodstock or wood substitutes

Occupational Responsibilities:

- Operate a range of woodwork machines to produce components for crafted wood products

Occupational Contexts:

- Machining department for crafted wood furniture products

3.5. Produces decorative joints, curved laminated components, and fitting of fixtures using power tools, pneumatic tools and hand tools. (NQF Level 3)

Unique Product or Service:

- Complex curved or shaped laminated furniture products and assembled crafted furniture

Occupational Responsibilities:

- Operate a range of woodwork tools and equipment to produce crafted furniture components

Occupational Contexts:

- Assembly department for crafted wood furniture products

3.6. Manufacture furniture prototypes, repairs damaged furniture and produce jigs and templates for furniture manufacturing process (NQF Level4)

Unique Product or Service:

- Furniture prototypes, repaired furniture and complete crafted furniture

Occupational Responsibilities:

- Produce bespoke furniture, furniture prototypes, jigs and templates for furniture manufacturing processes and repaired furniture.

Occupational Contexts:

- Bespoke and prototype furniture department

SECTION 3: CURRICULUM COMPONENT SPECIFICATIONS

SECTION 3A: KNOWLEDGE MODULE SPECIFICATIONS

List of Knowledge Modules for which Specifications are included

- 682201001-00-KM-01, Introduction to Furniture Manufacturing, NQF Level 2, Credits 2
- 682201001-00-KM-02, Wood Machining Department and Operations, NQF Level 2, Credits 8
- 682201001-00-KM-03, Furniture Assembling Department and Operations, NQF Level 2, Credits 4
- 682201001-00-KM-04, Wood Finishing Department and Operations, NQF Level 2, Credits 8
- 682201001-00-KM-05, Crafted Furniture Machine Operation and Safety in the Furniture Machining Department, NQF Level 4, Credits 16
- 682201001-00-KM-06, Crafted Furniture Assembling Department and Operations, NQF Level 3, Credits 9
- 682201001-00-KM-07, Furniture Prototypes, Repaired Furniture and Completed Crafted furniture, NQF Level 4, Credits 48
- 682201001-00-KM-08, Computer Technology and Operations, NQF Level 2, Credits 4
- 682201001-00-KM-09, Leadership and Supervision, NQF Level 3, Credits 3
- 682201001-00-KM-10, Conceptualising and Developing a Business Venture and Product, NQF Level 4, Credits 6
- 682201001-00-KM-11, Business Management and Growth, NQF Level 4, Credits 6

1. 682201001-00-KM-01, Introduction to Furniture Manufacturing, NQF Level 2, Credits 2

1.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the manufacturing of furniture.

The learning will enable learners to demonstrate an understanding of:

- KM-01-KT01: Wooden and board furniture types, styles and construction (10%)
- KM-01-KT02: Timber technology (10%)
- KM-01-KT03: Composite board technology (10%)
- KM-01-KT04: Ergonomics related to furniture manufacturing (10%)
- KM-01-KT05: Processes in manufacturing of furniture (10%)
- KM-01-KT06: Productivity, quality and efficiency (10%)
- KM-01-KT07: Drawings for furniture manufacturing (10%)
- KM-01-KT08: Health and safety in the furniture machine/assembly/finishing department (10%)
- KM-01-KT09: Measuring and calculations (10%)
- KM-01-KT10: Compressor and compressed air (10%)

1.2 Guidelines for Topics

1.2.1. KM-01-KT01: Wooden and board furniture types, styles and construction (10%)

Topic elements to be covered include:

- KT0101 History of furniture
- KT0102 Styles and designs of furniture
- KT0103 Types, categories and uses of furniture
- KT0104 Antique and traditional furniture
- KT0105 Do-it-yourself (DIY) furniture
- KT0106 Furniture construction and components
- KT0107 Quality and customer requirements

Internal Assessment Criteria and Weight

- IAC0101 The history of furniture and furniture production is briefly outlined
- IAC0102 The styles and designs of furniture are listed and described along with the special considerations linked to each
- IAC0103 Antique and traditional furniture and furniture production are compared and contrasted
- IAC0104 Do-It-Yourself (DIY) furniture are discussed in terms of the considerations during their production
- IAC0105 The different types of furniture are described and matched to their uses
- IAC0106 The principles of furniture construction are outlined
- IAC0107 The functions of different components are listed
- IAC0108 The quality requirements for different types of furniture are outlined

- IAC0109 Customer requirements are identified and discussed

(Weight 10%)

1.2.2. KM-01-KT02: Timber technology (10%)

Topic elements to be covered include:

- KT0201 Origin of timber
- KT0202 Wood manufacturing principles
- KT0203 Types, properties and characteristics of timber
- KT0204 Structure of the timber
- KT0205 Drying processes
- KT0206 Timber products and uses
- KT0207 Timber used in construction and boat industry
- KT0208 Timber quality (faults and defects)
- KT0209 Related raw material used in the manufacturing of furniture

Internal Assessment Criteria and Weight

- IAC0201 The origin of different kinds of timber is listed
- IAC0202 The drying process is outlined and the reasons for each step in the process is clarified
- IAC0203 The effect of moisture in timber on timber products is explained to motivate the need for the drying process
- IAC0204 The different types of timber are listed along with their properties, characteristics and uses
- IAC0205 Timber structure is outlined along with the impact structure have on manufacturing
- IAC0206 The different products and uses of timber are described in order to ensure that timber is selected according to specification
- IAC0207 The specifications of timber used in the construction and boat industry are listed and explained
- IAC0208 Timber defects are listed and their impact on timber quality is explained

(Weight 10%)

1.2.3. KM-01-KT03: Composite board technology (10%)

Topic elements to be covered include:

- KT0301 Composite board manufacturing principles
- KT0302 Types and characteristics of boards
- KT0303 Composition of boards
- KT0304 Timber and board products and uses
- KT0305 Board used in construction and boat industry

- KT0306 Board quality (faults and defects)

Internal Assessment Criteria and Weight

- IAC0301 The manufacture of different kinds of boards is described
- IAC0302 The effect of moisture in board on board products is explained to motivate the need for proper storage
- IAC0303 The different types of boards are listed along with their properties, characteristics and uses
- IAC0304 Composite board structure is outlined along with the impact structure have on manufacturing
- IAC0305 The different products and uses of boards are described in order to ensure that composite boards are selected according to specification
- IAC0306 Board defects are listed and their impact on board quality is explained
- IAC0307 Manufacturing principles and best practices such as economical cutting of boards are explained

(Weight 10%)

1.2.4. KM-01-KT04: Ergonomics related to furniture manufacturing (10%)

Topic elements to be covered include:

- KT0401 Definition
- KT0402 Principles
- KT0403 Purpose
- KT0404 Standard measurements for furniture
- KT0405 Lifting and stacking
- KT0406 Moving materials and equipment

Internal Assessment Criteria and Weight

- IAC0401 Ergonomics is defined in terms of its applications and impact in furniture manufacture
- IAC0402 The principles and best practices of ergonomics in the industry is outlined
- IAC0403 The purpose of ergonomics is described in terms of the effect on the finished product and the production processes
- IAC0404 The need for standard sizes in furniture manufacture is motivated with reference to ergonomics
- IAC0405 Lifting and moving equipment are listed and their uses describe
- IAC0406 The lifting and moving equipment's impact on ergonomics during production is outlined
- IAC0407 Material storage (such as stacking) is described with reference to the different sizes, the use of spacers and the avoidance of damage
- IAC0408 The correct equipment is used based on the situation such as ladders of sufficient lengths for the heights involved
- IAC0409 The principles of ergonomics are applied to lifting to identify correct lifting procedures and minimizing the risk of injury to self

(Weight 10%)

1.2.5. KM-01-KT05: Processes in manufacturing of furniture (10%)

Topic elements to be covered include:

- KT0501 Process flow and productivity
- KT0502 Operations in the process flow
- KT0503 Routing sheets
- KT0504 Cutting lists
- KT0505 Product specifications
- KT0506 Finishing aids

Internal Assessment Criteria and Weight

- IAC0501 The process of furniture manufacture is briefly outlined
- IAC0502 The operations in furniture manufacture such as machining, assembling and finishing operations are reviewed
- IAC0503 The finishing processes of furniture is outlined
- IAC0504 The importance of productivity and methods to enhance productivity are discussed
- IAC0505 The role of the routing sheet is described
- IAC0506 Job card information such as component sizes and details, shoulder-to-shoulder size and chemicals to use is explained
- IAC0507 Product specifications are understood and their impact on the manufacturing process is discussed in terms of the process flow and methods that will be used

(Weight 10%)

1.2.6. KM-01-KT06: Productivity, quality and efficiency (10%)

Topic elements to be covered include:

- KT0601 Productivity
- KT0602 Interruptions
- KT0603 Waste management
- KT0604 Timber and board quality
- KT0605 Timber and board faults and defects
- KT0606 Product quality of the machining/assembling/finishing process and defects

Internal Assessment Criteria and Weight

- IAC0601 The importance of planning the job in avoiding delays is explained
- IAC0602 The importance of productivity is discussed
- IAC0603 The factors influencing productivity are outlined along with their impact on manufacturing processes

- IAC0604 The role of accurate cutting lists, specification sheets and routing sheets are described
- IAC0605 The importance of minimizing waste is discussed
- IAC0606 The need to reuse raw material (timber/board) and store reusable raw materials is motivated
- IAC0607 The role of planned interruptions is explained
- IAC0608 The procedures for dealing with unplanned interruption are outlined

(Weight 10%)

1.2.7. KM-01-KT07: Drawings for furniture manufacturing (10%)

Topic elements to be covered include:

- KT0701 Sketches and engineering drawings
- KT0702 Isometric views
- KT0703 Lines used
- KT0704 Hidden detail
- KT0705 Legends and symbols

Internal Assessment Criteria and Weight

- IAC0701 Sketches and engineering drawings are identified according to type and use
- IAC0702 Engineering drawings are correctly interpreted and the relevant actions and processes are identified
- IAC0703 Line structure and dimensions are correctly identified and their meanings described
- IAC0704 The interpretation is done methodically to ensure that all the important details are incorporated into the manufacturing process
- IAC0705 Work pieces to be used are identified based on the engineering drawing
- IAC0706 Hidden details are listed and the actions to be taken are outlined

(Weight 10%)

1.2.8. KM-01-KT08: Health and safety in the furniture machine/assembly/finishing department (10%)

Topic elements to be covered include:

- KT0801 BCOE Act
- KT0802 OHS Act
- KT0803 General hazards in the workshop
- KT0804 Fire extinguishers and uses
- KT0805 Evacuation plans and signage in the workshop
- KT0806 Demarcation lines
- KT0807 Safe working procedures in the various manufacturing operations

- KT0808 Machine safety
- KT0809 Personal safety
- KT0810 Hazards and incidents
- KT0811 Lock-out devices and procedures

Internal Assessment Criteria and Weight

- IAC0801 Routines are described in accordance with safety and work requirements
- IAC0802 Common and critical faults of equipment are listed and described to aid early identification and the proper channels for fault reporting are given
- IAC0803 The importance of keeping the work area free from hazards is explained
- IAC0804 Fire extinguishers and other methods of fire control are listed, their uses and applications outlined
- IAC0805 The importance of not tampering with fire extinguishers is clearly explained
- IAC0806 The evacuation plan is understood and memorized to ensure compliance in hazardous situations
- IAC0807 Signage in the workshop is described and the meanings are explained
- IAC0808 The different demarcation lines and their functions are described to ensure activities such as stacking is done is appropriate places
- IAC0809 Machine safety devices and their functions are given and the installation methods are outlined
- IAC0810 The safety checks for all machines used such as checking for blockages, testing emergency buttons and ensuring lock-out device availability are listed in order
- IAC0811 The personal protective equipment to be used in the workshop is described
- IAC0812 The protocol for incidents and injuries is described and the reporting channels for incidents and injuries are outlined

(Weight 10%)

1.2.9. KM-01-KT09: Measuring and calculations (10%)

Topic elements to be covered include:

- KT0901 Conversions
- KT0902 Taking accurate measures
- KT0903 Calculations
- KT0904 Angles
- KT0905 Tape Measure
- KT0906 Vernier callipers
- KT0907 Measuring cups
- KT0908 Viscosity cups

Internal Assessment Criteria and Weight

- IAC0901 Measuring equipment are identified and matched to their uses
- IAC0902 Correct measuring units are listed along with the scenarios in which they are used
- IAC0903 Conversions between units are demonstrated
- IAC0904 Angels are correctly identified, measured and calculated
- IAC0905 Measuring equipment are used accurately to get correct sizes and meet product specifications
- IAC0906 The considerations for using tape measures to ensure accuracy are listed
- IAC0907 The considerations for using Vernier callipers to ensure accuracy are listed
- IAC0908 The considerations for using measuring cups to ensure accuracy are listed
- IAC0909 The considerations for using viscosity cups to ensure accuracy are listed

(Weight 10%)

1.2.10. KM-01-KT10: Compressor and compressed air (10%)

Topic elements to be covered include:

- KT1001 Compressed air
- KT1002 Compressed air generation
- KT1003 Compressed air properties
- KT1004 Compressed air uses
- KT1005 Identify and solve problems
- KT1006 Hazards and risks
- KT1007 Pneumatic tools

Internal Assessment Criteria and Weight

- IAC1001 The concept of compressed air is described
- IAC1002 The process of compressed air generation is outlined
- IAC1003 Different compressors are identified and their advantages and disadvantages are outlined
- IAC1004 The properties of compressed air are listed and linked to the uses thereof
- IAC1005 Hazards arising from various air tools, including noise, vibration, fumes, hoses and connectors are explained
- IAC1006 The safety requirements and procedures of working with compressed air is outlined and linked to the hazards they are meant to address
- IAC1007 The standard operating procedures for pneumatic devices such as start-up and shut down procedures are outlined
- IAC1008 Common and critical faults of equipment are listed and described to aid early identification and the proper channels for fault reporting are given
- IAC1009 The importance of setting the correct pressure on all pneumatic tools and machines is explained

- IAC1010 The importance of draining water out of airlines is explained
- IAC1011 The proper colour coding for airlines is described

(Weight 10%)

1.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years' relevant experience or NQF 2 58227 with 2 years of experience

Legal Requirements:

- OHS compliant

1.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201002-00-KM-01, Introduction to furniture manufacturing, NQF Level 2, Credits 2
- 682201003-00-KM-01, Introduction to furniture manufacturing, NQF Level 2, Credits 2

2. 682201001-00-KM-02, Wood Machining Department and Operations, NQF Level 2, Credits 8

2.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and procedures involved in basic machining processes in the bulk production of furniture.

The learning will enable learners to demonstrate an understanding of:

- KM-02-KT01: Machines in the furniture making machine shop (20%)
- KM-02-KT02: Saw blade technology (20%)
- KM-02-KT03: Cutter technology (20%)
- KM-02-KT04: Adhesives and abrasives used in the machining department (20%)
- KM-02-KT05: Quality control in wood machining processes (20%)

2.2 Guidelines for Topics

2.2.1. KM-02-KT01: Machines in the furniture making machine shop (20%)

Topic elements to be covered include:

- KT0101 Types and uses of machines
- KT0102 Machine calibrations and settings
- KT0103 Routine maintenance and cleaning
- KT0104 Safety mechanisms and warning signals
- KT0105 Lock out procedures and isolating machines
- KT0106 Operation and setting up of machine
- KT0107 Colour coding of the machine (orange, red, green)
- KT0108 Trouble shooting

Internal Assessment Criteria and Weight

- IAC0101 Different machines in the machines shop are identified according to their use
- IAC0102 Machine settings are described along with the procedures for achieving the correct settings
- IAC0103 The calibration procedures for machines are delineated
- IAC0104 Machine maintenance and cleaning procedures are described
- IAC0105 The importance of avoiding damage to cables, electrical wiring and parts is explained
- IAC0106 The role of extraction pipes and the fitment procedures are described
- IAC0107 Machine lubrication is described with attention given to the process of excessive oil and lubricant removal
- IAC0108 Lock-out devices for different machines are identified and their uses and roles are described
- IAC0109 Pre-start up checks such as belt or chain tension, proximity of lock-out devices, calibration and cutting tool fitted to the machine are listed

- IAC0110 Control panels are described with special attention to key settings and controls such as emergency light
- IAC0111 Colour coding of machinery in the industry is discussed
- IAC0112 Troubleshooting for common faults and problems of machines is described
- IAC0113 The role of noise in identifying machine faults is discussed in terms of the probable causes of the different noises and the corrective action necessary

(Weight 20%)

2.2.2. KM-02-KT02: Saw blade technology (20%)

Topic elements to be covered include:

- KT0201 Different blades
- KT0202 Blade characteristics
- KT0203 Uses
- KT0204 Band saw blade
- KT0205 Safety requirements
- KT0206 Quality requirements
- KT0207 Faults and defects

Internal Assessment Criteria and Weight

- IAC0201 The different kinds of blades are listed and described
- IAC0202 The characteristics of the different blades are discussed in terms of their uses in the manufacturing process
- IAC0203 The saw blades are matched to the machines and product specifications
- IAC0204 The requirements and considerations of band saw blades are explained
- IAC0205 The reasons for working with sharp, well-maintained blades are given
- IAC0206 Blade labels are identified and their meaning discussed
- IAC0207 Quality requirements of blades are described
- IAC0208 Common or critical faults or damage to the blade are listed and the effects on safety and production is described
- IAC0209 Safety procedures and regulations when working with saw blade technology are outlined
- IAC0210 The correct PPE is listed for working with saw blade technology

(Weight 20%)

2.2.3. KM-02-KT03: Cutter technology (20%)

Topic elements to be covered include:

- KT0301 Different types of cutters
- KT0302 Different cutting speed

- KT0303 Knives and solid cutters
- KT0304 Angle of the cutters
- KT0305 Cutter block
- KT0306 Quality requirements
- KT0307 Faults and defects
- KT0308 Safety requirements

Internal Assessment Criteria and Weight

- IAC0301 Different cutters are identified and described
- IAC0302 The characteristics of the different cutters are discussed in terms of their uses in the manufacturing process
- IAC0303 The requirements and considerations of cutters are explained
- IAC0304 The role and importance of the speed of the machine spindle is discussed in terms of cutter specification and material
- IAC0305 The reasons for working with sharp, well-maintained cutters and knives are given
- IAC0306 Quality requirements of cutters and knives are described
- IAC0307 Common or critical faults or damage to the cutter such as chips are listed and the effects on safety and production is described
- IAC0308 Safety procedures and regulations when working with cutter technology are outlined
- IAC0309 The correct PPE is listed for working with cutter technology

(Weight 20%)

2.2.4. KM-02-KT04: Adhesives and abrasives used in the machining department (20%)

Topic elements to be covered include:

- KT0401 Adhesives
- KT0402 Cold and hot adhesives and application methods
- KT0403 Solvents
- KT0404 Other chemicals
- KT0405 Hazards and risks associated with chemicals
- KT0406 Safe handling and storage of adhesives and solvents
- KT0407 Abrasives
- KT0408 Sand paper and grit sizes

Internal Assessment Criteria and Weight

- IAC0401 The properties of adhesives are outlined
- IAC0402 The characteristics of the different kinds of adhesives are listed and linked to their advantages and disadvantages
- IAC0403 Adhesive selection is explained in terms of product requirements

- IAC0404 Adhesive preparation is outlined and the impact of incorrect preparation on the quality of the adhesive is explained
- IAC0405 The application of hot and cold glue is delineated
- IAC0406 Material safety data sheet (MSDS) for the adhesive is explained
- IAC0407 The PPE to be used when working with adhesives is describe
- IAC0408 Hazards associated with adhesives are identified and the correct safety procedures are described
- IAC0409 The storage of adhesives is described
- IAC0410 The properties of abrasives are outlined
- IAC0411 The characteristics of the different kinds of abrasives are listed and linked to their advantages and disadvantages
- IAC0412 The selection of grit size and sand paper is explained in terms of product requirements
- IAC0413 Hazards associated with adhesives are identified and the correct safety procedures are described

(Weight 20%)

2.2.5. KM-02-KT05: Quality control in wood machining processes (20%)

Topic elements to be covered include:

- KT0501 Timber or board quality
- KT0502 Machine quality
- KT0503 Process quality
- KT0504 Faults and defects

Internal Assessment Criteria and Weight

- IAC0501 Timber defects are listed and their impact on timber quality is explained
- IAC0502 Board defects are listed and their impact on board quality is explained
- IAC0503 The grading and classification of timber quality is outlined
- IAC0504 The grading and classification of board quality is outlined
- IAC0505 The quality requirements for different types of furniture are outlined
- IAC0506 The quality requirements of different operations such as cutting and sawing are described and their identification discussed
- IAC0507 Sawing, cutting and other process faults are discussed in terms of their effect on the end product

(Weight 20%)

2.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years' relevant experience or NQF 2 58227 with 2 years of experience

Legal Requirements:

- OHS compliant

2.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201002-00-KM-02, Wood machining department and operations, NQF Level 2, Credits 8

3. 682201001-00-KM-03, Furniture Assembling Department and Operations, NQF Level 2, Credits 4

3.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and procedures involved in basic assembly processes in the bulk production of furniture.

The learning will enable learners to demonstrate an understanding of:

- KM-03-KT01: Furniture assembling operations and techniques (20%)
- KM-03-KT02: Power tools used in the assembly shop (20%)
- KM-03-KT03: Pneumatic tools (20%)
- KM-03-KT04: Hand tools (20%)
- KM-03-KT05: Quality Control (20%)

3.2 Guidelines for Topics

3.2.1. KM-03-KT01: Furniture assembling operations and techniques (20%)

Topic elements to be covered include:

- KT0101 Types and purpose of joints
- KT0102 Definition and purpose of dry assembling
- KT0103 Using clamps, adhesive, screws and nails for assembling operations
- KT0104 Definition and purpose of sanding
- KT0105 Application of drilling, sawing, routing, bevelling, stapling and cutting in the assembling process
- KT0106 Product specifications and quality

Internal Assessment Criteria and Weight

- IAC0101 Various types of joints are identified and the purpose of each is described
- IAC0102 Techniques for each joint is discussed
- IAC0103 The concept dry assembling and its purpose is explained
- IAC0104 Reasons and where to use clamps, adhesive, screws and nails in the assembling process is justified
- IAC0105 The purpose of sanding in the assembling process is reasoned
- IAC0106 The importance of applying product specifications consistently to achieve a quality assembled product is justified

(Weight 20%)

3.2.2. KM-03-KT02: Power tools used in the assembly shop (20%)

Topic elements to be covered include:

- KT0201 Types of power tools
- KT0202 Uses of power tools

- KT0203 Drilling bits, router bits, chuck keys and cutters
- KT0204 Maintenance and cleaning
- KT0205 Safety mechanisms and warning signals
- KT0206 Power tool operation
- KT0207 Safety procedures and requirements
- KT0208 Trouble shooting

Internal Assessment Criteria and Weight

- IAC0201 Colour coding of the machine is observed
- IAC0202 Sound and noise level when starting the machine is observed for possible faults and possible causes are listed
- IAC0203 Hazards associated with the use of different tools are defined
- IAC0204 Different tools in the cabinet making shop are identified according to their use
- IAC0205 Tool settings are described along with the procedures for achieving the correct settings
- IAC0206 The calibration procedures for tools are delineated
- IAC0207 The different drill bits and cutters are identified and their uses are described
- IAC0208 The attachment of drill bits and cutters is outlined
- IAC0209 Tool maintenance and cleaning procedures are described
- IAC0210 The importance of avoiding damage to cables, electrical wiring and parts is explained
- IAC0211 Tool lubrication is described with attention given to the process of excessive oil and lubricant removal
- IAC0212 Colour coding of power tools in the industry is discussed
- IAC0213 The safety mechanisms and warning signals of the different tools are described and their roles are discussed
- IAC0214 The operation processes of the different power tools are outlined
- IAC0215 Troubleshooting for common faults and problems of machines is described
- IAC0216 The role of noise in identifying machine faults is discussed in terms of the probable causes of the different noises and the corrective action necessary

(Weight 20%)

3.2.3. KM-03-KT03: Pneumatic tools (20%)

Topic elements to be covered include:

- KT0301 Principles of compressed air
- KT0302 Types of pneumatic tools
- KT0303 Uses
- KT0304 Maintenance
- KT0305 Staples and nails

- KT0306 Problem Solving
- KT0307 Hazards and risks

Internal Assessment Criteria and Weight

- IAC0301 The principles behind pneumatic tools are briefly outlined
- IAC0302 Different pneumatic tools are identified and their advantages and disadvantages are outlined
- IAC0303 The properties of pneumatic tools are listed and linked to the uses thereof
- IAC0304 The standard operating procedures for pneumatic tools such as start-up and shut down procedures are outlined
- IAC0305 The importance of setting the correct pressure on all pneumatic tools is explained
- IAC0306 Correct size staples and nails are matched to the product specifications and the given tool
- IAC0307 The importance of using the correct grease on the tools is explained
- IAC0308 Common problems when working with pneumatic tools are listed and corrective measures are described
- IAC0309 The role of safety pins on the tools is explained along with the consequences of breaking safety pins
- IAC0310 Hazards arising from various pneumatic tools, including noise, vibration, fumes, hoses and connectors are explained
- IAC0311 The safety requirements and procedures of working with compressed air is outlined and linked to the hazards they are meant to address
- IAC0312 Common and critical faults of equipment are listed and described to aid early identification and the proper channels for fault reporting are given

(Weight 20%)

3.2.4. KM-03-KT04: Hand tools (20%)

Topic elements to be covered include:

- KT0401 Types of hand tools
- KT0402 Uses
- KT0403 Maintenance
- KT0404 Attachments
- KT0405 Problem Solving
- KT0406 Hazards and risks

Internal Assessment Criteria and Weight

- IAC0401 Different hand tools are identified and their advantages and disadvantages are outlined
- IAC0402 The properties of hand tools are listed and linked to the uses thereof
- IAC0403 The standard operating procedures for hand tools such as start-up and shut down procedures are outlined

- IAC0404 The importance of attaining the correct settings on all hand tools is explained
- IAC0405 Correct size and type of attachments are matched to the product specifications and the given tool
- IAC0406 The importance of using the correct grease on the tools is explained
- IAC0407 Common problems when working with hand tools are listed and corrective measures are described
- IAC0408 The role of safety measures and devices on the tools is explained along with the consequences of breaking safety devices
- IAC0409 Hazards arising from various hand tools, including noise, vibration, fumes, hoses and connectors are explained
- IAC0410 The safety requirements and procedures of working with power tools is outlined and linked to the hazards they are meant to address
- IAC0411 Common and critical faults of equipment are listed and described to aid early identification and the proper channels for fault reporting are given

(Weight 20%)

3.2.5. KM-03-KT05: Quality Control (20%)

Topic elements to be covered include:

- KT0501 Timber, board or component quality
- KT0502 Machine quality
- KT0503 Process quality
- KT0504 Component and product quality
- KT0505 Faults and defects

Internal Assessment Criteria and Weight

- IAC0501 Timber, board and component defects are listed and their impact on the assembled product quality is explained
- IAC0502 The grading and classification of timber or board quality is outlined
- IAC0503 The quality requirements for different types of furniture are outlined
- IAC0504 The quality requirements of different components of the assembling processes are described and their identification discussed
- IAC0505 Faults and defects resulting from machine quality are identified and the possible causes are discussed
- IAC0506 Assembling process faults are discussed in terms of their effect on assembly and the end product

(Weight 20%)

3.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years' relevant experience or NQF 2 58227 with 2 years of experience

Legal Requirements:

- OHS compliant

3.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201003-00-KM-02, Furniture assembling department and operations, NQF Level 2, Credits 4

4. 682201001-00-KM-04, Wood Finishing Department and Operations, NQF Level 2, Credits 8

4.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and procedures involved in basic wood finishing processes in the bulk production of furniture.

The learning will enable learners to demonstrate an understanding of:

- KM-04-KT01: Paint and other furniture finishes and their characteristics (20%)
- KM-04-KT02: Sanding paper and tools (20%)
- KM-04-KT03: Pneumatic tools (15%)
- KM-04-KT04: Measuring and mixing paint and finishes (10%)
- KM-04-KT05: Spray equipment and booths (15%)
- KM-04-KT06: Consumables used for furniture finishing (10%)
- KM-04-KT07: Quality control in furniture finishing processes (10%)

4.2 Guidelines for Topics

4.2.1. KM-04-KT01: Paint and other furniture finishes and their characteristics (20%)

Topic elements to be covered include:

- KT0101 Types of paint and finishes used in the finishing of furniture (such as lacquers, varnishes, tinted lacquers paints, varnishes, stains, sealers and primers)
- KT0102 Clear finishes
- KT0103 Enamel paints
- KT0104 Stains
- KT0105 Varnishes, primers and sealers
- KT0106 Waxes / polish
- KT0107 Thinners
- KT0108 Turpentine
- KT0109 Hazards and risks associated with chemicals
- KT0110 Safe handling and storage of adhesives and solvents

Internal Assessment Criteria and Weight

- IAC0101 The difference between oil, spirit and water based paint is described
- IAC0102 The characteristics of different types of paint and their respective uses are outlined and discussed
- IAC0103 The characteristics of different types of finishes and their respective uses are outlined and discussed
- IAC0104 The correct application techniques for different paints and finishes are identified
- IAC0105 The different types of stains such as penetrating and matching and their uses are outlined
- IAC0106 The uses of primers and sealers and their differences are described and explained
- IAC0107 Varnishes and their uses (exterior and interior) are explained

- IAC0108 The role of thinners and turpentine in the coating processes is explained
- IAC0109 The uses of waxes and polishes are explained
- IAC0110 The importance of preparing the material to receive the coatings is discussed in terms of its impact on the quality of the end product
- IAC0111 Material safety data sheet (MSDS) for the paint and finishes is explained
- IAC0112 The PPE to be used when working with paint and finishes is described
- IAC0113 Hazards associated with paint and finishes are identified and the correct safety procedures are described
- IAC0114 The safe and correct storage of paint and finishes are described

(Weight 20%)

4.2.2. KM-04-KT02: Sanding paper and tools (20%)

Topic elements to be covered include:

- KT0201 Types of sanding papers
- KT0202 Different sanding paper grits
- KT0203 Hand sanding and machine sanding
- KT0204 Sanding block
- KT0205 Sanding techniques
- KT0206 Scrapers
- KT0207 Stopping and fillers
- KT0208 Denibbing (sanding between coats)

Internal Assessment Criteria and Weight

- IAC0201 The different types of sanding papers are described
- IAC0202 The sanding paper grit selection is discussed in terms of product specifications
- IAC0203 The correct situations in which to use a sanding block is given
- IAC0204 Sanding machines (orbital sanders) uses and operation is outlined
- IAC0205 Sanding techniques such as sanding along and across the grains are explained and the situations in which they should be used are identified
- IAC0206 Stopping, fillers and scrapers are discussed in terms of use and appropriateness
- IAC0207 The process and reasons for denibbing are explained

(Weight 20%)

4.2.3. KM-04-KT03: Pneumatic tools (15%)

Topic elements to be covered include:

- KT0301 Principles of compressed air

- KT0302 Types of pneumatic tools
- KT0303 Uses
- KT0304 Maintenance
- KT0305 Staples and nails
- KT0306 Problem Solving
- KT0307 Hazards and risks

Internal Assessment Criteria and Weight

- IAC0301 The principles behind pneumatic tools are briefly outlined
- IAC0302 Different pneumatic tools are identified and their advantages and disadvantages are outlined
- IAC0303 The properties of pneumatic tools are listed and linked to the uses thereof
- IAC0304 The standard operating procedures for pneumatic tools such as start-up and shut down procedures are outlined
- IAC0305 The importance of setting the correct pressure on all pneumatic tools is explained
- IAC0306 Correct size staples and nails are matched to the product specifications and the given tool
- IAC0307 The importance of using the correct grease on the tools is explained
- IAC0308 Common problems when working with pneumatic tools are listed and corrective measures are described
- IAC0309 The role of safety pins on the tools is explained along with the consequences of breaking safety pins
- IAC0310 Hazards arising from various pneumatic tools, including noise, vibration, fumes, hoses and connectors are explained
- IAC0311 The safety requirements and procedures of working with compressed air is outlined and linked to the hazards they are meant to address
- IAC0312 Common and critical faults of equipment are listed and described to aid early identification and the proper channels for fault reporting are given

(Weight 15%)

4.2.4. KM-04-KT04: Measuring and mixing paint and finishes (10%)

Topic elements to be covered include:

- KT0401 The mixing process
- KT0402 Measuring and mixing equipment
- KT0403 Quality control
- KT0404 Risks and hazards
- KT0405 Catalyst / hardeners

Internal Assessment Criteria and Weight

- IAC0401 A brief overview of the mixing process is given

- IAC0402 The different mixing processes are compared and contrasted
- IAC0403 Measuring equipment such as measuring cups, viscosity cups and stirring rods are identified and their correct and accurate use is described
- IAC0404 The considerations while using measuring cups are outlined
- IAC0405 The correct sizes of viscosity cups to use while performing viscosity checks are identified based on the circumstances
- IAC0406 The use of a mixing chart is explained in terms of its role in mixing different colours
- IAC0407 The reasons for recording formulas for new colours are given
- IAC0408 The need for sufficient mixing of paint is motivated
- IAC0409 The situations in which catalysts are used are identified and the calculations for determining the amount necessary is outlined
- IAC0410 The correct thinning agent such as water, turpentine or thinners is identified based on the different types of finishes
- IAC0411 The situations in which hardeners are required are reviewed

(Weight 10%)

4.2.5. KM-04-KT05: Spray equipment and booths (15%)

Topic elements to be covered include:

- KT0501 Types of spraying equipment
- KT0502 Components
- KT0503 Purpose and function
- KT0504 Airless and air assisted guns
- KT0505 Spray booths
- KT0506 Filters and water curtains
- KT0507 Machine operation
- KT0508 Care and maintenance
- KT0509 Health and safety

Internal Assessment Criteria and Weight

- IAC0501 Different types of spray guns are identified along with its uses
- IAC0502 The components of the spraying equipment and their purposes are listed and described
- IAC0503 Terms such as suction feed, gravity feed, and pressure pots are defined and their uses explained
- IAC0504 The uses, purpose and characteristics of airless and air assisted guns are compared and contrasted
- IAC0505 The need for spray booths is explained and their set up and preparation is discussed
- IAC0506 The need for filters and water curtains is explained and their set up and preparation is discussed

- IAC0507 The preparation, set up and start-up and shut down procedures of the different spraying machines are outlined
- IAC0508 The operation and adjustment of the different machines is delineated and explained
- IAC0509 The maintenance procedures of the gun are reviewed

(Weight 15%)

4.2.6. KM-04-KT06: Consumables used for furniture finishing (10%)

Topic elements to be covered include:

- KT0601 Types, characteristics and uses
- KT0602 Different shapes and sizes
- KT0603 Quality and requirements
- KT0604 Defects and faults
- KT0605 Standard sizes
- KT0606 Safe handling and storage of consumables

Internal Assessment Criteria and Weight

- IAC0601 Different types of consumables and accessories are listed
- IAC0602 The characteristics of different types of consumables are described and matched to their uses in furniture manufacture
- IAC0603 The selection of consumables is discussed with reference to design specifications
- IAC0604 The quality requirements of consumables are given and fault identification is described
- IAC0605 The impact of shape and size of consumables is explained
- IAC0606 Standard sizes are given and their importance is explained
- IAC0607 The correct handling and storage procedures for consumables are delineated
- IAC0608 Defects and faults are listed and the reporting channels are identified

(Weight 10%)

4.2.7. KM-04-KT07: Quality control in furniture finishing processes (10%)

Topic elements to be covered include:

- KT0701 Quality of paint and other chemicals
- KT0702 Machine quality and faults
- KT0703 Process quality and faults
- KT0704 Product quality and faults

Internal Assessment Criteria and Weight

- IAC0701 Timber or board defects are listed and their impact on the quality of the finishing process is explained

- IAC0702 The grading and classification of timber and board quality is understood
- IAC0703 The quality requirements for different types of furniture are outlined
- IAC0704 The quality requirements of different operations such as sanding and spraying are described and their identification discussed
- IAC0705 Mixing, sanding, spraying and other process faults are discussed in terms of their effect on the end product and possible causes and ways to address it is reasoned

(Weight 10%)

4.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 2 58227 with 2 years of experience

Legal Requirements:

- OHS compliant

4.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201003-00-KM-03, Wood finishing department and operations, NQF Level 2, Credits 12

5. 682201001-00-KM-05, Crafted Furniture Machine Operation and Safety in the Furniture Machining Department, NQF Level 4, Credits 16

5.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of occupational health and safety act, maintenance, jigs and templates, profiling, moulding, boring and edging of wooden products.

The learning will enable learners to demonstrate an understanding of:

- KM-05-KT01: Historical and technological factors influencing furniture manufacturing processes (5%)
- KM-05-KT02: Furniture types, styles, and construction (5%)
- KM-05-KT03: Machining processes, procedures and technology (5%)
- KM-05-KT04: Maintenance of woodwork machines in the machining department (5%)
- KM-05-KT05: Health, safety and environmental protection procedures (10%)
- KM-05-KT06: Engineering drawings (5%)
- KM-05-KT07: Using jigs and templates in the wood machining department (5%)
- KM-05-KT08: Bored furniture components, products and manufacturing techniques and processes (10%)
- KM-05-KT09: Edge banded furniture components, products and manufacturing techniques and processes (5%)
- KM-05-KT10: Profiled furniture components, products and manufacturing techniques and processes (10%)
- KM-05-KT11: Operating a lathe to produce turned timber components and products (10%)
- KM-05-KT12: Jointed timber and composite board components, products and manufacturing techniques and processes (10%)
- KM-05-KT13: Bended timber and board components, products and manufacturing techniques and processes (5%)
- KM-05-KT14: CNC machines in the wood machining department (5%)
- KM-05-KT15: Concepts and principles of measuring and calculations used in the furniture manufacturing processes (5%)

5.2 Guidelines for Topics

5.2.1. KM-05-KT01: Historical and technological factors influencing furniture manufacturing processes (5%)

Topic elements to be covered include:

- KT0101 Types, styles and uses of furniture including cabinets
- KT0102 The main historical factors and eras that influenced the designs of different types of furniture
- KT0103 The industrial revolution and the development of new technologies and furniture making materials
- KT0104 The impact of factories on the human resources and their skills

Internal Assessment Criteria and Weight

- IAC0101 Describe the main historical factors and eras, such as the voyages of discovery, royalty in Europe, both world wars, the development of craftsmen and designers and their designs
- IAC0102 Describe the impact of the industrial revolution its influence on the development of new materials and technology.
- IAC0103 Identify the differences between mass production and upholstery services provided by a small business
- IAC0104 Describe how the establishment of factories historically influenced the lives of the people working in the factories and the skills they needed

(Weight 5%)

5.2.2. KM-05-KT02: Furniture types, styles, and construction (5%)

Topic elements to be covered include:

- KT0201 Types and styles of furniture, including cabinets, and their uses
- KT0202 Concepts of ergonomic design and standard dimensions of furniture
- KT0203 Main furniture construction principles (stability, squareness, ergonomics, measurements, conversions, etc.)
- KT0204 Concepts of furniture construction including materials, parts identification, machining, joints and assembly techniques, using the correct terminology
- KT0205 Furniture manufacturing process from raw wood to finished product
- KT0206 Impact of design and construction faults
- KT0207 Problem solving

Internal Assessment Criteria and Weight

- IAC0201 Define the terminology and abbreviations used in the furniture industry
- IAC0202 Identify the parts of various advanced furniture and their construction, using industry terminology
- IAC0203 Describe the mass production process of making furniture from raw wood to finished product with reference to the various departments and their contribution to the final product
- IAC0204 Describe the production process of making upholstered furniture as a small business owner
- IAC0205 The main furniture construction principles are identified and the impact on product quality is reasoned

(Weight 5%)

5.2.3. KM-05-KT03: Machining processes, procedures and technology (5%)

Topic elements to be covered include:

- KT0301 Machine types
- KT0302 Tooling (spanners, wrenches, sockets)
- KT0303 Cutters, knives, bearings, guillotines
- KT0304 Machine sequencing

- KT0305 Machine safety and hazards
- KT0306 Colour coding of the machines
- KT0307 Attachment for the machines (spindle feeders, collets, bearings, fences, jigs,)

Internal Assessment Criteria and Weight

- IAC0301 Machine types are identified and used according to their designated use
- IAC0302 Different spanners sizes, wrenches, and sockets are identified for different parts of the machine
- IAC0303 Cutters, knives and bearing for different machines are identified and fitted.
- IAC0304 Machine cutting speeds and directions are observed
- IAC0305 Colour coding of the machines are understood (orange/ red/ green/ black)
- IAC0306 Machine hazards and safety mechanism are identified and fitted accordingly.
- IAC0307 Different attachments for the machines are identified and attached safely
- IAC0308 General machine safety is observed.

(Weight 5%)

5.2.4. KM-05-KT04: Maintenance of woodwork machines in the machining department (5%)

Topic elements to be covered include:

- KT0401 Machine tooling
- KT0402 Calibration
- KT0403 Lubrication
- KT0404 Disassemble and assemble the machine
- KT0405 Tension of the belts
- KT0406 Changing cutting tools of the machine
- KT0407 Maintenance checklists
- KT0408 Recording and recording

Internal Assessment Criteria and Weight

- IAC0401 Different machine tools used for maintenance are identified
- IAC0402 Machine are calibrated and tested for accuracy
- IAC0403 Machine lubrication is carried out on all moving parts of the machine
- IAC0404 Correct lubrication is selected for the machine (grease, oil, polish)
- IAC0405 Tension of belts, moving chain is correctly set
- IAC0406 Running hours of the machine is observed
- IAC0407 Changing of blades, cutters, knives of the machine is done accordingly
- IAC0408 Maintenance checklist is followed and completed according to policy

- IAC0409 All deviations on the machines are recorded and reported to relevant personnel
- IAC0410 Recommendation for major maintenance or replacement of worn out parts is done
- IAC0411 Foreign objects (sawdust, offcuts, rags,) are removed from the machine
- IAC0412 Faults cables, wires are reported and replaced by qualified personnel
- IAC0413 Lockout of the machine is carried out as required.

(Weight 5%)

5.2.5. KM-05-KT05: Health, safety and environmental protection procedures (10%)

Topic elements to be covered include:

- KT0501 BCOE Act
- KT0502 OHS Act
- KT0503 General hazards in the workshop
- KT0504 Fire extinguishers and uses
- KT0505 Evacuation plans and signage in the workshop
- KT0506 Demarcation lines and designated areas
- KT0507 Safe working procedures in the various machining operations
- KT0508 Machine safety (isolate the machine)
- KT0509 Hazards, risks, incidents, accidents and unsafe conditions and acts
- KT0510 Personal safety and protective equipment: eye protection; gloves; overalls/ dustcoats; respiratory protection; barrier cream; cleansing cream
- KT0511 Lock-out devices and procedure
- KT0512 Dust extraction system: fixed ducting; portable unit
- KT0513 Waste and off-cuts: re-usable; non-reusable

Internal Assessment Criteria and Weight

- IAC0501 Routines are carried out safely and in accordance with work requirements
- IAC0502 Any faults identified with equipment are reported to the relevant person
- IAC0503 Work area is kept free from hazards
- IAC0504 Fire extinguishers are identified and are easily accessible, labels on the fire extinguishers are clear and not tampered with
- IAC0505 Evacuation plan is studied and understood
- IAC0506 Demarcation lines are adhered to, stacking is done is appropriate places
- IAC0507 All machines are fitted with safety devices, all foreign objects on the machines are removed
- IAC0508 Isolator and emergency buttons are tested to be in a good working condition
- IAC0509 Lock-out devices are available for all the machines
- IAC0510 Relevant Personal Protective equipment is used in the workshop

- IAC0511 Incident and injuries are reported to the relevant personnel

(Weight 10%)

5.2.6. KM-05-KT06: Engineering drawings (5%)

Topic elements to be covered include:

- KT0601 Read and interpret furniture specifications
- KT0602 Sketches and engineering drawings
- KT0603 Layout of drawings
- KT0604 Legends and symbols
- KT0605 Dimensions and labelling
- KT0606 Cutting lists
- KT0607 Isometric views
- KT0608 Line types
- KT0609 Solid lines
- KT0610 Projections
- KT0611 to scale drawing
- KT0612 Hidden details

Internal Assessment Criteria and Weight

- IAC0601 Engineering drawings correctly interpreted, taking into account line structures and dimensions.
- IAC0602 All drawing projections are observed
- IAC0603 Scale of drawing is according to specification
- IAC0604 Hidden details are understood and information is applied to the work pieces
- IAC0605 Drawing labels are understood and according to specification, showing all details, chamfers, diameters, radiuses and depths

(Weight 5%)

5.2.7. KM-05-KT07: Using jigs and templates in the wood machining department (5%)

Topic elements to be covered include:

- KT0701 Definition and function of jigs and templates
- KT0702 Types of materials used for jigs and templates
- KT0703 Jig and template making methods
- KT0704 Jig and template requirements (sample match) and accuracy
- KT0705 Testing and adjustments
- KT0706 Modification of jigs
- KT0707 Tools and equipment
- KT0708 Jig and template labelling
- KT0709 Repair to damaged jigs

- KT0710 Maintenance of jigs
- KT0711 Defects and jig and template quality

Internal Assessment Criteria and Weight

- IAC0701 The various purposed of jigs and templates (once offs; for multiple use; for short term use; for long term use) are differentiated
- IAC0702 The various materials for making jigs and templates such as solid wood, plywood, MDF, Perspex, Masonite, etc. is compared for selecting the most suitable material for the purpose
- IAC0703 Tools and equipment such as toggle clamps, hand tools, etc. are correctly identified and the various functions are described
- IAC0704 The making of jigs and template for various operations are differentiated
- IAC0705 The importance of accurate sampling matching is justified
- IAC0706 The importance of accurate identification and labelling of jigs and templates is justified
- IAC0707 Ways to identify damage to jigs and templates and repairs are described
- IAC0708 The negatively impact upon all parts of the furniture production cycle caused by a failure to maintain the quality and accuracy of jigs and templates are understood

(Weight 5%)

5.2.8. KM-05-KT08: Bored furniture components, products and manufacturing techniques and processes (10%)

Topic elements to be covered include:

- KT0801 Boring of hardwood; softwood; composite board; components
- KT0802 Dimension control aids: jigs, templates, tape measure, Vernier callipers and square
- KT0803 Machines, machine parts and their relationship (borer, router, drill bits)
- KT0804 Tools and equipment (fence, ring fence, bearing, jigs, tooling)
- KT0805 Measuring aids and the correct use thereof
- KT0806 Feed speeds
- KT0807 Dowels
- KT0808 Drilling bits (left and right)
- KT0809 Angle drilling
- KT0810 Face and edge drilling
- KT0811 Stoppers
- KT0812 Pressure
- KT0813 Depth, diameters, tolerances and accuracy
- KT0814 Defects and bored quality

Internal Assessment Criteria and Weight

- IAC0801 The various purposes and methods of drilling and boring are discussed

- IAC0802 The suitability and consideration of various materials for drilling and boring is differentiated
- IAC0803 The importance of accuracy (depth, diameter, angles) and working within tolerances when boring and drilling is justified
- IAC0804 A broad understanding of quality checks and acceptable tolerances and the deviations of tolerances is demonstrated
- IAC0805 Machines, machine parts, tools and equipment used in boring of products are identified and the various functions are described
- IAC0806 A broad understanding of the various tooling procedures that are available and the correct uses thereof is demonstrated
- IAC0807 Different dowel types and sizes are identified and explained
- IAC0808 Drilling bits are identified according to function and operation and the correct direction (colour coding observed) of fitting is explained
- IAC0809 Settings of stoppers and clamps according to the thickness of material are explained
- IAC0810 The effect of feed speed on the finished product is reasoned
- IAC0811 The importance of correct machine settings (required angle, feed speed, pressure) is justified
- IAC0812 Face and edge drilling methods are explained
- IAC0813 Boring and drilling faults and defects are identified and possible causes and corrective action is reasoned

(Weight 10%)

5.2.9. KM-05-KT09: Edge banded furniture components, products and manufacturing techniques and processes (5%)

Topic elements to be covered include:

- KT0901 Edge banding equipment and manual and automatic edge banding machines
- KT0902 Edge banded components and products
- KT0903 Feed speeds appropriate to hand fed and mechanically fed
- KT0904 Dimension control aids (jigs; templates; measuring tape; Vernier callipers)
- KT0905 Operation and settings of edge banding machines
- KT0906 Types and quality of edge banding materials
- KT0907 Adhesives, bonding and adhesive preparation
- KT0908 Shelf life and pot life of chemicals
- KT0909 Safe handling and storing of chemicals
- KT0910 Spillages and environmental aspects
- KT0911 Defects and edge banded quality

Internal Assessment Criteria and Weight

- IAC0901 The aspects of temperature and bonding in the edge banding process is reasoned

- IAC0902 Adhesives, their safe working, disposal procedures and adhesive preparation: mixing; stirring; viscosity; is explained
- IAC0903 Different types of machines, tools and techniques used for the application of edge banding
- IAC0904 The various types of edge banding that is available is differentiated and the correct uses thereof is discussed
- IAC0905 A broad understanding of quality checks and acceptable tolerances and the deviations from tolerances relevant to adhesives, bonding and edge banding is demonstrated
- IAC0906 The importance of dust extraction and waste removal procedures is justified

(Weight 5%)

5.2.10. KM-05-KT10: Profiled furniture components, products and manufacturing techniques and processes (10%)

Topic elements to be covered include:

- KT1001 Profiling machines, machine parts, attachments and tooling
- KT1002 Suitable timber and composite board for profiling
- KT1003 Machine parts and they relationship
- KT1004 Preparing and machines settings for the production of profiled timber and board product components and products
- KT1005 Working with jigs, templates and other necessary dimension control aids
- KT1006 The function of toggle clamps
- KT1007 Cutter technology (cutter blocks, knives, bearings)
- KT1008 Profiling, moulding, rebates and grooves
- KT1009 Manual feed and automatic feed
- KT1010 Reverse and forward feeding
- KT1011 Running/cutting speed
- KT1012 Machining materials to form profiled timber and composite board components or products
- KT1013 Defects and profiling quality

Internal Assessment Criteria and Weight

- IAC1001 Types of furniture where profiling, moulding, rebates and grooves are applied are identified
- IAC1002 The aesthetic value of profiling, moulding, rebates and grooves are compared
- IAC1003 Profiling, moulding, rebates and grooves methods and techniques are explained
- IAC1004 Machines and equipment used for profiling, moulding, rebates and grooves are identified and the appropriate functions are explained
- IAC1005 The suitability of timber and composite board for profiling is compared
- IAC1006 Different cutters are identified and are uses for respective profiles are differentiated
- IAC1007 The importance of the correct machine settings is justified

(Weight 10%)

5.2.11. KM-05-KT11: Operating a lathe to produce turned timber components and products (10%)

Topic elements to be covered include:

- KT1101 Wood turning machines, equipment and tooling
- KT1102 Machine parts and their relationship
- KT1103 Turned timber components and products
- KT1104 Dimension control aids (jigs; templates; measuring tape; Vernier callipers)
- KT1105 Operation and settings of lathes
- KT1106 Types and quality of materials for turning
- KT1107 Selecting and preparing materials for turning
- KT1108 Fitting of timber to lathes
- KT1109 Feed speeds suitable for raw material and product
- KT1110 Modifying materials to form turned components and products.
- KT1111 Types of chisels and their uses
- KT1112 Manual turning and copying
- KT1113 Feed speeds appropriate to hand fed and mechanically fed
- KT1114 Defects and turning quality
- KT1115 Risks and hazards associated with the lathe and wood turning operations

Internal Assessment Criteria and Weight

- IAC1101 Types of furniture where turned components and products are applied are identified
- IAC1102 The aesthetic value of turned timber is justified
- IAC1103 Wood turning methods and techniques are explained
- IAC1104 Machines (lathe) and equipment used for wood turning are identified and the appropriate functions are explained
- IAC1105 The suitability of timber for turning is justified
- IAC1106 Different cutters are identified and are uses for respective turned products are differentiated
- IAC1107 The importance of the correct machine settings is justified
- IAC1108 The risk of injury and damage to machinery and equipment and the health and safety of self and others

(Weight 10%)

5.2.12. KM-05-KT12: Jointed timber and composite board components, products and manufacturing techniques and processes (10%)

Topic elements to be covered include:

- KT1201 Different types and functions of joints
- KT1202 Jointing machines, machine parts, tooling and equipment

- KT1203 Machine parts and their relationship
- KT1204 Working with jigs, templates and other necessary dimension control aids
- KT1205 Suitable timber and composite board for jointing
- KT1206 Preparing and machines settings for the production of profiled timber and board product components and products
- KT1207 Measurements, tolerances, formulae and calculations
- KT1208 Shoulder to shoulder sizes
- KT1209 Machine joints
- KT1210 Angled joints
- KT1211 Defects on joints and joint quality
- KT1212 Left and right tables

Internal Assessment Criteria and Weight

- IAC1201 Different joints and applications are understood
- IAC1202 Types of furniture and suitable joints are identified
- IAC1203 The aesthetic value of joints is justified
- IAC1204 Jointing methods and techniques are explained
- IAC1205 Machines and equipment used for joints are identified and the appropriate functions are explained
- IAC1206 The suitability of timber for respective joints is justified
- IAC1207 Different tooling is identified and are uses for respective joints are differentiated
- IAC1208 The importance of the correct machine settings is justified
- IAC1209 The risk of injury and damage to machinery and equipment and the health and safety of self and others is understood

(Weight 10%)

5.2.13. KM-05-KT13: Bended timber and board components, products and manufacturing techniques and processes (5%)

Topic elements to be covered include:

- KT1301 Types of adhesives
- KT1302 Glue temperature
- KT1303 Machine part and they relationship
- KT1304 Different size of edging
- KT1305 Feeding mechanism
- KT1306 Straight edging
- KT1307 Curved edging

Internal Assessment Criteria and Weight

- IAC1301 Machine is set according to specification
- IAC1302 Different types of adhesives are understood
- IAC1303 Glue temperature is according to machine requirements
- IAC1304 Edging size is selected according to specification
- IAC1305 Edging is fed to the machine as required
- IAC1306 Machine table, rollers are set according to the thickness of the board and edging
- IAC1307 Machine parts are identified and how they relate to each other

(Weight 5%)

5.2.14. KM-05-KT14: CNC machines in the wood machining department (5%)

Topic elements to be covered include:

- KT1401 Ergonomics in the machining department
- KT1402 CNC machine alignment and control
- KT1403 Interface devices
- KT1404 Programmes, programming and software
- KT1405 CNC cutting methodology
- KT1406 Basic cleaning and maintenance techniques

Internal Assessment Criteria and Weight

- IAC1401 The function of CNC machines in the furniture manufacturing is described
- IAC1402 The operation of CNC machines is explained
- IAC1403 The advantages of the use of CNC machines are discussed

(Weight 5%)

5.2.15. KM-05-KT15: Concepts and principles of measuring and calculations used in the furniture manufacturing processes (5%)

Topic elements to be covered include:

- KT1501 Taking accurate measures
- KT1502 Units of measurement
- KT1503 Conversions
- KT1504 Formulae and calculations
- KT1505 Angles and curves
- KT1506 Standard sizes
- KT1507 Allowances and tolerances
- KT1508 Measuring instruments: Tape measure, Vernier, callipers, square

- KT1509 Calibrations
- KT1510 Accuracy and faults

Internal Assessment Criteria and Weight

- IAC1501 The application of various formulae in furniture making is explained
- IAC1502 The importance of accuracy on the quality of the work piece is justified
- IAC1503 The effect of inaccuracy and faults are explained
- IAC1504 Measuring equipment are identified and selected for the job
- IAC1505 Correct measuring units are used
- IAC1506 Measuring equipment are used accordingly to get correct sizes
- IAC1507 The importance of the good quality of measuring tapes, Vernier callipers etc. is justified

(Weight 5%)

5.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 5 qualified

Legal Requirements:

- OHS compliant

5.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201002-00-KM-03, Crafted wood machine operation and safety in the furniture machining department, NQF Level 3, Credits 16

6. 682201001-00-KM-06, Crafted Furniture Assembling Department and Operations, NQF Level 3, Credits 9

6.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of occupational health and safety act, maintenance of tools and equipment, manufacturing of veneers, curved lamination and the manufacturing and installation of crafted of wooden furniture.

The learning will enable learners to demonstrate an understanding of:

- KM-06-KT01: Historical and technological factors influencing furniture manufacturing processes (5%)
- KM-06-KT02: Furniture types, styles, and construction (7%)
- KM-06-KT03: Manufacturing of veneers used in furniture manufacturing (15%)
- KM-06-KT04: Inlays used in furniture manufacturing (10%)
- KM-06-KT05: Adhesives and other chemicals used in the furniture assembling department (8%)
- KM-06-KT06: Curved lamination components, products and manufacturing techniques and processes (5%)
- KM-06-KT07: Materials used in making cabinets and other furniture (5%)
- KM-06-KT08: Assembly and installation of crafted furniture (including cabinets) (5%)
- KM-06-KT09: Manufacturing and installation of modern carcasses, doors and drawers (5%)
- KM-06-KT10: Equipment and tools used in the assembling of crafted furniture (10%)
- KM-06-KT11: Health and safety in the furniture assembly department (10%)
- KM-06-KT12: Concepts and principles of measuring and calculations used in the furniture manufacturing processes (5%)
- KM-06-KT13: Engineering drawings (10%)

6.2 Guidelines for Topics

6.2.1. KM-06-KT01: Historical and technological factors influencing furniture manufacturing processes (5%)

Topic elements to be covered include:

- KT0101 Types, styles and uses of furniture including cabinets
- KT0102 The main historical factors and eras that influenced the designs of different types of furniture
- KT0103 The industrial revolution and the development of new technologies and furniture making materials
- KT0104 The impact of factories on the human resources and their skills

Internal Assessment Criteria and Weight

- IAC0101 Describe the main historical factors and eras, such as the voyages of discovery, royalty in Europe, both world wars, the development of craftsmen and designers and their designs
- IAC0102 Describe the impact of the industrial revolution its influence on the development of new materials and technology.
- IAC0103 Identify the differences between mass production and upholstery services provided by a small business

- IAC0104 Describe how the establishment of factories historically influenced the lives of the people working in the factories and the skills they needed

(Weight 5%)

6.2.2. KM-06-KT02: Furniture types, styles, and construction (7%)

Topic elements to be covered include:

- KT0201 Types and styles of furniture, including cabinets, and their uses
- KT0202 Concepts of ergonomic design and standard dimensions of furniture
- KT0203 Main furniture construction principles (stability, squareness, ergonomics, measurements, conversions, etc.)
- KT0204 Concepts of furniture construction including materials, parts identification, machining, joints and assembly techniques, using the correct terminology
- KT0205 Furniture manufacturing process from raw wood to finished product
- KT0206 Impact of design and construction faults
- KT0207 Problem solving

Internal Assessment Criteria and Weight

- IAC0201 Define the terminology and abbreviations used in the furniture industry
- IAC0202 Identify the parts of various advanced furniture and their construction, using industry terminology
- IAC0203 Describe the mass production process of making furniture from raw wood to finished product with reference to the various departments and their contribution to the final product
- IAC0204 Describe the production process of making upholstered furniture as a small business owner
- IAC0205 The main furniture construction principles are identified and the impact on product quality is reasoned

(Weight 7%)

6.2.3. KM-06-KT03: Manufacturing of veneers used in furniture manufacturing (15%)

Topic elements to be covered include:

- KT0301 Types of veneers
- KT0302 Aesthetic appeal of veneers
- KT0303 Veneer sizes, texture, colour, grain direction and light refraction
- KT0304 Material suitability
- KT0305 Types of veneer cuts
- KT0306 Matching veneers
- KT0307 Atmospheric conditions and requirements of veneers
- KT0308 Standard sizes of veneers
- KT0309 Drawings and instructions

- KT0310 Veneer cutting methods, tools and equipment
- KT0311 Veneer jointing methods, tools, equipment and adhesives
- KT0312 Measuring devices; set square; protractor
- KT0313 Accuracy, problems and faults
- KT0314 Handling and storing requirements
- KT0315 Working with adhesives, chemicals and safety
- KT0316 Veneer manufacturing process (planning, cutting, jointing, finishing and quality)

Internal Assessment Criteria and Weight

- IAC0301 Types, functions and uses of veneers are identified
- IAC0302 Materials used in the manufacturing of veneers are analysed for suitability, quality and characteristics
- IAC0303 Equipment used in the manufacturing of veneers are analysed for suitability, operation and uses
- IAC0304 Manufacturing and construction methods (planning, measuring, cutting, matching, jointing) relevant to veneers are discussed
- IAC0305 The use of adhesives and measures to ensure proper bonding and curing (time, pressure, temperature) are analysed
- IAC0306 The importance of confirming adhesive pot life, shelf life, open time is reasoned
- IAC0307 The importance of accuracy, the effect on quality and ways to ensure accuracy are discussed
- IAC0308 Safe handling and storing of materials, veneers, chemicals, tools and equipment are explained
- IAC0309 Safe handling and storing of materials, veneers, chemicals, tools and equipment are explained

(Weight 15%)

6.2.4. KM-06-KT04: Inlays used in furniture manufacturing (10%)

Topic elements to be covered include:

- KT0401 Types of inlays
- KT0402 Aesthetic appeal of inlays
- KT0403 Inlays sizes, texture, colour, grain direction and light refraction
- KT0404 Material types and suitability
- KT0405 Quality of groundwork
- KT0406 Atmospheric conditions and requirements of inlays
- KT0407 Adhesive technology
- KT0408 Inlay techniques and sequence
- KT0409 Drawings and instructions

- KT0410 Tools and equipment with inlays
- KT0411 Measuring devices; set square; protractor
- KT0412 Accuracy, problems and faults
- KT0413 Handling and storing requirements
- KT0414 Working with adhesives and other chemicals and safety
- KT0415 Inlay manufacturing process

Internal Assessment Criteria and Weight

- IAC0401 Types, functions and uses of inlays are identified
- IAC0402 Materials used in the manufacturing of inlays are analysed for suitability, quality and characteristics
- IAC0403 Equipment used in the manufacturing of inlays are analysed for suitability, operation and uses
- IAC0404 Manufacturing and construction methods (planning, measuring, cutting, matching, jointing) relevant to inlays are discussed
- IAC0405 The use of adhesives and measures to ensure proper bonding and curing (time, pressure, temperature) are analysed
- IAC0406 The importance of confirming adhesive pot life, shelf life, open time is reasoned
- IAC0407 The importance of accuracy, the effect on quality and ways to ensure accuracy are discussed
- IAC0408 Safe handling and storing of materials, inlays, chemicals, tools and equipment are explained
- IAC0409 Faults and defects and possible causes are identified and corrective actions are reasoned

(Weight 10%)

6.2.5. KM-06-KT05: Adhesives and other chemicals used in the furniture assembling department (8%)

Topic elements to be covered include:

- KT0501 Types of adhesives and characteristics (MSDS) and uses
- KT0502 Cold and hot glue and application methods
- KT0503 Bonding qualities
- KT0504 Temperature, pressure and curing time
- KT0505 Solvents
- KT0506 Other chemicals
- KT0507 Measuring, preparation and mixing volumes and sequence
- KT0508 Hazards and risks associated with chemicals
- KT0509 Safe handling and storage of adhesives and solvents
- KT0510 Waste disposal, spillages and the environment

Internal Assessment Criteria and Weight

- IAC0501 Types of adhesives and the respective characteristics is explained according to the MSDS
- IAC0502 The importance of identifying suitable and appropriate adhesives according to the task is justified
- IAC0503 The correct preparation, measuring and mixing is explained in terms of volumes and mixing sequence
- IAC0504 Health, safety and environmental considerations related to adhesives are argued
- IAC0505 Hazards associated with adhesives are identified and mechanisms to reduce hazards and risks are listed
- IAC0506 The importance of temperature, pressure and curing time in achieving good bonding is justified

(Weight 8%)

6.2.6. KM-06-KT06: Curved lamination components, products and manufacturing techniques and processes (5%)

Topic elements to be covered include:

- KT0601 Types of laminated products and their respective uses
- KT0602 The aesthetic value of laminated products
- KT0603 The lamination process
- KT0604 Formers: single, two-part (male & female), dowel; solid or ribbed
- KT0605 Types of clamps (G-clamps, F-clamps and wheel clamp) and various uses
- KT0606 Clamping procedures
- KT0607 Types of adhesive suitable for lamination
- KT0608 Adhesive requirements (pot life; shelf life; open time)
- KT0609 Drying and curing of adhesive
- KT0610 Faults, defects and the effect on quality

Internal Assessment Criteria and Weight

- IAC0601 A sound understanding of clamping techniques, load distribution and control of pressure when clamping is demonstrated
- IAC0602 Range of timber and board products available, and their suitability for laminating is reasoned
- IAC0603 The importance of correct material surface preparation during lamination is reasoned
- IAC0604 Types of adhesives, their uses and techniques of application, including pot life; shelf life; open time; curing time; clamping time is explained
- IAC0605 A sound understanding of wood and grain technology, including the impact of different drying techniques on the qualities of wood is demonstrated
- IAC0606 Faults and defects are identified and possible causes and prevention is reasoned

(Weight 5%)

6.2.7. KM-06-KT07: Materials used in making cabinets and other furniture (5%)

Topic elements to be covered include:

- KT0701 Material types and their uses (solid wood, glass, metal, plastic, board, etc.)
- KT0702 Characteristics and functions of wood, board and other materials such as glass, metal, plastic
- KT0703 Working with and combinations of different materials (glass, metal, plastic)
- KT0704 Types and sizes: accessories, finishings and fittings
- KT0705 Types, sizes and uses of consumables such as clips, nails, staples

Internal Assessment Criteria and Weight

- IAC0701 Various types of materials are contrasted with reference to functions, characteristics, aesthetic value, and uses
- IAC0702 Various types of consumables are contrasted with reference to functions, characteristics, aesthetic value, and uses
- IAC0703 Various types of accessories, finishings and fittings are contrasted with reference to functions, characteristics, aesthetic value, and uses

(Weight 5%)

6.2.8. KM-06-KT08: Assembly and installation of crafted furniture (including cabinets) (5%)

Topic elements to be covered include:

- KT0801 Material type and suitability
- KT0802 Wood defects and seasoning procedures
- KT0803 Standards, tolerances and allowances
- KT0804 Crafted furniture construction methods
- KT0805 Different joints, their uses and their strength in different materials
- KT0806 Type of accessories (hinges, runners, corner bocks)
- KT0807 Techniques for fitting doors and drawers
- KT0808 Matching up grain of the wood
- KT0809 Fitting other accessories (glass, metal, etc.)
- KT0810 Check square-ness of the cabinet

Internal Assessment Criteria and Weight

- IAC0801 Correct accessories are selected and installed
- IAC0802 Glass and metal are fitted where necessary
- IAC0803 Cabinet is square and not wobbling
- IAC0804 Correct accessories are selected and installed
- IAC0805 Drawers and doors are fitted properly

- IAC0806 Glass and metal are fitted where necessary
- IAC0807 Standard size of the cabinet according to specification
- IAC0808 Cabinet dimensions are within the allowable tolerance

(Weight 5%)

6.2.9. KM-06-KT09: Manufacturing and installation of modern carcasses, doors and drawers (5%)

Topic elements to be covered include:

- KT0901 Material type and suitability
- KT0902 Wood defects and seasoning procedures
- KT0903 Standards, tolerances and allowances
- KT0904 Modern carcass construction methods
- KT0905 Different joints, their uses and their strength in different materials
- KT0906 Type of accessories (hinges, runners, corner bocks)
- KT0907 Techniques for fitting doors and drawers
- KT0908 Matching up grain of the wood
- KT0909 Fitting other accessories (glass, metal, etc.)
- KT0910 Check square-ness of the carcass

Internal Assessment Criteria and Weight

- IAC0901 Correct accessories are selected and installed
- IAC0902 Glass and metal are fitted where necessary
- IAC0903 Cabinet is square and not wobbling
- IAC0904 Correct accessories are selected and installed
- IAC0905 Drawers and doors are fitted properly
- IAC0906 Glass and metal are fitted where necessary
- IAC0907 Standard size of the cabinet according to specification
- IAC0908 Cabinet dimensions are within the allowable tolerance

(Weight 5%)

6.2.10. KM-06-KT10: Equipment and tools used in the assembling of crafted furniture (10%)

Topic elements to be covered include:

- KT1001 Types and uses of hand tools
- KT1002 Types and uses of power tools
- KT1003 Types and uses of pneumatic tools
- KT1004 How to use the tools correctly and safely

- KT1005 Settings including pressure settings
- KT1006 Maintenance of different tools (sharpening, lubrication, tension, pressure, etc.)
- KT1007 Correct grease is used on the tools
- KT1008 Correct size staples and nails are used on the machine
- KT1009 Storage of tools
- KT1010 Reading labels and MSDS
- KT1011 Manufacturer specifications and instruction
- KT1012 Lockout devices and safety guards

Internal Assessment Criteria and Weight

- IAC1001 Tools are sharpening and stored correctly
- IAC1002 Tools are used according to manufacture instruction
- IAC1003 Caution is exercised while moving and working with tools
- IAC1004 Correct pressure is set on the machine
- IAC1005 Safety pins on the tools are not broken
- IAC1006 Labels on the blade are observed to correspond with the machine specifications

(Weight 10%)

6.2.11. KM-06-KT11: Health and safety in the furniture assembly department (10%)

Topic elements to be covered include:

- KT1101 BCOE Act
- KT1102 OHS Act
- KT1103 General hazards in the workshop
- KT1104 Fire extinguishers and uses
- KT1105 Evacuation plans and signage in the workshop
- KT1106 Demarcation lines
- KT1107 Safe working procedures in the various machining operations
- KT1108 Machine safety (isolate the machine)
- KT1109 Personal safety (PPC and PPE)
- KT1110 Hazards and incidents
- KT1111 Lock-out devices and procedure

Internal Assessment Criteria and Weight

- IAC1101 Routines are carried out safely and in accordance with work requirements
- IAC1102 Any faults identified with equipment are reported to the relevant person.
- IAC1103 Work area is kept free from hazards

- IAC1104 Fire extinguishers are identified and are easily accessible; labels on the fire extinguishers are clear and not tampered with.
- IAC1105 Evacuation plan is studied and understood
- IAC1106 Demarcation lines are adhered to, stacking is done is appropriate places.
- IAC1107 All machines are fitted with safety devices, all foreign objects on the machines are removed.
- IAC1108 Isolator and emergency buttons are tested to be in a good working condition.
- IAC1109 Lock-out devices are available for all the machines
- IAC1110 Relevant Personal Protective equipment is used in the workshop
- IAC1111 Incident and injuries are reported to the relevant personnel

(Weight 10%)

6.2.12. KM-06-KT12: Concepts and principles of measuring and calculations used in the furniture manufacturing processes (5%)

Topic elements to be covered include:

- KT1201 Taking accurate measures
- KT1202 Units of measurement
- KT1203 Conversions
- KT1204 Formulae and calculations
- KT1205 Angles and curves
- KT1206 Standard sizes
- KT1207 Allowances and tolerances
- KT1208 Measuring instruments: Tape measure, Vernier, callipers, square
- KT1209 Calibrations
- KT1210 Accuracy and faults

Internal Assessment Criteria and Weight

- IAC1201 The application of various formulae in furniture making is explained
- IAC1202 The importance of accuracy on the quality of the work piece is justified
- IAC1203 The effect of inaccuracy and faults are explained
- IAC1204 Measuring equipment are identified and selected for the job
- IAC1205 Correct measuring units are used
- IAC1206 Measuring equipment are used accordingly to get correct sizes
- IAC1207 The importance of the good quality of measuring tapes, Vernier callipers etc. is justified

(Weight 5%)

6.2.13. KM-06-KT13: Engineering drawings (10%)

Topic elements to be covered include:

- KT1301 Read and interpret furniture specifications
- KT1302 Sketches and engineering drawings
- KT1303 Layout of drawings
- KT1304 Legends and symbols
- KT1305 Dimensions and labelling
- KT1306 Isometric views
- KT1307 Line types
- KT1308 Hidden details
- KT1309 Solid lines
- KT1310 Projections
- KT1311 To scale drawing
- KT1312 Cutting lists

Internal Assessment Criteria and Weight

- IAC1301 Engineering drawings correctly interpreted, taking into account line structures and dimensions.
- IAC1302 All drawing projections are observed
- IAC1303 Scale of drawing is according to specification
- IAC1304 Hidden details are understood and information is applied to the work pieces
- IAC1305 Drawing labels are understood and according to specification, showing all details, chamfers, diameters, radiuses and depths

(Weight 10%)

6.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 4 qualified in furniture technology

Legal Requirements:

- OHS compliant

6.4 Exemptions

Learners who have achieved the following modules may be exempted from this modules:

- 682201003-00-KM-04, Crafted furniture assembling department and operations, NQF Level 3, Credits 16

7. 682201001-00-KM-07, Furniture Prototypes, Repaired furniture and Completed Crafted furniture, NQF Level 4, Credits 48

7.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and processes involved in the manufacturing of furniture prototypes, crafted furniture, bespoke furniture and the repairing of furniture and reengineering of furniture for bulk production optimization.

The learning will enable learners to demonstrate an understanding of:

- KM-07-KT01: Furniture (Not only solid wood) (5%)
- KM-07-KT02: Manufacturing of furniture (10%)
- KM-07-KT03: Prototype production (5%)
- KM-07-KT04: Scientific laws and calculations related to furniture manufacturing (5%)
- KM-07-KT05: Productivity and work study (5%)
- KM-07-KT06: Technologies used in manufacturing of cabinet and crafted furniture prototypes (5%)
- KM-07-KT07: Raw materials, consumables and fittings used in manufacturing of cabinet and crafted furniture prototypes (5%)
- KM-07-KT08: Hand and power tools and machines used in manufacturing of cabinet and crafted furniture prototypes (5%)
- KM-07-KT09: Chemicals used in manufacturing of cabinet and crafted furniture and prototypes (5%)
- KM-07-KT10: Construction of crafted furniture and prototypes (5%)
- KM-07-KT11: Quality in manufacturing of cabinet and crafted furniture and prototypes (5%)
- KM-07-KT12: Re-engineering of cabinet and crafted furniture (5%)
- KM-07-KT13: Construction of cabinet and crafted furniture (10%)
- KM-07-KT14: Special techniques applied in the production of cabinet and crafted furniture (15%)
- KM-07-KT15: Interaction and communication in the workplace (5%)
- KM-07-KT16: Safety, health, environment and risk (5%)

7.2 Guidelines for Topics

7.2.1. KM-07-KT01: Furniture (Not only solid wood) (5%)

Topic elements to be covered include:

- KT0101 Types and styles
- KT0102 Origin and history
- KT0103 Categories and uses
- KT0104 Crafted furniture
- KT0105 Prototypes

Internal Assessment Criteria and Weight

- IAC0101 The development, use and aesthetic appeal of furniture products is discussed

(Weight 5%)

7.2.2. KM-07-KT02: Manufacturing of furniture (10%)

Topic elements to be covered include:

- KT0201 Furniture manufacturing process flow
- KT0202 Value chain
- KT0203 Process flow chart
- KT0204 Standard method of manufacturing and operations
- KT0205 General principles (i.e. viability)
- KT0206 Manufacturing processes
- KT0207 Steps and sequencing of operations in the manufacturing process
- KT0208 Constraints of manufacturing capability
- KT0209 Lead times
- KT0210 Bottlenecks and delays

Internal Assessment Criteria and Weight

- IAC0201 General principles of good manufacturing are discussed
- IAC0202 Manufacturing processes and process flow is analysed
- IAC0203 The importance of correct sequencing of operations is justified
- IAC0204 Factors influencing the manufacturing capability of companies positively and negatively are evaluated

(Weight 10%)

7.2.3. KM-07-KT03: Prototype production (5%)

Topic elements to be covered include:

- KT0301 Principles of prototype manufacturing
- KT0302 Definitions and terminology
- KT0303 Differentiate between drawing, sketch, sample or work instruction
- KT0304 Product specifications and manufacturing possibility
- KT0305 Processes and techniques
- KT0306 Dry-run / mock-up
- KT0307 Standards set out by prototyping with reference to joints, dimensions, etc.
- KT0308 Documentation and record keeping

Internal Assessment Criteria and Weight

- IAC0301 Principles of prototype manufacturing are listed
- IAC0302 The role and function of prototypes in the manufacturing process is analysed

- IAC0303 The purpose and definition of dry-run / mock-up assembling is justified

(Weight 5%)

7.2.4. KM-07-KT04: Scientific laws and calculations related to furniture manufacturing (5%)

Topic elements to be covered include:

- KT0401 Tension and stresses
- KT0402 Bonding
- KT0403 Temperature
- KT0404 Pressure
- KT0405 Moisture
- KT0406 Environmental variances
- KT0407 Structure and stability
- KT0408 Mathematical ideas and techniques to correctly complete measurements
- KT0409 Accurate calculations

Internal Assessment Criteria and Weight

- IAC0401 Scientific laws pertaining to furniture making are identified and explained and the effect or considerations for furniture making is argued
- IAC0402 The various measurements and measuring techniques used in the furniture manufacturing process are identified and the effect and consideration for furniture making is argued
- IAC0403 The various formulae and calculations pertaining to the furniture manufacturing process are identified and the application thereof is justified

(Weight 5%)

7.2.5. KM-07-KT05: Productivity and work study (5%)

Topic elements to be covered include:

- KT0501 Production and process planning and principles
- KT0502 Time and method study principles
- KT0503 The role of time and method study in productivity
- KT0504 Production capability of the company (when evaluating the prototype for viability and in line setup)
- KT0505 Production line set-up for optimum productivity
- KT0506 Target setting and achievement and techniques for maximizing the manufacturing of furniture
- KT0507 Inputs, outputs, raw materials, waste, quality control
- KT0508 Production cost and cost factors

Internal Assessment Criteria and Weight

- IAC0501 Basic principles of productivity and work study as it applies to the efficient and effective manufacturing of furniture is analysed
- IAC0502 Factors influencing the production and optimum productivity of the company are analysed
- IAC0503 Elements of production cost are identified and the effect on the viability of a product is evaluated

(Weight 5%)

7.2.6. KM-07-KT06: Technologies used in manufacturing of cabinet and crafted furniture prototypes (5%)

Topic elements to be covered include:

- KT0601 Timber technology
- KT0602 Board technology
- KT0603 Cutting technology
- KT0604 Types of coatings
- KT0605 Colour matching principles and methods
- KT0606 Spray effects

Internal Assessment Criteria and Weight

- IAC0601 The various technologies involved in the furniture making processes are analysed in relation to durability, cost effectiveness, production optimization and aesthetic appeal

(Weight 5%)

7.2.7. KM-07-KT07: Raw materials, consumables and fittings used in manufacturing of cabinet and crafted furniture prototypes (5%)

Topic elements to be covered include:

- KT0701 Types
- KT0702 Origin and sources
- KT0703 Characteristics
- KT0704 Properties
- KT0705 Uses
- KT0706 Handle, care and storage requirements
- KT0707 Safety requirements

Internal Assessment Criteria and Weight

- IAC0701 Raw materials, consumables and fittings used in manufacturing of cabinet and crafted furniture prototypes are evaluated in relation to durability, cost effectiveness, production optimization and aesthetic appeal

(Weight 5%)

7.2.8. KM-07-KT08: Hand and power tools and machines used in manufacturing of cabinet and crafted furniture prototypes (5%)

Topic elements to be covered include:

- KT0801 Names and functions of components and parts
- KT0802 Purpose and capabilities
- KT0803 Safe use, handling and storage
- KT0804 Operation
- KT0805 Attachments
- KT0806 Safety requirements
- KT0807 Machine appraisals

Internal Assessment Criteria and Weight

- IAC0801 The purpose and capabilities of hand and power tools and machines used in manufacturing of cabinet and crafted furniture prototypes is evaluated
- IAC0802 The safe operation, handling and storage of hand and power tools and machines used in manufacturing of cabinet and crafted furniture prototypes is justified
- IAC0803 The principles of compliance and non-compliance related to safety, health and environment in the workshop is argued

(Weight 5%)

7.2.9. KM-07-KT09: Chemicals used in manufacturing of cabinet and crafted furniture and prototypes (5%)

Topic elements to be covered include:

- KT0901 Types
- KT0902 Characteristics
- KT0903 Properties
- KT0904 Handle, care and storage requirements
- KT0905 Safety measures, incidents and accidents
- KT0906 Composition, structure, and properties of substances and of the chemical processes and transformations that they undergo
- KT0907 Uses of chemicals and their interactions, danger signs, production techniques, and disposal methods

Internal Assessment Criteria and Weight

- IAC0901 Uses of chemicals and their interactions, danger signs, production techniques, and disposal methods are evaluated in relation to application, health, safety and environment
- IAC0902 Types and characteristics of chemicals used in manufacturing of cabinet and crafted furniture are explained

(Weight 5%)

7.2.10. KM-07-KT10: Construction of crafted furniture and prototypes (5%)

Topic elements to be covered include:

- KT1001 Standard heights, measurements and dimensions
- KT1002 Ergonomics
- KT1003 Component parts according to style
- KT1004 Cutting, jointing, assembling, finishing of crafted furniture and prototypes
- KT1005 Restyling and modifications
- KT1006 Repairing damaged or deteriorated parts

Internal Assessment Criteria and Weight

- IAC1001 The application of furniture construction and standards are explained according to the various styles
- IAC1002 Principles of cutting, jointing, assembling, finishing of crafted furniture and prototypes are explained
- IAC1003 Principles of reparation of furniture is discussed
- IAC1004 Principles of restyling and modification of furniture is discussed

(Weight 5%)

7.2.11. KM-07-KT11: Quality in manufacturing of cabinet and crafted furniture and prototypes (5%)

Topic elements to be covered include:

- KT1101 Standards set out by prototyping with reference to foams, fabrics and frames
- KT1102 Quality and examining
- KT1103 Compliance and enforcing compliance
- KT1104 Inspecting raw materials
- KT1105 Identify and differentiate between manufacturing process shortfalls, design faults, process faults, raw material and machine faults
- KT1106 Identify poor workmanship
- KT1107 Typical faults and causes thereof

Internal Assessment Criteria and Weight

- IAC1101 Factors impacting on the quality of cabinet and crafted furniture are analysed
- IAC1102 Various faults and defects are identified, evaluated and causes are explained
- IAC1103 Principles of compliance with quality are justified

(Weight 5%)

7.2.12. KM-07-KT12: Re-engineering of cabinet and crafted furniture (5%)

Topic elements to be covered include:

- KT1201 Definition
- KT1202 Objectives
- KT1203 Reasons for reengineering
- KT1204 Fault finding techniques
- KT1205 Identify the root cause of the process, design or costing fault
- KT1206 The implications of design change on production and selection of raw materials

Internal Assessment Criteria and Weight

- IAC1201 Re-engineering principles are explained and the application thereof is discussed
- IAC1202 Root cause analysis is defined and the purpose and application thereof is justified

(Weight 5%)

7.2.13. KM-07-KT13: Construction of cabinet and crafted furniture (10%)

Topic elements to be covered include:

- KT1301 Determining product specifications and materials, work methods, and machine setup requirements, according to oral or written instructions, drawings, or work orders
- KT1302 Construction of carcasses: Definitions and terminology Principles of frame making Purpose and standards Materials Joints (purpose and requirements)
- KT1303 Construction of doors and drawers: Definitions and terminology Principles of doors and drawer construction Purpose and standards Materials Measurements Joints Attachments, fittings and accessories Mechanical devices
- KT1304 Construction of seats: Construct and shape/profile a seat using layers of foam Principles of constructing and shaping Foam standards and quality Foam density and purposes (other substrates?)

Internal Assessment Criteria and Weight

- IAC1301 Various constructions of components and cabinet or crafted furniture are identified according to style and type of furniture
- IAC1302 Construction methods of various components and cabinet or crafted furniture are discussed

(Weight 10%)

7.2.14. KM-07-KT14: Special techniques applied in the production of cabinet and crafted furniture (15%)

Topic elements to be covered include:

- KT1401 Veneers: Purpose and uses Principles Materials Accuracy and measuring Techniques: Measure, mark out and apply buttons using a template
- KT1402 Inlays: Purpose and uses Principles Materials Accuracy and measuring Techniques and methods
- KT1403 Lamination: Purpose and uses Principles Materials Accuracy and measuring Techniques and methods

- KT1404 Jigs and templates: Purpose and uses Principles Materials Accuracy and measuring Techniques and methods
- KT1405 Curved and moulded components: Purpose and uses Principles Materials Accuracy and measuring Techniques and methods
- KT1406 Formers and moulds: Purpose and uses Principles Materials Accuracy and measuring Techniques and methods

Internal Assessment Criteria and Weight

- IAC1401 General principles related to the various special techniques are argued
- IAC1402 Various special techniques are assessed for aesthetic appeal, durability and cost effectiveness
- IAC1403 The suitability of various materials used in special techniques are analysed
- IAC1404 Various special techniques applied in the production of cabinet and crafted furniture are discussed
- IAC1405 The importance of accuracy of measuring, calculations and determining allowances as contributing to the quality of the end product, is justified

(Weight 15%)

7.2.15. KM-07-KT15: Interaction and communication in the workplace (5%)

Topic elements to be covered include:

- KT1501 Roles and responsibilities (of the prototype maker, designer, supervisor, production manager, etc.)
- KT1502 Organogram and reporting structures
- KT1503 Communication between departments and teams
- KT1504 Supervision and coaching
- KT1505 Policies, procedures and instructions

Internal Assessment Criteria and Weight

- IAC1501 Workplace human resource structures are identified and described with reference to roles, responsibilities and reporting
- IAC1502 The importance of open and timeous communication flow between various departments in the workplace is evaluated

(Weight 5%)

7.2.16. KM-07-KT16: Safety, health, environment and risk (5%)

Topic elements to be covered include:

- KT1601 Legislation, regulations and standards
- KT1602 Compliance
- KT1603 Safety and health
- KT1604 Environment and waste

- KT1605 Housekeeping
- KT1606 Risks and hazards
- KT1607 Incidents and accidents

Internal Assessment Criteria and Weight

- IAC1601 The application of applicable sections of legislation, regulations and standards are described
- IAC1602 Principles of compliance are described
- IAC1603 The implications of non-compliance are analysed
- IAC1604 The importance of reporting on incidents and accidents are justified
- IAC1605 The importance of risk and hazard identification and mitigation measures are explained

(Weight 5%)

7.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 5 qualified in furniture or wood technology

Legal Requirements:

- OHS compliant

7.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

8. 682201001-00-KM-08, Computer Technology and Operations, NQF Level 2, Credits 4

8.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to provide the learner with an opportunity to acquire general knowledge and understanding of the functioning and purpose of information and computer technology and computer hardware units. The learning of this module will also enable the Learner to acquire an understanding of the principles of electronic communication and the operation and functioning of software packages, including the design of presentations and specialised computerised management information systems

The learning will enable learners to demonstrate an understanding of:

- KM-08-KT01 : Information, communication technology **5%**
- KM-08-KT02 : Computer hardware **10%**
- KM-08-KT03 : Electronic communication **10%**
- KM-08-KT04 : Software packages for office use **8%**
- KM-08-KT05 : Operating a software package **16%**
- KM-08-KT06 : Create text documents using an appropriate software package **16%**
- KM-08-KT07 : Create spreadsheets using an appropriate software package **16%**
- KM-08-KT08 : Presentations **12%**
- KM-08-KT09 : Specialised computerised management production systems **7%**

8.2 Guidelines for Topics

8.2.1. KM-08-KT01 : Information, communication technology 5%

Topic elements to be covered include:

- KT0101 Computer technology
- KT0102 Communication technology
- KT0103 Access to information
- KT0104 Cell phones
- KT0105 Social media

Internal Assessment Criteria and Weight

- IAC0101 Information is accessed using internet browser and search engines
- IAC0102 The use of computer technology as a communication tool is demonstrated

(Weight 5%)

8.2.2. KM-08-KT02 : Computer hardware 10%

Topic elements to be covered include:

- KT0201 Monitor

- KT0202 Keyboard
- KT0203 Mouse
- KT0204 Input and output devices
- KT0205 Memory stick and compact disks

Internal Assessment Criteria and Weight

- IAC0201 Computer hardware is identified and the purpose is stated

(Weight 10%)

8.2.3. KM-08-KT03 : Electronic communication 10%

Topic elements to be covered include:

- KT0301 Internet
- KT0302 Web sites
- KT0303 Internet service providers
- KT0304 Electronic mail
- KT0305 Internet forums and virtual meetings
- KT0306 Digital learning

Internal Assessment Criteria and Weight

- IAC0301 Electronic communication options are identified and the purposes are described and applied

(Weight 10%)

8.2.4. KM-08-KT04 : Software packages for office use 8%

Topic elements to be covered include:

- KT0401 Electronic text documents
- KT0402 Electronic spreadsheets
- KT0403 Internet access
- KT0404 Electronic written communication
- KT0405 Electronic meetings
- KT0406 Electronic seminars

Internal Assessment Criteria and Weight

- IAC0401 Software packages for office use are identified and the purposes are described and applied

(Weight 8%)

8.2.5. KM-08-KT05 : Operating a software package 16%

Topic elements to be covered include:

- KT0501 Create new folders
- KT0502 Move files
- KT0503 Copy files
- KT0504 Open files and folders
- KT0505 Create folders and files
- KT0506 Undo commands
- KT0507 Find files
- KT0508 Recycle bin

Internal Assessment Criteria and Weight

- IAC0501 Ways to systemise and optimise operations on a computer are identified and applied

(Weight 16%)

8.2.6. KM-08-KT06 : Create text documents using an appropriate software package 16%

Topic elements to be covered include:

- KT0601 Select text
- KT0602 Replace text
- KT0603 Insert text
- KT0604 Format text
- KT0605 Find and replace text
- KT0606 Align text
- KT0607 Use tabs
- KT0608 Move, cut and paste text
- KT0609 Format size and appearance of text
- KT0610 Create tables

Internal Assessment Criteria and Weight

- IAC0601 The use of software for creating texts (documents) are described and applied

(Weight 16%)

8.2.7. KM-08-KT07 : Create spreadsheets using an appropriate software package 16%

Topic elements to be covered include:

- KT0701 Create tables
- KT0702 Addition
- KT0703 Sum
- KT0704 Subtraction
- KT0705 Multiplication
- KT0706 Division
- KT0707 Change text colours
- KT0708 Add and delete columns and rows
- KT0709 Clear cells and worksheets
- KT0710 Move data
- KT0711 Copy data
- KT0712 Costing and pricing worksheets

Internal Assessment Criteria and Weight

- IAC0701 The use of software for creating spreadsheets are described and applied

(Weight 16%)

8.2.8. KM-08-KT08 : Presentations 12%

Topic elements to be covered include:

- KT0801 Layout and design
- KT0802 Shapes, smart art and charts
- KT0803 Text and text box
- KT0804 Illustrations and visuals
- KT0805 Smart texts
- KT0806 Transitions
- KT0807 Animation
- KT0808 Slide show

Internal Assessment Criteria and Weight

- IAC0801 The use of software for creating presentations are described and applied

(Weight 12%)

8.2.9. KM-08-KT09 : Specialised computerised management production systems 7%

Topic elements to be covered include:

- KT0901 Capturing production information into a production system

Internal Assessment Criteria and Weight

- IAC0901 Production information is captured onto the system and is accurate

(Weight 7%)

8.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 5 qualified in furniture or wood technology

Legal Requirements:

- OHS compliant

8.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

9. 682201001-00-KM-09, Leadership and Supervision, NQF Level 3, Credits 3

9.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the supervisory principles and the role of the supervisor in the throughput of the furniture production

The learning will enable learners to demonstrate an understanding of:

- KM-09-KT01 : Supervisory principles **20%**
- KM-09-KT02 : Supervision **25%**
- KM-09-KT03 : Training and coaching **15%**
- KM-09-KT04 : Interpersonal relations **20%**
- KM-09-KT05 : Labour relations **15%**
- KM-09-KT06 : Productivity, motivation and performance **5%**

9.2 Guidelines for Topics

9.2.1. KM-09-KT01 : Supervisory principles 20%

Topic elements to be covered include:

- KT0101 Planning, leading, organising and control
- KT0102 Leadership
- KT0103 Team work and group dynamics
- KT0104 Monitoring and assessing of work of workers and slaughterers

Internal Assessment Criteria and Weight

- IAC0101 The concepts and principles of planning, leading, organising and control are described
- IAC0102 Planning, leading, organising and control practices are described
- IAC0103 The importance of planning, leading, organizing and control is discussed
- IAC0104 Leadership is defined to illustrate its importance in the industry
- IAC0105 The characteristics of a leader are listed and discussed to highlight the qualities and behaviours that make good leaders but also qualities and behaviours that good leaders will actively avoid
- IAC0106 The principles of leadership are given and reviewed
- IAC0107 The best practices of leadership are stated and their relevance to the industry is explained
- IAC0108 The composition of a team is outlined with special attention given to the team composition in a furniture production unit
- IAC0109 Characteristics of a well-functioning team are listed
- IAC0110 Job maturity of individuals in a team is reviewed to assess the effect on team functionality
- IAC0111 The role of a team is explained
- IAC0112 The dynamics of a well-functioning team are explored
- IAC0113 The influence of different team members is discussed with regards to its effect on team

performance

- IAC0114 Methods that encourage team cohesion are depicted
- IAC0115 External factors which impact teamwork are identified
- IAC0116 Internal factors which impact teamwork are given

(Weight 20%)

9.2.2. KM-09-KT02 : Supervision 25%

Topic elements to be covered include:

- KT0201 Supervisory styles
- KT0202 Role of the supervisor
- KT0203 Ethics
- KT0204 Acknowledging when to call for second opinion

Internal Assessment Criteria and Weight

- IAC0201 Different supervisory styles are listed and their impact on team dynamics are explained
- IAC0202 Different supervisory styles are compared and contrasted with respect to their impact on individual team members
- IAC0203 The position of the supervisor in the structure of the organisation is described in terms of roles and duties
- IAC0204 The importance of role clarification, accountability and responsibility is explained to show how it will affect the position and efficacy of the supervisor
- IAC0205 Supervisory techniques and methods are described and contrasted to highlight the advantages and disadvantages of each
- IAC0206 The principles of delegation and authority are defined and their roles in supervision are outlined
- IAC0207 The importance of correctly formulating instructions is reviewed in terms of the impact thereof on team members
- IAC0208 The cultural and social pressures on supervisors are identified to show the influence thereof on supervisors
- IAC0209 The role of the code of conduct in the organisation is assessed
- IAC0210 The importance of being honest and truthful even if it leads to some ramifications is motivated
- IAC0211 The cost of dishonesty to company is explained
- IAC0212 The concepts of nepotism, bribery, theft, corruption, favouritism, dishonesty, intimidation, instigation, breaking confidentiality, rumour mongering and witch craft and their effects on team members and the organisation are discussed

(Weight 25%)

9.2.3. KM-09-KT03 : Training and coaching 15%

Topic elements to be covered include:

- KT0301 Importance of skilled workers in terms of the job requirements
- KT0302 Training and coaching methods and techniques
- KT0303 The purpose of skills needs analysis to determine a coaching or training programme for the individual
- KT0304 The repetitive nature of coaching and training
- KT0305 Role of the supervisor in relation to training and coaching

Internal Assessment Criteria and Weight

- IAC0301 The concept of training and coaching is explained
- IAC0302 The role and responsibilities of the supervisor are identified and explained
- IAC0303 Different methods and techniques are explained

(Weight 15%)

9.2.4. KM-09-KT04 : Interpersonal relations 20%

Topic elements to be covered include:

- KT0401 Cultural diversity and social pressures
- KT0402 Types of attitudes and the effect thereof on the team cohesion and achievement
- KT0403 The influence of work ethos on team performance and methods to enhance it
- KT0404 The influence of role clarification on team performance and methods to enhance it
- KT0405 The characteristics of the professional interpersonal relationship with the team workers and the effects on the workers' motivation
- KT0406 Gauging own performance within the scope of the performance of the team

Internal Assessment Criteria and Weight

- IAC0401 Different types of interpersonal relations are identified and explained
- IAC0402 The importance of the team performance and methods are defined
- IAC0403 The role of cultural diversity is discussed

(Weight 20%)

9.2.5. KM-09-KT05 : Labour relations 15%

Topic elements to be covered include:

- KT0501 Basic understanding of legislation (BCEA, OHS) and compliance criteria
- KT0502 Conflict handling methods
- KT0503 Disciplinary procedures
- KT0504 Concept of discipline
- KT0505 The role of discipline and disciplinary measures

- KT0506 Role of labour relations and legislation in the organisation

Internal Assessment Criteria and Weight

- IAC0501 The influence of representation in the organisation on team performance, as well as methods to enhance it, are described
- IAC0502 The influence of safety, health, environment and quality on team performance and methods to enhance it, are described
- IAC0503 Principles of Labour relations, with examples, are described
- IAC0504 Grievance procedures are evaluated

(Weight 15%)

9.2.6. KM-09-KT06 : Productivity, motivation and performance 5%

Topic elements to be covered include:

- KT0601 The importance of productivity to keep sustainable organisation
- KT0602 The importance of motivation
- KT0603 The importance of performance and quality output to grow client base

Internal Assessment Criteria and Weight

- IAC0601 Principles of productivity are discussed
- IAC0602 The aspects of productivity (time, people, money, resources, quality) and how it relates to each other, are described
- IAC0603 The importance of standards and target setting for the organisation and the purpose of daily targets, standards and quality are discussed
- IAC0604 Performance is defined
- IAC0605 The implication of not applying a performance measurement system is explained
- IAC0606 The importance of performance standards and measurement is explained
- IAC0607 Ways and means to encourage and support performance are indicated
- IAC0608 Principles of motivation are discussed

(Weight 5%)

9.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules.

Human Resource Requirements:

- Lecturer/learner ratio of 1:20.
- Qualifications of lecturers: 5 years relevant experience or NQF 5 qualified in furniture or wood technology

Legal Requirements:

- OHS compliant

9.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

10. 682201001-00-KM-10, Conceptualising and Developing a Business Venture and Product, NQF Level 4, Credits 6

10.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and processes involved in the conceptualisation and development of a furniture business venture concept and product.

The learning will enable learners to demonstrate an understanding of:

- KM-10-KT01 : The Entrepreneur: Characteristics **10%**
- KM-10-KT02 : Skills **10%**
- KM-10-KT03 : Role and responsibilities **5%**
- KM-10-KT04 : Entrepreneurs of the future **5%**
- KM-10-KT05 : The product or service **10%**
- KM-10-KT06 : Technical requirements **5%**
- KM-10-KT07 : Entity structure and governance **15%**
- KM-10-KT08 : Finances **10%**
- KM-10-KT09 : Business plan **5%**
- KM-10-KT10 : Markets **5%**
- KM-10-KT11 : Market surveys and analysis **10%**
- KM-10-KT12 : Marketing and sales **10%**

10.2 Guidelines for Topics

10.2.1 KM-10-KT01 : The Entrepreneur: Characteristics 10%

.

Topic elements to be covered include:

- KT0101 Visionary and transformational leadership
- KT0102 Persistence and passion
- KT0103 Focus and self-motivation
- KT0104 Creativity and versatility
- KT0105 Taking action and execution
- KT0106 Flexibility and adaptability
- KT0107 Risk tolerance
- KT0108 Decisiveness
- KT0109 Long-term focus, goals and measurable outcomes

Internal Assessment Criteria and Weight

- IAC0101 Each characteristic is discussed in terms of how it will contribute to the success of the

Entrepreneur and the small business

(Weight 10%)

10.2.2 KM-10-KT02 : Skills 10%

.

Topic elements to be covered include:

- KT0201 Creativity and innovation (include design thinking modules)
- KT0202 Communication
- KT0203 Sales
    - Selling the business idea to an investor
    - Selling the product/service to customers and employees
- KT0204 Ability to learn, listen, evaluate the information and implement
- KT0205 Negotiation skills
- KT0206 Networking skills and how does new technologies impact a networking circle
- KT0207 Managerial skills and characteristics
- KT0208 Financial skills and financial discipline
- KT0209 Technical skills
- KT0210 Personal development plan on how to acquire and broaden own skills base

Internal Assessment Criteria and Weight

- IAC0201 Each skill is discussed in terms of its function and how it will contribute to the success of the Entrepreneur and the small business

(Weight 10%)

10.2.3 KM-10-KT03 : Role and responsibilities 5%

.

Topic elements to be covered include:

- KT0301 Concept development
- KT0302 Finding funding and capital
- KT0303 Business development and growth
- KT0304 Managing people
- KT0305 Managing production/service
- KT0306 Managing finances
- KT0307 Business mentoring and coaching

Internal Assessment Criteria and Weight

- IAC0301 Each role and responsibility is discussed in terms of its function and how it will contribute to the success of the Entrepreneur and the small business

(Weight 5%)

10.2.4 KM-10-KT04 : Entrepreneurs of the future 5%

.

Topic elements to be covered include:

- KT0401 Latent entrepreneurship trends
    - Furniture trends and design
    - Increased demand for super-specialised skills
    - Focus on optimisation
    - Partnerships between non-technical and technical persons
    - Using technology
    - Focus on culture conscious

Internal Assessment Criteria and Weight

- IAC0401 Latent entrepreneurship trends are investigated to see what opportunities they present or how it can be incorporated into the product or service and business concept

(Weight 5%)

10.2.5. KM-10-KT05 : The product or service 10%

Topic elements to be covered include:

- KT0501 Disruptive Innovation
- KT0502 Difference between product and service
- KT0503 Ideas and opportunities
- KT0504 Concept
- KT0505 Critical barriers
- KT0506 Intellectual property and patents
- KT0507 Feasibility
- KT0508 Technical skills
- KT0509 Operations
- KT0510 Operations management

Internal Assessment Criteria and Weight

- IAC0501 Define the concept of disruptive innovation and investigate how it can be incorporated into the business and product or service concept
- IAC0502 Key concepts and aspects of the product or service is analysed in terms of how important/critical they are for the success of the business

(Weight 10%)

10.2.6 KM-10-KT06 : Technical requirements 5%

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Topic elements to be covered include:

- KT0601 Identify material and processes
- KT0602 Identify skills
- KT0603 Develop manufacturing methods
- KT0604 Production prototyping and commercial design
- KT0605 Manufacturing equipment
- KT0606 Quality control
- KT0607 Constructing full production
- KT0608 Maximising production

Internal Assessment Criteria and Weight

- IAC0601 Technical requirements are analysed to determine sustainability of the business

(Weight 5%)

10.2.7. KM-10-KT07 : Entity structure and governance 15%

Topic elements to be covered include:

- KT0701 Types of entity structures
- KT0702 Statutory duties of the Entrepreneur
- KT0703 Decide on and reserving a name
- KT0704 Legal structure and licenses
- KT0705 Partners
- KT0706 Banking set up
- KT0707 Bookkeeping or accounting
- KT0708 Contracts, price and time negotiation and service delivery
- KT0709 Tender processes
- KT0710 Work ethics and values

- KT0711 Productivity, efficiency and time management
- KT0712 Location

Internal Assessment Criteria and Weight

- IAC0701 Types of entity structures are listed and considered in terms of how applicable they are to the business concept
- IAC0702 Governance aspects related to the business are identified and compliance is discussed
- IAC0703 Types of partners who can make a difference to the business venture are identified
- IAC0704 The importance of banking and accounting/bookkeeping matters is reasoned

(Weight 15%)

10.2.8. KM-10-KT08 : Finances 10%

Topic elements to be covered include:

- KT0801 Financing and Capital
    - Type of financing
    - Sources of financing
    - Support
    - Scaling and investor relations
    - Utilising funding
- KT0802 Budget
- KT0803 Balance sheet
- KT0804 Income and Expenditure
- KT0805 Cost and pricing
- KT0806 Production costing
- KT0807 Profit, profit potential and sharing
- KT0808 Financial management
- KT0809 Taxation

Internal Assessment Criteria and Weight

- IAC0801 The financing and capital aspect of the business is investigated
- IAC0802 Key concepts of a budget are understood
- IAC0803 Key concepts of the balance sheet are understood
- IAC0804 Key concepts of income and expenditure and how it is presented are understood
- IAC0805 Key concepts of costing and pricing are understood

- IAC0806 Key concepts of profit, profit potential and sharing are understood
- IAC0807 Key concepts of financial management are understood
- IAC0808 Key concepts of taxation are understood

(Weight 10%)

10.2.9 KM-10-KT09 : Business plan 5%

.

Topic elements to be covered include:

- KT0901 Strategic thinking principles
- KT0902 Visions that work
    - Structure
    - Wording
    - Promotion of own vision
- KT0903 Structure and format
- KT0904 Content and language
- KT0905 SWOT analysis
- KT0906 Advisory team (e.g. banker, mentor, incubator)

Internal Assessment Criteria and Weight

- IAC0901 Key concepts of a business plan are understood
- IAC0902 The principles of the SWOT analysis technique are understood
- IAC0903 The importance of an advisory team and how it is established is reasoned
- IAC0904 The importance of selecting the correct content for the business plan and the presentation thereof is explained

(Weight 5%)

10.2.10 KM-10-KT10 : Markets 5%

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Topic elements to be covered include:

- KT1001 Managing continuous change in dynamic markets
    - Markets evolve constantly – the new normal
    - Forms of change: e.g. smart automation, rapidly advancing technology or new players in the marketplace that have a more aggressive approach and the ability to quickly win clients over

- Wherein customers' preferences and behaviour are continuously changing
- Company’s ability to adapt to change
- Change management strategies
- User/customer buy-in

Internal Assessment Criteria and Weight

- IAC1001 The phenomenon of dynamic markets and how it manifest is investigated
- IAC1002 Strategies to survive in dynamic markets are investigated
- IAC1008 Opportunities presented by dynamic markets are explored

(Weight 5%)

10.2.11 KM-10-KT11 : Market surveys and analysis 10%

.

Topic elements to be covered include:

- KT1101 Surveys
- KT1102 Product/service
- KT1103 Price
- KT1104 Place
- KT1105 Market barriers and risks
- KT1106 Market need/segment/size
- KT1107 Trends and competition
- KT1108 Setting yourself apart from the competition
- KT1109 Customer prospect, target and profile
- KT1110 Distribution channels

Internal Assessment Criteria and Weight

- IAC1101 The objectives of market surveys are defined
- IAC1102 Key concepts of product/service in terms of the market are understood
- IAC1103 Key concepts of pricing in terms of the market are understood
- IAC1104 Key concepts of place in terms of the market are understood
- IAC1105 Key concepts of market barriers and risks are understood
- IAC1106 Key concepts of market need/segment/size are understood
- IAC1107 Key concepts of trends and competition in terms of the market are understood

- IAC1108 Key strategies to set you apart from the competition are explored
- IAC1109 Key concepts of customer prospect, target and profile in terms of the market are understood
- IAC1110 Key concepts of distribution channels in terms of the market are understood

(Weight 10%)

10.2.12. KM-10-KT12 : Marketing and sales 10%

Topic elements to be covered include:

- KT1201 Difference between marketing and sales
- KT1202 Create client relationships
- KT1203 Create a website
- KT1204 Social media
- KT1205 Networking groups
- KT1206 Marketing materials
- KT1207 Business launch
- KT1208 Trends
- KT1209 Fake news and how it will impact on marketing
- KT1210 Accepting and acting on customer feedback
- KT1211 Branding and promotion
- KT1212 Process

Internal Assessment Criteria and Weight

- IAC1201 Key marketing and sales concepts are described in terms of definition, aim, application and importance to venture start-up

(Weight 10%)

10.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules as well as the applied knowledge in the practical skills.
- QCTO/ SETA requirements

Human Resource Requirements:

- Lecturer/learner ratio of 1:20 (Maximum)

- Qualification of lecturer (SME):
    - NQF 5 qualified in a qualification related to entrepreneurship with 3 years' business experience in the IT industry
- Assessors and moderators: accredited by the SETA

Legal Requirements:

- Legal (product) licences to use the software for learning and training
- OHS compliance certificate
- Ethical clearance (where necessary)

10.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

11. 682201001-00-KM-11, Business Management and Growth, NQF Level 4, Credits 6

11.1 Purpose of the Knowledge Modules

The main focus of the learning in this knowledge module is to build an understanding of the principles and processes involved in business management and business growth.

The learning will enable learners to demonstrate an understanding of:

- KM-11-KT01 : Operations or process management **30%**
- KM-11-KT02 : Human resources and recruitment **20%**
- KM-11-KT03 : Administration and record keeping **20%**
- KM-11-KT04 : Run and grow the business **30%**

11.2 Guidelines for Topics

11.2.1. KM-11-KT01 : Operations or process management 30%

Topic elements to be covered include:

- KT0101 Mock-up/prototype and/or service model
- KT0102 Quality of the product, service and business or production processes
- KT0103 Quantity of product and services to be profitable, and to invest in the future of the business
- KT0104 Preliminary productivity, efficiency and time management requirements
- KT0105 Supply and demand and methods to determine it
- KT0106 Production processes, scheduling and rosters
- KT0107 Infrastructure
- KT0108 Technology
    - Setting up technology (Point of sales [POS], billing and payment systems, accounting, email, phone systems, customer relationship management system)
    - Production equipment and facilities (raw materials, machines, equipment) in the case of product

Internal Assessment Criteria and Weight

- IAC0101 The function of mock-up/prototype and/or service model is understood
- IAC0102 The importance of the aspects listed below in terms of business infrastructure is described:
    - Basic principles of ergonomics
    - Basic principles of maximization of space
    - Lighting
    - Ventilation
    - Restrictions
    - OHS compliance

- Security

- IAC0103 The importance of suitable technology related to either product or service is justified
- IAC0104 Methods to ensure that supply and demand is in equilibrium are stated
- IAC0105 The importance of meeting quality, quantity and productivity requirements is justified

(Weight 30%)

11.2.2. KM-11-KT02 : Human resources and recruitment 20%

Topic elements to be covered include:

- KT0201 Community employment strategies
- KT0202 Job descriptions
- KT0203 Advertise positions
  - Interviewing and selecting candidates
  - Contracts, BCOE, Labour relations
- KT0204 Training employees
- KT0205 Team building
- KT0206 Staff retention

Internal Assessment Criteria and Weight

- IAC0201 Principles of human resources management and recruitment, including selection strategies are understood
- IAC0202 Governance aspects (contracts, BCOE and LR) are understood
- IAC0203 Principles of staff retention, team building and skills development are reasoned

(Weight 20%)

11.2.3 KM-11-KT03 : Administration and record keeping 20%

.

Topic elements to be covered include:

- KT0301 Legal compliance
- KT0302 Processing paperwork
- KT0303 Filing
- KT0304 Storage systems (filing)
- KT0305 Planning the office
- KT0306 Business communication and documents
- KT0307 Business writing skills
- KT0308 Telephone etiquette

Internal Assessment Criteria and Weight

- IAC0301 The function and purpose of administration and record keeping in the well-being of the business and legal compliance are described
- IAC0302 Various administration functions
- IAC0303 The importance of professional business communication and etiquette is explained

(Weight 20%)

11.2.4 KM-11-KT04 : Run and grow the business 30%

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Topic elements to be covered include:

- KT0401 Innovation and optimisation
- KT0402 Productivity and continuous improvement
- KT0403 Procurement models and payments
- KT0404 Inventory control
- KT0405 Selling and sales
- KT0406 Document branding
- KT0407 Manage cash flow
- KT0408 Offering more products/services
- KT0409 Merges, acquisitions and exits
- KT0410 Security and losses

Internal Assessment Criteria and Weight

- IAC0401 The role of innovation and optimisation in terms of staying abreast of competition is explained
- IAC0402 The impact of productivity and continuous improvement on bottom-line and customer satisfaction is evaluated
- IAC0403 Procurement models and payment strategies are identified and evaluated
- IAC0404 Inventory control and strategies are identified and explained
- IAC0405 Strategies for managing cash flow are evaluated
- IAC0406 Strategies to manage security and losses are evaluated

(Weight 30%)

11.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have lesson plans and structured learning material or provide learners with access to structured learning material that addresses all the topics in all the knowledge modules as well as the applied knowledge in the practical skills.
- QCTO/ SETA requirements

Human Resource Requirements:

- Lecturer/learner ratio of 1:20 (Maximum)
- Qualification of lecturer (SME):
    - NQF 5 qualified in a qualification related to entrepreneurship with 3 years' business experience in the IT industry
- Assessors and moderators: accredited by the SETA

Legal Requirements:

- Legal (product) licences to use the software for learning and training
- OHS compliance certificate
- Ethical clearance (where necessary)

11.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

SECTION 3B: PRACTICAL SKILL MODULE SPECIFICATIONS

List of Practical Skill Module Specifications

- 682201001-00-PM-01, Operate a Range of Machines in the Wood Machine Shop to Cut Components for Furniture Manufacturing, NQF Level 2, Credits 20
- 682201001-00-PM-02, Join and Assemble cut Components in Furniture Manufacturing, NQF Level 2, Credits 10
- 682201001-00-PM-03, Operate a Range of Furniture Finishing Equipment to Mix and Apply Furniture Finishing Materials to Finish Assembled Furniture Products or Components, NQF Level 3, Credits 15
- 682201001-00-PM-04, Operate Advanced Woodwork Machines in a Machining Department to Produce Bored, Edged, Profiled, Turned and Jointed timber, board or components, NQF Level 4, Credits 28
- 682201001-00-PM-05, Prepare, Join and Assemble cut components in the Manufacturing Process of Crafted Furniture, NQF Level 4, Credits 24
- 682201001-00-PM-06, Establish Specifications of Articles to be Constructed or Repaired or Plan Methods or Operations for Shaping or Assembling Parts, based on Drawings/Sketches, Diagrams, Oral or Written instructions, NQF Level 4, Credits 40
- 682201001-00-PM-07, Guide Teams in a Fair and Consistent Manner to Achieve Set Targets and Outputs, NQF Level 3, Credits 2
- 682201001-00-PM-08, Conceptualise and Develop the Business Concept, NQF Level 4, Credits 4
- 682201001-00-PM-09, Manage and Grow the Business, NQF Level 4, Credits 4

1. 682201001-00-PM-01, Operate a Range of Machines in the Wood Machine Shop to Cut Components for Furniture Manufacturing, NQF Level 2, Credits 20

1.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to instil the skills to prepare, set and operate a range of basic wood machines, equipment, power tools and hand tools in the furniture machining department to produce cut furniture components to specifications.

The learner will be required to:

- PM-01-PS01: Identify and categorize typical wooden furniture products and accessories
- PM-01-PS02: Identify timber and board used in the manufacturing of wooden furniture
- PM-01-PS03: Identify consumables and accessories used in furniture manufacturing
- PM-01-PS04: Identify a range of machines, machine parts, machine attachments and tools in the furniture machine shop
- PM-01-PS05: Apply safety measures related to the machine operation and work area
- PM-01-PS06: Prepare for machine operations
- PM-01-PS07: Operate various machines in the machining department in laminating, breakout, planing and sanding operations to produce timber components to specifications (cut, drill, shape, edge) in a safe and accurate manner
- PM-01-PS08: Produce profiled, shaped and cut components to specifications from timber or board
- PM-01-PS09: Inspect the physical product, visually and by feel, checking against specification and applying tolerances to ensure quality and accuracy
- PM-01-PS10: Operate pneumatic machines/tools and compressed air according to manufacturer specifications
- PM-01-PS11: Delicately handle, inspect and store raw material (solid wood and boards) ensuring maintained quality
- PM-01-PS12: Perform routine cleaning, quality change cleaning and housekeeping in the machining process
- PM-01-PS13: Conduct maintenance procedures on sawing machines
- PM-01-PS14: Record and report machining production information and prepare machining documentation

1.2 Guidelines for Practical Skills

1.2.1. PM-01-PS01: Identify and categorize typical wooden furniture products and accessories

Scope of Practical Skill

Given a range of samples or photos of different wooden furniture products and accessories, the learner must be able to:

- PA0101 Identify and categorise the product according to types, uses and styles
- PA0102 Identify and categorise the products according to the raw materials used in the manufacturing process
- PA0103 Identify and categorise the accessories according to the uses and furniture design

Applied Knowledge

- AK0101 Furniture types, uses, styles and designs

Internal Assessment Criteria

- IAC0101 Furniture products are accurately identified according to the various categories
- IAC0102 Accessories identified is relevant to the specified use in the furniture manufacturing process

1.2.2. PM-01-PS02: Identify timber and board used in the manufacturing of wooden furniture

Scope of Practical Skill

Given a range of different types of timber and boards (which could be samples or access to a timber store) the learner must be able to:

- PA0201 Identify types of solid wood (soft and hard wood)
- PA0202 Identify types of composite boards (supa wood, chip board, melamine, veneer board, ply board, hard board
- PA0203 Inspect wood and boards for defects and defaults visually
- PA0204 Use a metal detector to inspect reclaimed wood
- PA0205 Use a moisture meter to determine the moisture content of the wood
- PA0206 Identify standard sizes according to the product to be manufactured in order to reduce waste
- PA0207 Handle and store raw material such as lifting or pallet jacks in a safe manner in order to prevent injury to self and damage to the material
- PA0208 Identify and interpret the labelling and coding system used to identify and trace raw material and products

Applied Knowledge

- AK0201 Timber and board characteristics and quality
- AK0202 Stacking requirements and techniques

Internal Assessment Criteria

- IAC0201 Timber and board is correctly identified in terms of type and size and matched to the product specifications
- IAC0202 Raw materials are checked for quality and defects to ensure high quality end products
- IAC0203 Machinery and tools are correctly used to check, handle and store raw materials

1.2.3. PM-01-PS03: Identify consumables and accessories used in furniture manufacturing

Scope of Practical Skill

Given a range of consumables, chemicals and accessories used in the cabinet making process the learner must be able to:

- PA0301 Identify consumables according to uses
- PA0302 Identify accessories match to specific uses and furniture styles

- PA0303 Inspect consumables and accessories for faults and defects
- PA0304 Handle and store chemicals according to safety requirements and to prolong product lifetime
- PA0305 Identify standard sizes
- PA0306 Handle and store consumables safely and according to requirements

Applied Knowledge

- AK0301 Types of consumables, accessories their use and characteristics

Internal Assessment Criteria

- IAC0301 Different types of consumables and accessories are identified and selected according to the job card specifications
- IAC0302 Consumables are handled and stored according to health and safety specifications
- IAC0303 Accessories are selected according to their design and characteristics.
- IAC0304 Correct tools are used when fitting accessories (hinges, runners, handles).

1.2.4. PM-01-PS04: Identify a range of machines, machine parts, machine attachments and tools in the furniture machine shop

Scope of Practical Skill

Given access to a range of machines used in the machine shop and tools the learner must be able to:

- PA0401 Identify the machines, parts, attachments and tools used in the break-out operation
- PA0402 Identify the machines, parts, attachments and tools used in the planing operation
- PA0403 Identify the machines, parts, attachments and tools used in the sanding operation
- PA0404 Identify the machines, parts, attachments and tools used in the laminating operation
- PA0405 Identify the safety mechanisms applicable to various machines
- PA0406 Identify the control systems for operating the machine
- PA0407 Identify and explain different colour coding used on the machines
- PA0408 Identify the pneumatic machines and the required pressures

Applied Knowledge

- AK0401 Machines in the wood workshop
- AK0402 Meaning of signals, switches, alarms, guides and gauges
- AK0403 Safety when using machines, equipment and tools

Internal Assessment Criteria

- IAC0401 The different machines operating in the machine shop are correctly identified along with their parts and their functions
- IAC0402 All switches, lights and signals on the panel board or control system are correctly identified and interpreted
- IAC0403 The safety mechanisms on the various machines in the machine shop is correctly identified in order to ensure they are functioning properly

1.2.5. PM-01-PS05: Apply safety measures related to the machine operation and work area

Scope of Practical Skill

Given access to a range of machines used in the machine shop and tools the learner must be able to:

- PA0501 Set up the machine to ensure that the work area will be safe and efficient
- PA0502 Use the correct PPC and PPE for the given situation and machine
- PA0503 Identify hazards and risks related to the operation and machine

Applied Knowledge

- AK0501 Understanding of safety notices, colour coding and demarcation lines
- AK0502 Personal protective equipment

Internal Assessment Criteria

- IAC0501 Different notices in the work area are identified and adhered to
- IAC0502 Work is performed within the demarcated area
- IAC0503 Work is performed without creating hazards for self and that of others and safety rules and practices are adhered to at all times

1.2.6. PM-01-PS06: Prepare for machine operations

Scope of Practical Skill

Given a cutting list/job card and sample, timber and access to various machines in the machining department the learner must be able to:

- PA0601 Read and understand the cutting list/job card and sample
- PA0602 Select the correct timber indicated on the cutting list/job card
- PA0603 Select knives, saws, blades, cutter heads, cams, bits, or belts, according to the workpiece, machine functions, or product specifications
- PA0604 Fit the correct tool to the machine or check if the correct tool and/or sanding belts are installed
- PA0605 Set machine speeds (rotation of the blade) according to the type of material
- PA0606 Conduct pre-start-up checks which includes listening to the sound of the machine, adjusting settings if necessary, running a test piece and making sure safety guards are in place
- PA0607 Conduct safety checks
- PA0608 Inspect the machine is operational
- PA0609 Inspect blade and cutting tools for sharpness and correct blade and belts
- PA0610 Replace the blade or belts after specific number of components are completed

Applied Knowledge

- AK0601 Different measuring equipment
- AK0602 Angles and degrees

- AK0603 Basic calculations

Internal Assessment Criteria

- IAC0601 Different measuring equipment are used to measure timber such as measuring tapes and vernier callipers
- IAC0602 The machine is set and ready for operation and all foreign objects are removed from the machine.
- IAC0603 The raw material is inspected for grain direction, type (board or solid) and defects
- IAC0604 Waste control is exercises while cutting material to eliminate fire hazards
- IAC0605 Basic calculations are applied in order to obtain the right number and size of components
- IAC0606 Machine problems are identified and minor problems are resolved while those outside operator control is reported via the correct communication channels

1.2.7. PM-01-PS07: Operate various machines in the machining department in laminating, breakout, planing and sanding operations to produce timber components to specifications (cut, drill, shape, edge) in a safe and accurate manner

Scope of Practical Skill

Given different types of machine in the workshop the learner must be able to:

- PA0701 Start the machine according to starting procedures
- PA0702 Feed workpieces to the machine
- PA0703 Use helping aids such as push sticks or a helping fence where appropriate to ensure personal safety
- PA0704 Adjusting the cutting tools to meet product specification
- PA0705 Observe the direction of the grains of the wood as cutting to ensure sure the pattern of grains is right
- PA0706 Check the concave and convex side of the wood when planing
- PA0707 Choose and use the correct laminating procedure
- PA0708 Perform the break-out operation using a radial arm/cross-cut saw or a rip saw
- PA0709 Use planing machines such as the surface planer or the thickness planer as per product specifications
- PA0710 Conduct sawing operations with a panel saw or a band saw as per product specifications
- PA0711 Perform sanding operations using machinery such as a stroke sander, drum sander and an edge sander
- PA0712 Observe the defects of timber such as knots and remove nails or foreign objects in the case of reclaimed timber
- PA0713 Replenish raw material as needed to ensure optimum production efficiency
- PA0714 Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to settings such as speed and cleaning to prevent scratching
- PA0715 Optimise machine efficiencies and down-time, planned and unplanned interruptions such as breaks, power outages, running out of material, break-downs

- PA0716 Stop the machine at the end of use or in case of an emergency
- PA0717 Dispose/store off-cuts safely
- PA0718 Store and label components according to specifications and size
- PA0719 Check samples at set intervals (spot checks) for correctness and consistency of cut components

Applied Knowledge

- AK0701 Understanding of material and defects
- AK0702 Material handling

Internal Assessment Criteria

- IAC0701 Materials and material defects are identified according to their uses, applications and the tolerance standards to which they are subject in order to identify quality raw materials and reject non-conforming materials
- IAC0702 Cutting lists and routing sheets are interpreted in order to ensure components are correct
- IAC0703 Organisational reporting procedures are followed
- IAC0704 Materials are accurately sorted, handled and stacked safely and securely
- IAC0705 Personal protective equipment are selected and used correctly according to Health and Safety regulations and requirements

1.2.8. PM-01-PS08: Produce profiled, shaped and cut components to specifications from timber or board

Scope of Practical Skill

Given set of drawing, cutting list and the machines the learner must be able to:

- PA0801 Perform simple cuts using small pieces of wood, or straight cuts using the radial arm and rip saw cross cut
- PA0802 Produce complex cuts for curved, irregular shapes and deep cuts, long cuts, angle cuts, multi facet cuts and moulding machines
- PA0803 Operate machines and perform straight cuts, drilling, sanding, dowel drilling, dove tail cutting, Mortise and Tenon
- PA0804 Operate a lathe, multi cutter machines, routers, spindle moulders and sanders
- PA0805 Work with different timber such as boards, ply products, soft woods and hard woods.

Applied Knowledge

- AK0801 Chamfer, rebates, grooves, curves, straight cut, turning techniques

Internal Assessment Criteria

- IAC0801 Different profiles, shapes, rebates and grooves are cut according to specification
- IAC0802 Jigs and templates are used to produce components
- IAC0803 Correct machines are selected for the job and confirmed to be in good condition.
- IAC0804 Correct cutting tools are used to produce shapes and profiles.

1.2.9. PM-01-PS09: Inspect the physical product, visually and by feel, checking against specification and applying tolerances to ensure quality and accuracy

Scope of Practical Skill

Given a range of machined timber and boards with faults and defects and different types of paint the learner must be able to:

- PA0901 Inspect the machined product visually and by feel to ensure compliance with product specifications
- PA0902 Check the machined product against specification while applying tolerances
- PA0903 Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches
- PA0904 Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product
- PA0905 Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction

Applied Knowledge

- AK0901 Different types of faults
- AK0902 Paints and their characteristics

Internal Assessment Criteria

- IAC0901 Faults are rectified or rejects are identified
- IAC0902 Materials are handled and stacked safely and securely
- IAC0903 Finishing materials such as paint are categorised as spirit or oil based

1.2.10. PM-01-PS10: Operate pneumatic machines/tools and compressed air according to manufacturer specifications

Scope of Practical Skill

Given pneumatic machines connected to compressed air the learner must be able to:

- PA1001 Follow safety routines and procedures
- PA1002 Adjust pressure to the required gauge
- PA1003 Identify correct connections (fittings for pipes)
- PA1004 Ensure all settings are correct according to product specifications
- PA1005 Start and stop the machine using standard operating procedures
- PA1006 Run the machine to produce the desired components or effects
- PA1007 Conduct clean-up procedures as required

Applied Knowledge

- AK1001 Different of pressure bar requirement, adjusting pressure gauge.

Internal Assessment Criteria

- IAC1001 The pressure gauge is adjusted to the required pressure
- IAC1002 Water and oil is drained from the system
- IAC1003 Compressed air is used according to standard safety and operating procedures
- IAC1004 Hazards associated with compressed air are identified and rectified

1.2.11. PM-01-PS11: Delicately handle, inspect and store raw material (solid wood and boards) ensuring maintained quality

Scope of Practical Skill

Given range of different types of timber and boards (which could be samples or access to a timber store) the learner must be able to:

- PA1101 Inspect a range of raw materials to identify defects such as cracks, knots, twists, moisture content, insects, wet rot and dry rot, swelling of boards
- PA1102 Handle raw material avoiding damage to edges, chips and using trolleys to cart the raw material to the designated storage areas
- PA1103 Ensure raw material is not stored on the ground to avoid absorption of moisture
- PA1104 Store re-cuts in the designated areas to ensure availability for subsequent use

Applied Knowledge

- AK1101 Lifting and storage

Internal Assessment Criteria

- IAC1101 Faults are rectified or rejects are identified
- IAC1102 Materials are handled and stacked safely and securely
- IAC1103 Personal protective equipment are selected and used correctly according to Health and Safety regulations and requirements

1.2.12. PM-01-PS12: Perform routine cleaning, quality change cleaning and housekeeping in the machining process

Scope of Practical Skill

Given access to a range of machines used in the machine shop and tools the learner must be able to:

- PA1201 Conduct a general cleaning of the work area to ensure safety and efficiency
- PA1202 Clean the machine to remove dust and dirt from the machine
- PA1203 Perform dust extraction procedures using equipment such as cleaning bags and check that the machine is in working condition once the procedures are completed

Applied Knowledge

- AK1201 Reduction of waste, disposal of waste, different types of waste

Internal Assessment Criteria

- IAC1201 Different waste in the workshop is managed and disposed safely and according to company policies and regulation.

- IAC1202 Sawdust is removed regularly to avoid accumulation and the creation of fire hazards
- IAC1203 Waste is minimized during the operations on the machine and offcuts that can be reused are marked and stacked neatly.

1.2.13. PM-01-PS13: Conduct maintenance procedures on sawing machines

Scope of Practical Skill

Given different sawing machines the learner must be able to:

- PA1301 Inspect machine parts for wear and tear and serviceability such as check belts and oil levels
- PA1302 Change cutting tools and nozzles according to the product specifications
- PA1303 Attend to the lubrication of the machine
- PA1304 Drain water or oil manually

Applied Knowledge

- AK1301 Different spanners, blades and machine accessories

Internal Assessment Criteria

- IAC1301 Spanner sizes are identified and used accordingly
- IAC1302 The correct solvents and lubricants are used to clean and lubricate the machine
- IAC1303 Running direction of blades is observed and blades are replaced correctly
- IAC1304 Worn out belts are replaced

1.2.14. PM-01-PS14: Record and report machining production information and prepare machining documentation

Scope of Practical Skill

Given access to production log book, product specification and writing material, the learner must be able to:

- PA1401 Identify the type of information to be recorded in the production document.
- PA1402 Record legibly the hourly production, down time, quality faults, and production history and mother roll specs.
- PA1403 Record any production related problems experienced during the shift.
- PA1404 Hand over to incoming shift following the correct procedure

Applied Knowledge

- AK1401 Record keeping

Internal Assessment Criteria

- IAC1401 The relevant information during the production shift is recorded and reported via the correct reporting channels
- IAC1402 Production problems experienced during shift are recorded correctly, neatly and legibly

1.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 3 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

1.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201002-00-PM-01, Operate a range of machines in the wood machine shop to cut components for furniture manufacturing, NQF Level 2, Credits 20

2. 682201001-00-PM-02, Join and Assemble cut Components in Furniture Manufacturing, NQF Level 2, Credits 10

2.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to prepare, set and operate a range of power tools, equipment, pneumatic tools and hand tools to in the furniture assembly department to produce assembled furniture components to specifications.

The learner will be required to:

- PM-02-PS01: Identify and categorize typical wooden furniture products and accessories
- PM-02-PS02: Identify timber and board used in the manufacturing of wooden furniture
- PM-02-PS03: Identify consumables and accessories used in furniture manufacturing
- PM-02-PS04: Identify tools, attachments and equipment used in furniture assembling
- PM-02-PS05: Select and prepare equipment and tools for furniture assembling operations
- PM-02-PS06: Apply safety measures related to tool or equipment operation and work area
- PM-02-PS07: Select and prepare required quantity and quality of material for furniture assembling operations
- PM-02-PS08: Operate different types of power tools, pneumatic tools and hand tools to perform operations such as drilling, sawing, routing, bevelling, stapling and cutting to assemble furniture components
- PM-02-PS09: Produce a range of joints applicable to furniture assembling according to specification
- PM-02-PS10: Inspect the physical product, visually and by feel, checking against specification and applying tolerances to ensure quality and accuracy
- PM-02-PS11: Use pneumatic tools and compressed air in a safe manner
- PM-02-PS12: Perform routine cleaning, quality change cleaning and housekeeping during furniture assembling operations
- PM-02-PS13: Record and report assembly production information and prepare assembly documentation

2.2 Guidelines for Practical Skills

2.2.1. PM-02-PS01: Identify and categorize typical wooden furniture products and accessories

Scope of Practical Skill

Given a range of samples or photos of different wooden furniture products (styles, types, uses,) and accessories, the learner must be able to:

- PA0101 Identify and categorise the product according to types, uses and styles
- PA0102 Identify and categorise the products according to the raw materials used in the manufacturing process
- PA0103 Identify and categorise the accessories according to the uses and furniture design

Applied Knowledge

- AK0101 Furniture types, uses, styles and designs

Internal Assessment Criteria

- IAC0101 Furniture products are accurately identified according to the various categories

- IAC0102 Accessories identified is relevant to the specified use in the furniture manufacturing process

2.2.2. PM-02-PS02: Identify timber and board used in the manufacturing of wooden furniture

Scope of Practical Skill

Given a range of different types of timber and boards (which could be samples or access to a timber store) the learner must be able to:

- PA0201 Identify types of solid wood (soft and hard wood)
- PA0202 Identify types of composite boards (supa wood, chip board, melamine, veneer board, ply board, hard board
- PA0203 Inspect wood and boards for defects and defaults visually
- PA0204 Use a metal detector to inspect reclaimed wood
- PA0205 Use a moisture meter to determine the moisture content of the wood
- PA0206 Identify standard sizes according to the product to be manufactured in order to reduce waste
- PA0207 Handle and store raw material such as lifting or pallet jacks in a safe manner in order to prevent injury to self and damage to the material
- PA0208 Identify and interpret the labelling and coding system used to identify and trace raw material and products

Applied Knowledge

- AK0201 Timber and board characteristics and quality
- AK0202 Stacking requirements and techniques

Internal Assessment Criteria

- IAC0201 Timber and board is correctly identified in terms of type and size and matched to the product specifications
- IAC0202 Raw materials are checked for quality and defects to ensure high quality end products
- IAC0203 Machinery and tools are correctly used to check, handle and store raw materials

2.2.3. PM-02-PS03: Identify consumables and accessories used in furniture manufacturing

Scope of Practical Skill

Given a range of consumables, chemicals and accessories used in the cabinet making process such as glue, dowels, biscuits, hinges & handles the learner must be able to:

- PA0301 Identify consumables according to uses
- PA0302 Identify accessories according to uses and furniture styles
- PA0303 Inspect consumables and accessories for faults and defects
- PA0304 Handle and store chemicals according to safety requirements and to prolong product lifetime
- PA0305 Identify standards sizes

- PA0306 Handle and store consumables safely and according to requirements

Applied Knowledge

- AK0301 Types of consumables, accessories their use and characteristics

Internal Assessment Criteria

- IAC0301 Different types of consumables and accessories are identified and selected according to the job card specifications
- IAC0302 Consumables are handled and stored according to health and safety specifications
- IAC0303 Accessories are selected according to their design and characteristics.
- IAC0304 Correct tools are used when fitting accessories (hinges, runners, handles).

2.2.4. PM-02-PS04: Identify tools, attachments and equipment used in furniture assembling

Scope of Practical Skill

Given a range of different types of tools such as jig saw, biscuit jointer, drills, nail guns, staple guns, routers the learner must be able to:

- PA0401 Identify different tools, attachments, equipment and their uses
- PA0402 Use tools according to manufacturer instructions
- PA0403 Maintain tools to ensure they are in good working conditions
- PA0404 Change bits and tooling for different tools and machine
- PA0405 Identify and use the correct PPE

Applied Knowledge

- AK0401 Types of tools and their uses
- AK0402 Safety when using tools, attachments and equipment

Internal Assessment Criteria

- IAC0401 Different types of tools are used according specifications and are well maintained to ensure safety, quality of product and length of service
- IAC0402 The different tools, attachments and equipment are correctly identified along with their functions
- IAC0403 The safety mechanisms on the various tools are correctly identified

2.2.5. PM-02-PS05: Select and prepare equipment and tools for furniture assembling operations

Scope of Practical Skill

Given access to a range of equipment and tools used for furniture assembling the learner must be able to:

- PA0501 Obtain the specification sheet/ routing sheet and select tools accordingly
- PA0502 Record all relevant information onto appropriate document.
- PA0503 Set the equipment and tools as per specification sheet
- PA0504 Handle and use equipment and tools safely to produce components to specification

Applied Knowledge

- AK0501 Uses of different tools
- AK0502 Understanding of the specification sheet and routing sheet.

Internal Assessment Criteria

- IAC0501 The different tools operating in the machine shop are correctly identified and selected according to the specification or routing sheet
- IAC0502 The safety mechanisms on the various tools are correctly identified in order to ensure they are functioning properly

2.2.6. PM-02-PS06: Apply safety measures related to tool or equipment operation and work area

Scope of Practical Skill

Given access to a range of equipment and tools and a work area the learner must be able to:

- PA0601 Set up the work area, tools and equipment to ensure that the work area will be safe and efficient
- PA0602 Use the correct PPC and PPE for the given situation and machine
- PA0603 Identify hazards and risks related to the operation and machine

Applied Knowledge

- AK0601 Understanding of safety notices, colour coding and demarcation lines
- AK0602 Personal protective equipment

Internal Assessment Criteria

- IAC0601 Different notices in the work area are identified and adhered to
- IAC0602 Work is performed within the demarcated area
- IAC0603 Work is performed without creating hazards for self and that of others and safety rules and practices are adhered to at all times

2.2.7. PM-02-PS07: Select and prepare required quantity and quality of material for furniture assembling operations

Scope of Practical Skill

Given access to different materials the learner must be able to:

- PA0701 Select material according to cutting list, routine sheet and other relevant source of material
- PA0702 Mark the face side of material according to required use and desired visual effect
- PA0703 Prepare material to finish requirements

Applied Knowledge

- AK0701 Material types, strength and their uses

Internal Assessment Criteria

- IAC0701 Different materials are used to produce joints taking into account the strength of the material meets product specifications

- IAC0702 Grains and other characteristics of materials are observed and correctly integrated into the product specifications

2.2.8. PM-02-PS08: Operate different types of power tools, pneumatic tools and hand tools to perform operations such as drilling, sawing, routing, bevelling, stapling and cutting to assemble furniture components

Scope of Practical Skill

Given a range of different types of tools used in the furniture assembling department and furniture components the learner must be able to:

- PA0801 Set up the tool/ machine correctly
- PA0802 Adjust the cutting tools to meet specifications
- PA0803 Observe the direction of the grains of the wood while drilling or producing a joint to ensure the pattern of the grain is correct
- PA0804 Observe the defects of timber such as knots and remove nails or foreign objects in the case of reclaimed timber
- PA0805 Replenish raw material as needed to ensure optimum production efficiency
- PA0806 Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to settings such as speed and cleaning to prevent scratching
- PA0807 Dispose/store off-cuts safely
- PA0808 Store and label components and assembled furniture according to specifications and size
- PA0809 Check samples at set intervals (spot checks) for correctness and consistency of cut components
- PA0810 Remove cutting tools and drill bits before cleaning the tools
- PA0811 Store tools correctly and safely.

Applied Knowledge

- AK0801 Understanding of material and defects
- AK0802 Material handling

Internal Assessment Criteria

- IAC0801 Materials and material defects are identified according to their uses, applications and the tolerance standards to which they are subject in order to identify quality raw materials and reject non-conforming materials
- IAC0802 Cutting lists and routing sheets are interpreted in order to ensure components are correct
- IAC0803 Organisational reporting procedures are followed
- IAC0804 Materials are accurately sorted, handled and stacked safely and securely
- IAC0805 Personal protective equipment are selected and used correctly according to Health and Safety regulations and requirements

2.2.9. PM-02-PS09: Produce a range of joints applicable to furniture assembling according to specification

Scope of Practical Skill

Given a drawing with different hand joints, tools and equipment and machined components the learner must be able to:

- PA0901 Produce the different joints such as dove tails, housing joints, mortise and tenon, half lap joint, etc. according to specification
- PA0902 Ensure that shoulder to shoulder size is accurate and according to the drawing.
- PA0903 Ensure that the correct tools are used to produce joints
- PA0904 Produce joints and a profile which are free from burn marks and are not chipped.
- PA0905 Check that timber is safely secured while working
- PA0906 Carry out the process safely, accurately and efficiently

Applied Knowledge

- AK0901 Different joints, dove tails, housing joints, mortise and tenon, half lap joint, etc.

Internal Assessment Criteria

- IAC0901 The different kinds of joints are identified and produced to fit well together
- IAC0902 The correct type of joint is selected for particular products based on the strength of the joint and the materials used

2.2.10. PM-02-PS10: Inspect the physical product, visually and by feel, checking against specification and applying tolerances to ensure quality and accuracy

Scope of Practical Skill

Given a range of machined timber and boards with faults and defects and different types of paint the learner must be able to:

- PA1001 Inspect the machined product visually and by feel to ensure compliance with product specifications
- PA1002 Check the machined product against specification while applying tolerances
- PA1003 Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches
- PA1004 Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product
- PA1005 Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction

Applied Knowledge

- AK1001 Different types of faults
- AK1002 Paints and their characteristics

Internal Assessment Criteria

- IAC1001 Component and product faults are correctly identified and corrective action is taken
- IAC1002 Process faults are correctly identified and corrective action is taken

- IAC1003 Machine faults are correctly identified and corrective action is taken
- IAC1004 Materials are handled and stacked safely and securely

2.2.11. PM-02-PS11: Use pneumatic tools and compressed air in a safe manner

Scope of Practical Skill

Given pneumatic tools connected with air line or compressor and consumables the learner must be able to:

- PA1101 Follow safety routines and procedures
- PA1102 Adjust pressure to the required gauge
- PA1103 Identify correct connections (fittings for pipes)
- PA1104 Ensure all settings are correct according to product specifications
- PA1105 Start and stop the tool using standard operating procedures
- PA1106 Use the tool to produce the desired components or effects
- PA1107 Conduct clean-up procedures as required

Applied Knowledge

- AK1101 Different of pressure bar requirement, adjusting pressure gauge.

Internal Assessment Criteria

- IAC1101 The pressure gauge is adjusted to the required pressure
- IAC1102 Water and oil is drained from the system
- IAC1103 Compressed air is used according to standard safety and operating procedures
- IAC1104 Hazards associated with compressed air are identified and rectified

2.2.12. PM-02-PS12: Perform routine cleaning, quality change cleaning and housekeeping during furniture assembling operations

Scope of Practical Skill

Given access to the work area and workbenches the learner must be able to:

- PA1201 Conduct a general cleaning of the work area to ensure safety and efficiency
- PA1202 Clean the tools or equipment to remove dust, dirt and other contaminants
- PA1203 Sharpen or replace blunted edges and perform minor maintenance
- PA1204 Perform dust extraction procedures where necessary
- PA1205 Check that the tools and equipment is in working condition once the procedures are completed

Applied Knowledge

- AK1201 Reduction of waste, disposal of waste, different types of waste

Internal Assessment Criteria

- IAC1201 Different waste in the workshop is managed and disposed safely and according to company policies and regulation.
- IAC1202 Tools and equipment are clean and in good and safe working condition at all times
- IAC1203 Sawdust is removed regularly to avoid accumulation and the creation of fire hazards
- IAC1204 Waste is minimized during the operations and offcuts that can be reused are marked and stacked neatly.

2.2.13. PM-02-PS13: Record and report assembly production information and prepare assembly documentation

Scope of Practical Skill

Given access to production log book, product specification and writing material, the learner must be able to:

- PA1301 Identify the type of information to be recorded in the production document.
- PA1302 Record legibly the hourly production, down time, quality faults, and production history and mother roll specs.
- PA1303 Record any production related problems experienced during the shift.
- PA1304 Hand over to incoming shift following the correct procedure

Applied Knowledge

- AK1301 Record keeping

Internal Assessment Criteria

- IAC1301 The relevant information during the production shift is recorded and reported via the correct reporting channels
- IAC1302 Production problems experienced during shift are recorded correctly, neatly and legibly

2.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 3 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

2.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201003-00-PM-01, Join and assemble cut components in furniture manufacturing, NQF Level 2, Credits 10

3. 682201001-00-PM-03, Operate a Range of Furniture Finishing Equipment to Mix and Apply Furniture Finishing Materials to Finish Assembled Furniture Products or Components, NQF Level 3, Credits 15

3.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to prepare, set and operate a range of spraying equipment, pneumatic tools and hand tools and select and mix chemicals and solvents in the furniture finishing department to produce finished furniture components to specifications.

The learner will be required to:

- PM-03-PS01: Identify and categorize typical wooden furniture products and accessories
- PM-03-PS02: Identify timber and board used in the manufacturing of wooden furniture
- PM-03-PS03: Identify, select and prepare stains, sealers, primers, lacquers, varnishes, tinted lacquers and paint used for furniture finishing according to the required amount
- PM-03-PS04: Identify spraying machines, machine parts, machine attachments and tools
- PM-03-PS05: Apply safety measures related to tools or equipment operation and work area
- PM-03-PS06: Perform routine cleaning, quality change cleaning and housekeeping during furniture finishing processes
- PM-03-PS07: Prepare a workstation for furniture finishing operations
- PM-03-PS08: Prepare furniture products or components for initial/ base coat
- PM-03-PS09: Select and prepare spraying equipment for furniture finishing operations
- PM-03-PS10: Perform spraying application using conventional spray guns or pumps
- PM-03-PS11: Prepare the furniture product for the final coat applying sanding and denibbing procedures
- PM-03-PS12: Adhere to safety and housekeeping rules and within time allocated when performing operations
- PM-03-PS13: Inspect the finished work piece to ensure quality
- PM-03-PS14: Operate pneumatic machines/tools and compressed air according to manufacturer specifications
- PM-03-PS15: Record and report furniture finishing production information and prepare finishing documentation

3.2 Guidelines for Practical Skills

3.2.1. PM-03-PS01: Identify and categorize typical wooden furniture products and accessories

Scope of Practical Skill

Given a range of samples or photos of different wooden furniture products (styles, types, uses,) and accessories, the learner must be able to:

- PA0101 Identify and categorise the product according to types, uses and styles
- PA0102 Identify and categorise the products according to the raw materials used in the manufacturing process
- PA0103 Identify and categorise the accessories according to the uses and furniture style

Applied Knowledge

- AK0101 Furniture types, uses, styles and designs

Internal Assessment Criteria

- IAC0101 Furniture products are accurately identified according to the various categories
- IAC0102 Accessories identified is relevant to the specified use in the furniture manufacturing process

3.2.2. PM-03-PS02: Identify timber and board used in the manufacturing of wooden furniture

Scope of Practical Skill

Given a range of different types of timber and boards (which could be samples or access to a timber store) the learner must be able to:

- PA0201 Identify types of solid wood (soft and hard wood)
- PA0202 Identify types of composite boards (supa wood, chip board, melamine, veneer board, ply board, hard board
- PA0203 Inspect wood and boards for defects and defaults visually
- PA0204 Use a metal detector to inspect reclaimed wood
- PA0205 Use a moisture meter to determine the moisture content of the wood
- PA0206 Identify standard sizes according to the product to be manufactured in order to reduce waste
- PA0207 Handle and store raw material such as lifting or pallet jacks in a safe manner in order to prevent injury to self and damage to the material
- PA0208 Identify and interpret the labeling and coding system used to identify and trace raw material and products

Applied Knowledge

- AK0201 Timber and board characteristics and quality
- AK0202 Stacking requirements and techniques

Internal Assessment Criteria

- IAC0201 Timber and board is correctly identified in terms of type and size and matched to the product specifications
- IAC0202 Raw materials are checked for quality and defects to ensure high quality end products
- IAC0203 Machinery and tools are correctly used to check, handle and store raw materials

3.2.3. PM-03-PS03: Identify, select and prepare stains, sealers, primers, lacquers, varnishes, tinted lacquers and paint used for furniture finishing according to the required amount

Scope of Practical Skill

Given a range of different types of finishing chemicals used for furniture finishing the learner must be able to:

- PA0301 Confirm according to the specification sheet the type of stain/sealer/primer to be used
- PA0302 Read and interpret material safety data sheets (MSDS) of furniture finishing solutions and solvents to determine and apply the correct safety, storage and handling procedures

- PA0303 Read and interpret the required mixing instructions for use in the furniture finishing process
- PA0304 Identify various furniture finishing solutions and solvents according to the furniture finishing mixing instruction and verify furniture components against specification and select the correct thinning agent to prepare the chemical
- PA0305 Identify various mixing and measuring equipment and tools used for the mixing of furniture finishing solutions and solvents
- PA0306 Calculate and measure (weight and volume) quantities of chemicals and solvent for furniture finishing solutions and liquors in solid and liquid form
- PA0307 Prepare the furniture finishing solution by mixing correct quantities of finishing chemicals and solvents according to correct mixing sequence and temperature according to the mixing instruction
- PA0308 Take samples and readings of furniture finishing liquors and solutions during the process to monitor aspects such as viscosity, consistency, temperature and colour
- PA0309 Clean furniture finishing solutions and solvents spillages with consideration to occupational health and safety and environmental impact

Applied Knowledge

- AK0301 Types of finishing material, their uses and characteristics

Internal Assessment Criteria

- IAC0301 Chemical is selected and prepared according specifications using the correct equipment such as a stirring rod for mixing the chemicals
- IAC0302 The quality of the finishing chemicals is ensured by measuring the viscosity with a stop watch and a viscosity cup
- IAC0303 The relevant PPE such as gloves, goggles and respirator masks are used during the mixing of finishing chemicals
- IAC0304 The selection of stains, sealers, lacquers are according to the specification sheet/ job card

3.2.4. PM-03-PS04: Identify spraying machines, machine parts, machine attachments and tools

Scope of Practical Skill

Given access to a range of spraying machines, tools and attachments used in the spraying room the learner must be able to:

- PA0401 Identify the spraying machines, parts, attachments and tools used in the spraying operation
- PA0402 Identify the safety mechanisms applicable to the spraying machines
- PA0403 Identify the control systems for operating the spraying machine
- PA0404 Identify and explain different colour codes used on the machines

Applied Knowledge

- AK0401 Machines in the spraying room
- AK0402 Meaning of signals, switches, alarms, guides and gauges
- AK0403 Safety when using spraying machines, equipment and tools

Internal Assessment Criteria

- IAC0401 The different spraying machines are correctly identified along with their parts and their uses
- IAC0402 All switches, lights and signals on the panel board or control system are correctly identified and interpreted
- IAC0403 The safety mechanisms of the spraying process are correctly identified in order to ensure they are functioning properly

3.2.5. PM-03-PS05: Apply safety measures related to tools or equipment operation and work area

Scope of Practical Skill

Given access to a range of spraying equipment, tools and a spraying room/booth the learner must be able to:

- PA0501 Inspect the spraying machine to ensure it is in working condition and that all safety checks and protective measures are operating correctly
- PA0502 Use the correct PPC and PPE for the given situation and machine
- PA0503 Identify hazards and risks related to the operation and machine

Applied Knowledge

- AK0501 Understanding of safety notices, colour coding and demarcation lines
- AK0502 Personal protective equipment

Internal Assessment Criteria

- IAC0501 Different health and safety notices in the work area are identified and adhered to
- IAC0502 Work is performed within the demarcated area
- IAC0503 Work is performed without creating hazards for self or others and safety rules and practices are adhered to at all times

3.2.6. PM-03-PS06: Perform routine cleaning, quality change cleaning and housekeeping during furniture finishing processes

Scope of Practical Skill

Given access to the spraying room and workbenches and cleaning agents the learner must be able to:

- PA0601 Conduct a general cleaning of the spraying room to ensure safety and efficiency
- PA0602 Clean the spraying machine and equipment to remove dust, dirt and other contaminants
- PA0603 Check the spraying filters and replace when necessary and perform minor maintenance
- PA0604 Ensure the extraction system is working

Applied Knowledge

- AK0601 Reduction of waste, disposal of waste, different types of waste

Internal Assessment Criteria

- IAC0601 Different waste in the workshop is managed and disposed safely and according to company policies and regulations
- IAC0602 Tools and equipment are clean and in good and safe working condition at all times

- IAC0603 Waste is minimized during the operations and materials that can be reused are marked and stored

3.2.7. PM-03-PS07: Prepare a workstation for furniture finishing operations

Scope of Practical Skill

Given a product and workstation/spraying booth the learner must be able to:

- PA0701 Prepare the workbenches and spraying booth
- PA0702 Prepare all the required tools and materials
- PA0703 Make sure the workstation is free from foreign objects.
- PA0704 Check if the spray room/booth is clean and dust free
- PA0705 Check if the spray filters are clean and not clogged
- PA0706 Check if the extraction system is working

Applied Knowledge

- AK0701 Workstation is prepared and made ready for operation

Internal Assessment Criteria

- IAC0701 The workbenches are clean and free from nails and foreign objects and the necessary tools and equipment are prepared
- IAC0702 The spray room/ booth and filters are checked to ensure they are clean and free from dust and foreign objects
- IAC0703 The extraction system is checked and all necessary PPE are used according to safety rules and regulations

3.2.8. PM-03-PS08: Prepare furniture products or components for initial/ base coat

Scope of Practical Skill

Given assembled products or components, finishing equipment and consumables the learner must be able to:

- PA0801 Interpret the production specifications
- PA0802 Identify and rectify faults on the surface of the furniture product
- PA0803 Select and use the correct stopping materials that matches the colour of the wood
- PA0804 Select the correct sanding paper grit and use the sanding block to sand flat surfaces according to the grain of the wood
- PA0805 Remove dust and ensure that the work piece is ready for finishing
- PA0806 Perform masking in relevant areas of the workpiece

Applied Knowledge

- AK0801 Products or component preparation
- AK0802 Sanding technique

Internal Assessment Criteria

- IAC0801 Stopping and wood fillers are applied using the correct tools
- IAC0802 Sanding is done using the correct paper grit and a sanding block
- IAC0803 Water is drained from the air-system
- IAC0804 All hinges, handles or areas requiring different colour of material are masked and all sawdust is removed from the product before coat application

3.2.9. PM-03-PS09: Select and prepare spraying equipment for furniture finishing operations

Scope of Practical Skill

Given access to a spray booth/room and a range of spraying equipment and attachments the learner must be able to:

- PA0901 Identify the spray gun to be used according to production specifications
- PA0902 Assemble the spray gun and rinse with relevant solvent
- PA0903 Connect the spray gun to an air pipe and air line
- PA0904 Open the air valve to allow flow of air to the spray equipment
- PA0905 Check and adjust compressed air to the required pressure bar
- PA0906 Adjust spray gun pattern according to the size of the work piece
- PA0907 Run a sample to ensure specifications are met and adjust the equipment if necessary

Applied Knowledge

- AK0901 Different types of spray guns (suction gun, gravity feed gun, airless and air assisted guns)

Internal Assessment Criteria

- IAC0901 Different guns are identified and assembled
- IAC0902 Spray guns are connected to an airline and pressure is adjusted according to specifications
- IAC0903 The spray gun is adjusted correctly according to the size and product specifications

3.2.10. PM-03-PS10: Perform spraying application using conventional spray guns or pumps

Scope of Practical Skill

Given an assembled and prepared work piece, prepared chemicals/consumables and spraying equipment the learner must be able to:

- PA1001 Position the product in the spray booth / extraction booth
- PA1002 Adjust the tables to the required height
- PA1003 Adjust the gun air flow, pattern and liquid accordingly
- PA1004 Hold the gun in a correct manner
- PA1005 Move the hand in a straight and uniform position
- PA1006 Overlap evenly to ensure even coating
- PA1007 Move the product to the drying room without damaging the product or the wet coat

Applied Knowledge

- AK1001 Application techniques
- AK1002 Spray gun handling techniques

Internal Assessment Criteria

- IAC1001 The gun is properly adjusted and held perpendicular to the surface
- IAC1002 The spray strokes overlap each other by 50% to ensure the material covers the surface adequately giving an even colour

3.2.11. PM-03-PS11: Prepare the furniture product for the final coat applying sanding and denibbing procedures

Scope of Practical Skill

Given a product with initial or base coat, tools, attachments and consumables, the learner must be able to:

- PA1101 Confirm if the product is properly dry
- PA1102 Sand between coats or denib the product using the correct abrasive
- PA1103 Clean the product to ensure it is ready to accept the final coat

Applied Knowledge

- AK1101 Sanding and denibbing techniques

Internal Assessment Criteria

- IAC1101 The product is checked to ensure it has dried completely before denibbing or sanding is done
- IAC1102 Sanding between coats is sufficient to ensure a smooth coating without removing the first coat
- IAC1103 Product is cleaned and made ready to accept a final coat

3.2.12. PM-03-PS12: Adhere to safety and housekeeping rules and within time allocated when performing operations

Scope of Practical Skill

Given workstation and personal protective equipment the learner must be able to:

- PA1201 Identify and use the PPE correctly according to safety regulations and procedures
- PA1202 Confirm that the area is clean with sufficient lighting
- PA1203 Clarify all problems with the relevant personnel
- PA1204 Clean all spraying equipment and the working area between different colours or chemicals to prevent contamination
- PA1205 Safely store chemicals in an appropriate storing facility

Applied Knowledge

- AK1201 Health, safety and housekeeping procedures

Internal Assessment Criteria

- IAC1201 Moving of material is done in a safe manner using lifting equipmen
- IAC1202 Waste such as over sprayed, wasted thinners and lacquers are disposed safely and according to company policy and regulations
- IAC1203 Spray guns are cleaned and stored according to safety procedures
- IAC1204 All chemicals is returned to storage (fire proof storage)
- IAC1205 All chemicals are properly labelled before returned to storage

3.2.13. PM-03-PS13: Inspect the finished work piece to ensure quality

Scope of Practical Skill

Given a range of finished wood products with faults and defects and different types of paint or coatings the learner must be able to:

- PA1301 Inspect the finished product visually and by feel to ensure compliance with product specifications
- PA1302 Check the finished product against specification
- PA1303 Identify product faults such as incorrect shape, warped joints, incorrect size and scratches
- PA1304 Identify process faults such as blade marks, paint/coating contaminated with water, over spraying, running, mixing of wrong paints/chemicals, wrong viscosity, wrong reaction or inconsistencies in the cut product
- PA1305 Identify machine faults such as wrong nozzle, pressure that is too high or low or incorrect balance of air extraction

Applied Knowledge

- AK1301 Different types of faults
- AK1302 Chemicals and coating solutions and their characteristics

Internal Assessment Criteria

- IAC1301 Faults are rectified or rejects are identified
- IAC1302 Materials are handled and stacked safely and securely
- IAC1303 Finishing chemicals are categorised as spirit or oil based and stored accordingly

3.2.14. PM-03-PS14: Operate pneumatic machines/tools and compressed air according to manufacturer specifications

Scope of Practical Skill

Given pneumatic tools the learner must be able to:

- PA1401 Follow safety routines and procedures
- PA1402 Adjust pressure to the required gauge
- PA1403 Identify correct connections (fittings for pipes)
- PA1404 Ensure all settings are correct according to product specifications
- PA1405 Start and stop the tool using standard operating procedures

- PA1406 Use the tool to produce the desired components or effects
- PA1407 Conduct clean-up procedures as required

Applied Knowledge

- AK1401 Different of pressure bar requirement, adjusting pressure gauge.

Internal Assessment Criteria

- IAC1401 The pressure gauge is adjusted to the required pressure
- IAC1402 Water and oil is drained from the system
- IAC1403 Compressed air is used according to standard safety and operating procedures
- IAC1404 Hazards associated with compressed air are identified and rectified

3.2.15. PM-03-PS15: Record and report furniture finishing production information and prepare finishing documentation

Scope of Practical Skill

Given access to production log book, product specification and writing material, the learner must be able to:

- PA1501 Identify the type of information to be recorded in the production document.
- PA1502 Record legibly the hourly production, down time, quality faults, and production history and mother roll specs.
- PA1503 Record any production related problems experienced during the shift.
- PA1504 Hand over to incoming shift following the correct procedure

Applied Knowledge

- AK1501 Record keeping techniques

Internal Assessment Criteria

- IAC1501 The relevant information during the production shift is recorded and reported via the correct reporting channels
- IAC1502 Production problems experienced during shift are recorded correctly, neatly and legibly

3.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 3 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

3.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201003-00-PM-02, Operate a range of furniture finishing equipment to mix and apply furniture finishing materials to finish assembled furniture products or components, NQF Level 2, Credits 17

4. 682201001-00-PM-04, Operate Advanced Woodwork Machines in a Machining Department to Produce Bored, Edged, Profiled, Turned and Jointed timber, board or components, NQF Level 4, Credits 28

4.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to acquire skills in operating a range of advanced wood working machines to produce bored, edged, profiled, turned and jointed timber.

The learner will be required to:

- PM-04-PS01: Identify and prepare advanced machines, machine parts and attachments (tooling) used in the machining department for production
- PM-04-PS02: Delicately handle, inspect and store raw material (solid wood and boards) for quality
- PM-04-PS03: Design, manufacture, repair and modify jigs and templates
- PM-04-PS04: Operate a multiborer to produce bored timber and board product components (different angles and different material)
- PM-04-PS05: Prepare and operate an edge banding machine and material to apply edge banding
- PM-04-PS06: Operate the spindle, moulder and overhead router to produce (wood and composite board) components with different profiles, moulds, rebates, grooves, chamfers, radiuses and bullnoses
- PM-04-PS07: Operate a wood turning machine (lathe and copy lathe) to produce turned components
- PM-04-PS08: Identify and cut joints, select and prepare jointing machine and cutters to be used
- PM-04-PS09: Apply health and safety in a work environment
- PM-04-PS10: Perform minor maintenance tasks for advanced wood work machines to ensure serviceability of the machine
- PM-04-PS11: Produce engineering drawings
- PM-04-PS12: Operate a CNC machine in the wood machining department

4.2 Guidelines for Practical Skills

4.2.1. PM-04-PS01: Identify and prepare advanced machines, machine parts and attachments (tooling) used in the machining department for production

Scope of Practical Skill

Given access to advanced woodwork machines, attachments, tools, equipment, consumables, raw material and work instructions the learner must be able to:

- PA0101 Identify machines according to the functions
- PA0102 Identify and inspect machine parts, attachments and tooling for good working condition and fit to the machine
- PA0103 Conduct pre-start up inspections to confirm serviceability of the machine and check safety guards are in place and operational
- PA0104 Identify, select and fit tooling or attachments appropriate to the machine, operation and raw material
- PA0105 Identify and apply machine settings according to the operation and product requirements taking into account tolerances, angles, depth and diameter

- PA0106 Identify raw material suitable to the machine, machining operation and product specifications
- PA0107 Conduct a quality inspection of the raw materials to confirm conformance with specifications

Applied Knowledge

- AK0101 Tooling, calibration, tension, lubrication

Internal Assessment Criteria

- IAC0101 The machine is accurately set up for the procedure and all attachments and fittings are secured and in place
- IAC0102 Serviceability and safety of the machine is confirmed according to safety requirements

4.2.2. PM-04-PS02: Delicately handle, inspect and store raw material (solid wood and boards) for quality

Scope of Practical Skill

Given a range of types of wood, composite board and components the learner must be able to:

- PA0201 Inspect a range of raw materials to identify defects such as cracks, knots, twists, moisture content, insects, wet rot and dry rot, swelling of boards
- PA0202 Identify and correctly apply techniques to rectify material faults and defects
- PA0203 Handle raw material ensuring not to bump and damage or chip edges and corners and use trolleys to cart it and not drag it
- PA0204 Store raw material according to requirements to maintain the quality of the wood, board or components (not on ground where it can absorb moisture)

Applied Knowledge

- AK0201 Lifting, storage

Internal Assessment Criteria

- IAC0201 Materials are stacked safely and securely for maintaining quality
- IAC0202 Correct techniques of material handling ensuring safety and quality is applied
- IAC0203 Techniques to rectify faults and defects on material are applied

4.2.3. PM-04-PS03: Design, manufacture, repair and modify jigs and templates

Scope of Practical Skill

Given pictures of the product, drawings, samples, or product, tools, equipment and consumables the learner must be able to:

- PA0301 Read and interpret the specifications including drawings, samples or product to determine jig and template requirements
- PA0302 Identify and select the most suitable material to be used for jig and template making
- PA0303 Identify, inspect and use appropriate tools required for jig and template making
- PA0304 Manufacture the jigs and templates ensuring accuracy and providing for secure and safe attachment, accurate calibrators and sizing for their production purpose

- PA0305 Inspect jigs and templates are inspected and confirm accuracy to specification and accurate sample matching
- PA0306 Adjust and modify jigs and templates where it does not meet sample requirements or for different use
- PA0307 Inspect jigs and templates for damage and repair damage in order to maintain quality manufacturing of furniture
- PA0308 Accurately label and store the templates and jigs for future use

Applied Knowledge

- AK0301 Characteristics and uses of different material (MDF board, Perspex, hardboard, ply board)
- AK0302 Different accessories (bearings, toggle clamps)

Internal Assessment Criteria

- IAC0301 Jigs are made according to drawings, samples, pictures and or products accurately meeting specifications
- IAC0302 The most suitable material is selected and used for the jigs and templates taking into consideration the intended use of jig or template
- IAC0303 Secure and safe attachments, accurate calibrators and sizing for their production purpose are provided

4.2.4. PM-04-PS04: Operate a multiborer to produce bored timber and board product components (different angles and different material)

Scope of Practical Skill

Given boring specifications, various types of timber (hard and soft) and composite board, a multiborer machine, tooling and equipment the learner must be able to:

- PA0401 Identify and select the machine, machine parts, tooling and equipment appropriate to the material and instruction and set the machine and fit tooling for the operation taking into account tolerances, angles, depth and diameter
- PA0402 Inspect the material for compatibility with the machine and mark for boring
- PA0403 Adjust clamps and stoppers according to the thickness of the material
- PA0404 Identify correct dowel sizes
- PA0405 Ensure left side drills corresponds with the right hand side components
- PA0406 Set the correct pressure and feed speed of the machine appropriate to the product and the boring task
- PA0407 Operate the machine for face and edge drilling, drilling at various angles, depth and diameter working within tolerances and specifications and complying with safety requirements

Applied Knowledge

- AK0401 Material and machine compatibility
- AK0402 Machine settings and capability

Internal Assessment Criteria

- IAC0401 Jigs, templates and other necessary dimension control aids are correct and fit for the purpose
- IAC0402 Correct tooling for the job is fitted and secured correctly
- IAC0403 Boring machinery is started and stopped correctly and safely
- IAC0404 Materials are drilled at feed speeds suited to materials and machine
- IAC0405 The use of guards and relevant safety procedures and requirements are maintained throughout the operations
- IAC0406 The finished bored products conform to required specification

4.2.5. PM-04-PS05: Prepare and operate an edge banding machine and material to apply edge banding

Scope of Practical Skill

Given different types of composite board, different types of edging, different types of chemicals, machines and equipment the learner must be able to:

- PA0501 Differentiate between types of composite board suitable for edging and types of edging banding materials ensuring compatibility between edging and material
- PA0502 Identify, correctly mix and heat the adhesive pot to the required temperature and apply adhesives such as polyvinyl acetate; urea formaldehyde; phenol formaldehyde used in the edge banding process
- PA0503 Inspect, apply settings and prepare the machine, edge banding material and board for operation
- PA0504 Start the machine and feed (manually and mechanically) boards in a right direction applying the correct feed speed
- PA0505 Stop, isolate and clean the machine after operations

Applied Knowledge

- AK0501 Different edging (thickness and type)
- AK0502 Adhesives and temperature

Internal Assessment Criteria

- IAC0501 The adhesives are prepared according to manufacturer instructions and are ready for use according to the type of edge banding machine to be used and at the required time and correct temperature is achieved and maintained throughout the process
- IAC0502 The quality of material is checked and remedial action taken if there is non-conformity to required quality
- IAC0503 Edge banding machinery is started and stopped correctly and safely and operated at optimum feed speeds
- IAC0504 The use of guards and relevant safety procedures and requirements are maintained throughout the operations
- IAC0505 Edging is selected according to drawing
- IAC0506 Edge banding material is applied according to the correct procedure (short side first)
- IAC0507 The finished edge banded products are inspected to conform to required specification

4.2.6. PM-04-PS06: Operate the spindle, moulder and overhead router to produce (wood and composite board) components with different profiles, moulds, rebates, grooves, chamfers, radiuses and bullnoses

Scope of Practical Skill

Given access to machines such as the spindle, moulder and overhead router the learner must be able to:

- PA0601 Identify the profile and select cutters to be used for the task
- PA0602 Check if the knives and profile match the drawing
- PA0603 Prepare the machine for operation, insert the cutting tools, adjust fence, tools, tables, select correct speed for the cutting tool
- PA0604 Adjust the height of the spindle feeder according to the height of material
- PA0605 Select the correct direction of the cutter
- PA0606 Run a test piece to check if the component corresponds with the specification
- PA0607 Operate the respective machines whilst observing feed speeds, safety to produce various components with different profiles, moulds, rebates, grooves, chamfers, radiuses and bullnoses
- PA0608 Attach pieces to the jig as required (where applicable)
- PA0609 Feed the work piece in correct direction / rotation of the cutting tool.
- PA0610 Check the component for burn marks
- PA0611 Use relevant helping aids on the machine
- PA0612 Isolate the machine, remove all cutters and clean

Applied Knowledge

- AK0601 Different cutters used for making profiles
- AK0602 Jigs and templates selected

Internal Assessment Criteria

- IAC0601 Relevant cutters are selected and used as per specification.
- IAC0602 Profiling machinery is started and stopped correctly and safely
- IAC0603 Materials are fed at optimum feed speeds suited to materials and machines
- IAC0604 Correct tooling for the job is fitted and secured correctly
- IAC0605 Correct routine procedures for the profiling machine are carried out in accordance with all safety regulations
- IAC0606 Jigs, templates and other necessary dimension control aids are correct and fit for the purpose
- IAC0607 The use of guards and relevant safety procedures and requirements are maintained throughout the operations
- IAC0608 The finished profiled products conform to required specifications
- IAC0609 Bearing is set according to the height of the jig to ensure that jig is not damaged

4.2.7. PM-04-PS07: Operate a wood turning machine (lathe and copy lathe) to produce turned components

Scope of Practical Skill

Given access to machines (lathe), timber, equipment and chisels the learner must be able to:

- PA0701 Identify components, select chisels appropriate to the material and instruction and prepare turning machine (lathe and copy lathe) for operation taking into account tolerances, angles, dimensions such as diameter
- PA0702 Take accurate measurements and apply formulae to make accurate calculations
- PA0703 Identify and apply emergency stop procedures
- PA0704 Select and fit relevant chisels for the job
- PA0705 Ensure all safety guards of the machine are in place
- PA0706 Prepare the workstation (easy access to all chisels required)
- PA0707 Obtain all callipers required to check the diameters
- PA0708 Inspect the template to ensure it is not damaged and install
- PA0709 Select and install the correct cutter
- PA0710 Operate the machine safely without causing danger to self and others.

Applied Knowledge

- AK0701 Different types of chisels
- AK0702 Attaching components to the lathe
- AK0703 Measuring tools for diameters

Internal Assessment Criteria

- IAC0701 Material is correctly selected according to specifications.
- IAC0702 Machine is set-up correctly and prepared for operations
- IAC0703 Material is laminated to form the required size
- IAC0704 The lathe is properly prepared and correctly set to turn timber product components and products
- IAC0705 Material is properly secured to the machine
- IAC0706 Different types of chisels are identified according to their uses
- IAC0707 Jigs, templates and other necessary dimension control aids are correct and fit for the purpose and properly secured
- IAC0708 Production information is checked for accuracy and sufficiency and any incorrect information is reported to the relevant person.
- IAC0709 Machine is used safely and according to instructional manual
- IAC0710 Materials are turned and cut at speeds which are suited to materials and machine using correct gouges
- IAC0711 The use of guards and relevant safety procedures and requirements are maintained throughout the operations

- IAC0712 The lathe is started and stopped correctly and safely
- IAC0713 The finished turned products conform to required specifications
- IAC0714 Correct chisels are selected
- IAC0715 Machine is set-up and safely secured for operation
- IAC0716 Turning is done according to the sample supplied
- IAC0717 Materials are modified to form turned components and products

4.2.8. PM-04-PS08: Identify and cut joints, select and prepare jointing machine and cutters to be used

Scope of Practical Skill

Given access to a jointing machine, timber, tooling and equipment the learner must be able to:

- PA0801 Identify and select the machine, machine parts, tooling and equipment appropriate to the material and instruction and set the machine and fit tooling for the operation taking into account tolerances, angles, depth and diameter
- PA0802 Identify joints to be produce from the drawing
- PA0803 Inspect and ensure that the machines (Mortise-and-Tenon) are clean, free from hazards and ready for operation
- PA0804 Attach cutting tools to the machine
- PA0805 Adjust the machine to obtain the required depth and width of the joints
- PA0806 Start the machine and listen for any unusual noise
- PA0807 Position the components safely on the machine and adjust the clamp according to the size of the component
- PA0808 Start the operation and cut joints according specification and drawing (joints include but not limited to: double end mortise, mitered butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint)
- PA0809 Isolate the machine
- PA0810 Remove all keys and clean the machine

Applied Knowledge

- AK0801 Select different joints, tools and equipment relevant to the machine
- AK0802 Set-up the machine
- AK0803 Change tooling and operating the machine

Internal Assessment Criteria

- IAC0801 Joints are identified and relevant machine is used for manufacturing joints
- IAC0802 The joints are produced as per the drawing requirement
- IAC0803 Relevant tools selected and checked for sharpness and size
- IAC0804 A range of joints are produced according to specifications and drawings and are within tolerances

4.2.9. PM-04-PS09: Apply health and safety in a work environment

Scope of Practical Skill

Given access to a machining workshop, machines, tools and equipment the learner must be able to:

- PA0901 Inspect the workshop, machines, tools and equipment to determine whether these aspects comply with occupational health and safety requirements
- PA0902 Identify, record and report conditions that present a threat to safety, health and the environment
- PA0903 Promptly identify appropriate corrective actions and consult the appropriate parties about these actions
- PA0904 Trace and report ongoing safety concerns in work area ensuring corrective actions are taken
- PA0905 Complete health, safety and environment reports using the required format
- PA0906 Identify, select and apply personal protective clothing and equipment appropriate to the task
- PA0907 Administer first aid in the workplace

Applied Knowledge

- AK0901 Understanding OHSA, reporting procedures, hazards and potential hazards.
- AK0902 First aid administration

Internal Assessment Criteria

- IAC0901 Appropriate inspection techniques are applied
- IAC0902 All breaches in occupational health, safety and environment are identified
- IAC0903 Suggested corrective actions address the situation adequately
- IAC0904 Work practices minimise the risk of injury and damage to machinery, equipment and safety of self and others

4.2.10. PM-04-PS10: Perform minor maintenance tasks for advanced wood work machines to ensure serviceability of the machine

Scope of Practical Skill

Given access to advanced woodwork machines, attachments, tools, equipment, manufacturer specifications, inspection sheet and consumables the learner must be able to:

- PA1001 Read and interpret manufacturer specifications
- PA1002 Isolate machines prior to maintenance and cleaning
- PA1003 Inspect machines and machine parts such as belts and oil levels for damage, wear and tear and serviceability
- PA1004 Inspect tooling to identify damage, wear and tear and serviceability
- PA1005 Conduct fault finding, trouble shooting and problem solving to determine the functionality of the machine (within area of responsibility)
- PA1006 Identify correct tools, spanners, wrenches, sockets for different machines
- PA1007 Sharpen blades and cutting tools

- PA1008 Identify and select the correct lubrication and lubricate the machine where appropriate
- PA1009 Inspect all safety devices and emergency stops
- PA1010 Drain and replace water or oil manually selecting the correct type of oil
- PA1011 Ensure the tension of different belts or moving chains is set properly
- PA1012 Perform machine calibration according to requirements (in area of responsibility)
- PA1013 Clean the machine using the correct solvents or cleaning agents for the task

Applied Knowledge

- AK1001 Tooling, calibration, tension, lubrication
- AK1002 Different spanners, blades and machine accessories

Internal Assessment Criteria

- IAC1001 Correct tools, lubricants, oil, solvents and cleaning agents are selected
- IAC1002 Correct lubrication selected and applied correctly
- IAC1003 Correct tension is set on different machines
- IAC1004 Machine is calibrated as required
- IAC1005 Safety devises are properly fitted on the machine
- IAC1006 Different spanner sizes are identified and used accordingly
- IAC1007 Running direction of blades is observed and blades are replaced correctly
- IAC1008 Worn out belts are replaced

4.2.11. PM-04-PS11: Produce engineering drawings

Scope of Practical Skill

Given drawing and measuring equipment and furniture specifications the learner must be able to:

- PA1101 Use drawing equipment to produce engineering drawing
- PA1102 Interpret and apply hidden details of the drawing
- PA1103 Understand and apply lines
- PA1104 Understand and apply angles and degrees
- PA1105 Take and apply accurate measurements and conduct accurate calculations

Applied Knowledge

- AK1101 Drawing equipment, different lines, and hidden details.

Internal Assessment Criteria

- IAC1101 Engineering drawings correctly interpreted, taking into account line structures and dimensions.
- IAC1102 Interpretation done in a methodical manner.
- IAC1103 Free hand sketches are drawn according to the pictures and or designs

- IAC1104 Cutting list is compiled according to sketches
- IAC1105 Work pieces selected corresponds to engineering drawing
- IAC1106 Different lines are used in the drawing
- IAC1107 All drawing projections are observed
- IAC1108 The drawing layout is according to specification
- IAC1109 Scale of drawing is according to specification
- IAC1110 Hidden details are shown my means of broken lines
- IAC1111 Hidden details are understood and information is applied to the work pieces
- IAC1112 Drawing labels are understood and according to specification, showing all details, chamfers, diameters, radiuses and depths

4.2.12. PM-04-PS12: Operate a CNC machine in the wood machining department

Scope of Practical Skill

Given access to a programmed CNC machine the learner must be able to:

- PA1201 Position suction cup on the machine
- PA1202 Check that the machine is free from any foreign objects
- PA1203 Identify cutters as per the programme
- PA1204 Fit the machine with relevant cutter
- PA1205 Load the material onto the machine
- PA1206 Operate the machine to produce cut components

Applied Knowledge

- AK1201 Different cutters
- AK1202 Suction cup, and their different sizes

Internal Assessment Criteria

- IAC1201 Machine is loaded with relevant cutters
- IAC1202 Machine control mechanisms are identified
- IAC1203 Material is loaded onto the machine
- IAC1204 Machine is operated safety and according to manufacturer specifications

4.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 4 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

4.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201002-00-PM-02, Operate advanced woodwork machines in a machining department to produce bored, edged, profiled, turned and jointed timber, board or components, NQF Level 3, Credits 30

5. 682201001-00-PM-05, Prepare, Join and Assemble cut components in the Manufacturing Process of Crafted Furniture, NQF Level 4, Credits 24

5.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to acquire skills in a range of advanced assembling and jointing of cut components in the manufacturing of crafted furniture

The learner will be required to:

- PM-05-PS01: Identify and prepare machines, machine parts and attachments (tooling) used in the furniture assembling department for production
- PM-05-PS02: Delicately handle, inspect and store raw material (solid wood, composite boards and components) ensuring quality
- PM-05-PS03: Design, manufacture, repair and modify formers, moulds and templates
- PM-05-PS04: Plan, cut and joint veneers
- PM-05-PS05: Lay veneers and hand fit inlays
- PM-05-PS06: Bend and laminate wood to produce curved laminated timber and board components using formers and moulds
- PM-05-PS07: Produce and assemble curved and laminated drawers and fit to carcass/cabinet
- PM-05-PS08: Produce and install curved and raised panel doors
- PM-05-PS09: Identify and cut joints, select and prepare jointing machine and cutters to be used
- PM-05-PS10: Prepare material and hand tools to apply edge banding manually
- PM-05-PS11: Apply health and safety in a work environment
- PM-05-PS12: Perform minor maintenance tasks for machines and power tools used in the assembling department to ensure serviceability of the machines and equipment
- PM-05-PS13: Produce engineering drawings

5.2 Guidelines for Practical Skills

5.2.1. PM-05-PS01: Identify and prepare machines, machine parts and attachments (tooling) used in the furniture assembling department for production

Scope of Practical Skill

Given access to woodwork machines and power tools, attachments, tools, equipment, consumables, raw material and work instructions the learner must be able to:

- PA0101 Identify machines according to the functions
- PA0102 Identify and inspect machine parts, attachments and tooling for good working condition and fit to the machine
- PA0103 Conduct pre-start-up inspections to confirm serviceability of the machine and check safety guards are in place and operational
- PA0104 Identify, select and fit tooling or attachments appropriate to the machine, operation and raw material
- PA0105 Identify and apply machine settings according to the operation and product requirements taking into account tolerances, angles, depth and diameter

- PA0106 Identify raw material suitable to the machine, machining operation and product specifications
- PA0107 Conduct a quality inspection of the raw materials to confirm conformance with specifications

Applied Knowledge

- AK0101 Machines, power tools, tooling and equipment requirements and manufacturer specifications
- AK0102 Calibration requirements
- AK0103 Settings such as tension
- AK0104 Lubrication types and application

Internal Assessment Criteria

- IAC0101 The machine is accurately set up for the procedure and all attachments and fittings are secured and in place
- IAC0102 Serviceability and safety of the machine is confirmed according to safety requirements

5.2.2. PM-05-PS02: Delicately handle, inspect and store raw material (solid wood, composite boards and components) ensuring quality

Scope of Practical Skill

Given a range of types of wood, composite board and components the learner must be able to:

- PA0201 Inspect a range of raw materials to identify defects such as cracks, knots, twists, moisture content, insects, wet rot and dry rot, swelling of boards
- PA0202 Inspect a range of machined components to ensure accuracy and quality of the machined components and identify components which do not comply with requirements
- PA0203 Identify and correctly apply techniques to rectify material faults and defects
- PA0204 Handle raw material ensuring not to bump and damage or chip edges and corners and use trolleys to cart it and not drag it
- PA0205 Store raw material according to requirements to maintain the quality of the wood, board or components (not on ground where it can absorb moisture)

Applied Knowledge

- AK0201 Correct lifting of heavy materials
- AK0202 Ergonomics in the assembly department
- AK0203 Storage requirements and facilities

Internal Assessment Criteria

- IAC0201 Materials are stacked safely and securely for maintaining quality
- IAC0202 Correct techniques of material handling ensuring safety and quality is applied
- IAC0203 Techniques to rectify faults and defects on material and components are applied

5.2.3. PM-05-PS03: Design, manufacture, repair and modify formers, moulds and templates

Scope of Practical Skill

Given pictures of a range of products, drawings and samples, tools, equipment and consumables the learner must be able to:

- PA0301 Identify various types of formers and moulds such as single, two-part (male & female), dowel; solid or ribbed
- PA0302 Read and interpret the specifications including drawings, samples or product to determine requirements for formers, moulds and templates
- PA0303 Identify and select the most suitable material to be used for making of formers, moulds and templates
- PA0304 Identify, inspect and use appropriate tools required for making of formers, moulds and templates
- PA0305 Manufacture the formers, moulds and templates ensuring accuracy and providing for secure and safe attachment, accurate calibrators and sizing for their production purpose
- PA0306 Inspect formers, moulds and templates and confirm accuracy to specification and accurate sample matching
- PA0307 Adjust and modify formers, moulds and templates where it does not meet sample requirements or for different use
- PA0308 Inspect formers, moulds and templates for damage and repair damage in order to maintain quality manufacturing of furniture
- PA0309 Accurately label and store the formers, moulds and templates for future use

Applied Knowledge

- AK0301 Characteristics and uses of different material (MDF board, Perspex, hardboard, ply board)
- AK0302 Different accessories (bearings, toggle clamps)

Internal Assessment Criteria

- IAC0301 Formers, moulds and templates are made according to drawings, samples, pictures and or products accurately meeting specifications
- IAC0302 The most suitable material is selected and used for the formers, moulds and templates taking into consideration the intended use of formers, moulds and templates
- IAC0303 Secure and safe attachments, accurate calibrators and sizing for their production purpose are provided

5.2.4. PM-05-PS04: Plan, cut and joint veneers

Scope of Practical Skill

Given tools and equipment, instruction/drawing, various types of materials and consumables the learner must be able to:

- PA0401 Read and correctly interpret specifications for the cutting and jointing veneers
- PA0402 Identify, select and use tools and equipment for cutting veneers
- PA0403 Identify, inspect and select materials for veneers
- PA0404 Identify and select from the various cuts: to length; to width; to shape; flame; crown; quarter cut for veneers

- PA0405 Identify and apply techniques for the matching of veneers applying a range of applicable techniques such as straight; slip laid; leaf laid; book match; edge veneering
- PA0406 Identify and select joint types form quartered panels; stringed sheets; edged sheets for jointing procedures
- PA0407 Check veneers and confirm accuracy of measuring, matching of grain direction and light refraction and cutting tasks
- PA0408 Identify, select and prepare adhesives for the jointing procedure
- PA0409 Identify problems and faults: marks; misalignment; knife cuts and identify corrective action to be taken

Applied Knowledge

- AK0401 Adhesive qualities, mixing and application

Internal Assessment Criteria

- IAC0401 Veneers are correctly matched for decoration grain direction and light refraction requirements
- IAC0402 Surfaces to be glued are free of dirt and are sanded correctly
- IAC0403 Veneers are handled in a manner which does not cause damage
- IAC0404 Veneers are checked and confirmed to be accurately measured, matched and planned to achieve required jointing size
- IAC0405 Veneers are accurately jointed according to specification requirements
- IAC0406 Jointing and veneer problems are identified, reported to the relevant person, rejected and replaced

5.2.5. PM-05-PS05: Lay veneers and hand fit inlays

Scope of Practical Skill

Given tools and equipment, instruction/drawing, various types of materials and consumables the learner must be able to:

- PA0501 Read and correctly interpret specifications for the laying of veneers and hand fitting of inlays to identify the type and quality of veneers; grain matching; colour matching; moisture content, etc.
- PA0502 Identify, select and use tools and equipment for inlay and adhesive application such as straight edge; veneering hammer; veneering saw; veneering knife; toothing plane; clamps; veneer tape; veneer pins; plane veneering hammer; adhesive roller; veneer pins; flat iron; clamps; unheated press; heated press, brushes; adhesive sticks; router; roller
- PA0503 Identify and select and inspect prepared components; veneers; wood; inlay material; natural and synthetic for the laying of veneers and hand fitting of inlays
- PA0504 Identify various types of surfaces such as top; edge; back; curved; flat
- PA0505 Identify, correctly mix and apply adhesives in the inlaying process, such as polyvinyl acetate; urea formaldehyde; resorcinol; phenol; epoxy, etc.
- PA0506 Identify and perform various types of surface preparation such as keyed; sanded; toothed; degreased, etc. for the laying of veneers and hand fitting of inlays
- PA0507 Identify and select from the various cuts: to length; to width; to shape; flame; crown; quarter cut for veneers

- PA0508 Identify and apply veneer and inlay methods such as hand laid and mechanical pressing according to the applicable sequence
- PA0509 Identify faults such as blisters; adhesive penetration; misalignment; marks and take corrective action

Applied Knowledge

- AK0501 Adhesive qualities, mixing and application

Internal Assessment Criteria

- IAC0501 Materials are correctly identified and selected according to specification requirements
- IAC0502 Surfaces are checked and confirmed to be ready to receive veneer or inlay; free of defects; dust; chippings
- IAC0503 Correct equipment and tools are selected for the work to be carried out
- IAC0504 Equipment and tools are confirmed to be in correct condition for safe and effective production
- IAC0505 Adhesives are prepared correctly according to manufacturer specifications
- IAC0506 Groundwork is clean, free of defects and ready to receive veneer
- IAC0507 Adhesive is correctly applied to groundwork
- IAC0508 Adhesive is handled according to health and safety requirements
- IAC0509 Veneers are positioned and laid using correct method according to the specifications
- IAC0510 Veneer laying faults are identified, reported to the relevant person and rectified

5.2.6. PM-05-PS06: Bend and laminate wood to produce curved laminated timber and board components using formers and moulds

Scope of Practical Skill

Given tools and equipment, instruction/drawing, various types of materials and consumables access to a range of equipment and tools the learner must be able to:

- PA0601 Read and correctly interpret specifications (drawings, cutting lists, routing sheets) for laminating wood and board components
- PA0602 Identify, select and use tools and equipment for lamination and adhesive application such as panel saw, rib saw, radial arm saw, surfacer, thicknesser, hand cramps, pneumatic cramps, laminating wheel, formers, clamps
- PA0603 Identify and select materials for lamination such as softwood; hardwood; plywood; composite board products and conduct accurate calculations allowing for the curved length of product
- PA0604 Identify various types of formers and moulds such as single, two-part (male & female), dowel; solid or ribbed
- PA0605 Identify, correctly mix and apply adhesives such as hot and cold glue, etc. in the lamination process
- PA0606 Identify and perform various types of surface preparation such as planing; sanding; cleaning and free from all foreign objects
- PA0607 Types of lamination such as curved or free-form are identified

- PA0608 Produce a former or mold (male and female parts) for the laminated product which corresponds with the specification
- PA0609 Prepare for the laminating process by laying out or stacking the correct number of strips
- PA0610 Compensate for springback, if the curve is critical
- PA0611 Carry out laminating process applying the correct number of layers to make the correct thickness and correct equipment for clamping and laminating
- PA0612 Apply even pressure and protect the surface and edges from damage during clamping
- PA0613 Inspect the laminated wood/board to identify faults such as gaps; adhesive penetration; misalignment; marks and take corrective action

Applied Knowledge

- AK0601 Equipment, material, adhesives, formers
- AK0602 Adjustments compensating for spring-back
- AK0603 Protecting surfaces and edges

Internal Assessment Criteria

- IAC0601 Shape of former corresponds with specification
- IAC0602 Surface of former is finished so as to avoid damage to laminated component
- IAC0603 Grain characteristics are considered in selection of materials
- IAC0604 Material preparation is performed within the allocated time
- IAC0605 Materials are correctly positioned for laminating, with due consideration of grain characteristics
- IAC0606 Clamps are correctly positioned
- IAC0607 Appropriate and even clamping pressure is applied
- IAC0608 Surfaces and edges are protected from damage during cramping
- IAC0609 Correct drying and curing time is allowed

5.2.7. PM-05-PS07: Produce and assemble curved and laminated drawers and fit to carcass/cabinet

Scope of Practical Skill

Given curved and laminated components and fittings, accessories, power tools and equipment the learner must be able to:

- PA0701 Read and correctly interpret specifications (drawings, cutting lists, routing sheets) for laminating wood and board components
- PA0702 Identify, select and use tools and equipment for lamination and adhesive application such as panel saw, rib saw, radial arm saw, surfacer, thicknesser, hand cramps, pneumatic cramps, laminating wheel, formers, clamps
- PA0703 Identify types of lamination such as curved or free-form
- PA0704 Identify, inspect and select laminated and other components
- PA0705 Identify and perform various types of surface preparation such as planing; sanding; cleaning and free from all foreign objects

- PA0706 Inspect the laminated wood/board to identify faults such as gaps; adhesive penetration; misalignment; marks and take corrective action
- PA0707 Identify and select the accessories and fittings
- PA0708 Perform a dry assembling to check for fit
- PA0709 Produce drawer components using various machines and hand held power tools of different shapes and sizes
- PA0710 Use power tools, hand tools and pneumatic tools to assemble drawers, fitting drawer bottom and drawer fronts
- PA0711 Install drawer runners for drawers as per specification
- PA0712 Inspect the assembly to ensure snug fit and smooth operation of runners
- PA0713 Identify faults and defects and take corrective action

Applied Knowledge

- AK0701 Equipment, material, adhesives, formers
- AK0702 Adjustments compensating for spring-back
- AK0703 Protecting surfaces and edges

Internal Assessment Criteria

- IAC0701 Components are dry assembled to check for fit
- IAC0702 All joints in the entire assembly marry up
- IAC0703 Components are positioned and assembled and secured according to specification and joint requirements
- IAC0704 Appropriate clamps are used according to the assembly requirements
- IAC0705 Pressure applied to clamps is appropriate to component being assembled
- IAC0706 Joints and surfaces are free of excess adhesives and any foreign objects
- IAC0707 Assembly is confirmed to be square and true

5.2.8. PM-05-PS08: Produce and install curved and raised panel doors

Scope of Practical Skill

Given curved and laminated components and fittings, accessories, power tools and equipment the learner must be able to:

- PA0801 Read and correctly interpret specifications (drawings, cutting lists, routing sheets) for curved and raised doors
- PA0802 Identify, select and use tools and equipment to be used in the production of curved and raised panel doors
- PA0803 Identify and perform various types of surface preparation such as planing; sanding; cleaning and free from all foreign objects
- PA0804 Inspect the wood/board to identify faults such as dimension; type; grade; knots; warp; direction of grain; board finish and take corrective action
- PA0805 Identify and select the accessories and fittings

- PA0806 Perform a dry assembling to check for fit
- PA0807 Inspect carcasses to identify faults and defects such as squareness, dimensions, size, grain direction, structural strength and take corrective action to address
- PA0808 Identify various panels of the door and shapes of the panels
- PA0809 Determine the size of each part and allowing for the curve of the panel taking accurate measurements and making accurate calculations including allowances (weather, humidity, shapes, forms, joints)
- PA0810 Observe the correct direction of grains
- PA0811 Produce rails and styles according to specification and drawings
- PA0812 Perform a dry assembly to ensure door sections (frames and panels) are flush and square
- PA0813 Ensure the structural strength of the door
- PA0814 Assemble (glue and correctly clamp) curved doors and raised panel doors
- PA0815 Fit doors to carcasses
- PA0816 Inspect the product ensuring fit, squarness, bonding, etc. and take corrective action to address faults and defects

Applied Knowledge

- AK0801 Equipment, material, adhesives, formers
- AK0802 Adjustments compensating for spring-back
- AK0803 Protecting surfaces and edges

Internal Assessment Criteria

- IAC0801 Components are dry assembled to check for fit
- IAC0802 All joints in the entire assembly marry up
- IAC0803 Components are positioned and assembled and secured according to specification and joint requirements
- IAC0804 Appropriate clamps are used according to the assembly requirements
- IAC0805 Pressure applied to clamps is appropriate to component being assembled
- IAC0806 Joints and surfaces are free of excess adhesives and any foreign objects
- IAC0807 Assembly is confirmed to be square and true

5.2.9. PM-05-PS09: Identify and cut joints, select and prepare jointing machine and cutters to be used

Scope of Practical Skill

Given access to a jointing machine, timber, tooling and equipment the learner must be able to:

- PA0901 Identify and select the machine, machine parts, tooling and equipment appropriate to the material and instruction and set the machine and fit tooling for the operation taking into account tolerances, angles, depth and diameter
- PA0902 Identify joints to be produce from the drawing

- PA0903 Inspect and ensure that the machines (Mortise-and-Tenon) are clean, free from hazards and ready for operation
- PA0904 Attach cutting tools to the machine
- PA0905 Adjust the machine to obtain the required depth and width of the joints
- PA0906 Start the machine and listen for any unusual noise
- PA0907 Position the components safely on the machine and adjust the clamp according to the size of the component
- PA0908 Start the operation and cut joints according specification and drawing (joints include but not limited to: double end mortise, mitred butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint)
- PA0909 Isolate the machine
- PA0910 Remove all keys and clean the machine

Applied Knowledge

- AK0901 Select different joints, tools and equipment relevant to the machine
- AK0902 Set-up the machine
- AK0903 Change tooling and operating the machine

Internal Assessment Criteria

- IAC0901 Joints are identified and relevant machine is used for manufacturing joints
- IAC0902 The joints are produced as per the drawing requirement
- IAC0903 Relevant tools selected and checked for sharpness and size
- IAC0904 A range of joints are produced according to specifications and drawings and are within tolerances

5.2.10. PM-05-PS10: Prepare material and hand tools to apply edge banding manually

Scope of Practical Skill

Given different types of composite board, different types of edging, different types of chemicals, tools and equipment the learner must be able to:

- PA1001 Differentiate between types of composite board suitable for edging and types of edging banding materials ensuring compatibility between edging and material
- PA1002 Identify, correctly mix and heat the adhesive pot to the required temperature and apply adhesives such as polyvinyl acetate; urea formaldehyde; phenol formaldehyde used in the edge banding process
- PA1003 Manually apply adhesives to edge banding and boards ensuring effective bonding
- PA1004 Observe curing time ensuring effective bonding
- PA1005 Inspect the product, identify faults and defects (poor bonding, poor penetration of adhesives, skewness, etc.) and take corrective action

Applied Knowledge

- AK1001 Different edging (thickness and type)

- AK1002 Adhesives and temperature

Internal Assessment Criteria

- IAC1001 The adhesives are prepared according to manufacturer instructions and are ready for use according to the type of edge banding machine to be used and at the required time and correct temperature is achieved and maintained throughout the process
- IAC1002 The quality of material is checked and remedial action taken if there is non-conformity to required quality
- IAC1003 Edge banding machinery is started and stopped correctly and safely and operated at optimum feed speeds
- IAC1004 The use of relevant safety procedures and requirements are maintained throughout the operations
- IAC1005 Edging is selected according to drawing
- IAC1006 Edge banding material is applied according to the correct procedure
- IAC1007 The finished edge banded products are inspected to conform to required specification

5.2.11. PM-05-PS11: Apply health and safety in a work environment

Scope of Practical Skill

Given access to a machining workshop, machines, tools and equipment the learner must be able to:

- PA1101 Inspect the workshop, machines, tools and equipment to determine whether these aspects comply with occupational health and safety requirements
- PA1102 Identify, record and report conditions that present a threat to safety, health and the environment
- PA1103 Promptly identify appropriate corrective actions and consult the appropriate parties about these actions
- PA1104 Trace and report ongoing safety concerns in work area ensuring corrective actions are taken
- PA1105 Complete health, safety and environment reports using the required format
- PA1106 Identify, select and apply personal protective clothing and equipment appropriate to the task
- PA1107 Administer first aid in the workplace

Applied Knowledge

- AK1101 Understanding OHSA, reporting procedures, hazards and potential hazards.
- AK1102 First aid administration

Internal Assessment Criteria

- IAC1101 Appropriate inspection techniques are applied
- IAC1102 All breaches in occupational health, safety and environment are identified
- IAC1103 Suggested corrective actions address the situation adequately
- IAC1104 Work practices minimise the risk of injury and damage to machinery, equipment and safety of self and others

5.2.12. PM-05-PS12: Perform minor maintenance tasks for machines and power tools used in the assembling department to ensure serviceability of the machines and equipment

Scope of Practical Skill

Given access to machines, attachments, tools and equipment used in the assembling department, manufacturer specifications, inspection sheet and consumables the learner must be able to:

- PA1201 Isolate machines prior to maintenance and cleaning
- PA1202 Inspect machines and machine parts such as belts and oil levels for damage, wear and tear and serviceability
- PA1203 Inspect tooling to identify damage, wear and tear and serviceability
- PA1204 Conduct fault finding, trouble shooting and problem solving to determine the functionality of the machine (within area of responsibility)
- PA1205 Identify correct tools, spanners, wrenches, sockets for different machines
- PA1206 Sharpen blades and cutting tools
- PA1207 Identify and select the correct lubrication and lubricate the machine where appropriate
- PA1208 Inspect all safety devices and emergency stops
- PA1209 Drain and replace water or oil manually selecting the correct type of oil
- PA1210 Ensure the tension of different belts or moving chains is set properly
- PA1211 Perform machine calibration according to requirements (in area of responsibility)
- PA1212 Clean the machine using the correct solvents or cleaning agents for the task

Applied Knowledge

- AK1201 Tooling, calibration, tension, lubrication
- AK1202 Different spanners, blades and machine accessories

Internal Assessment Criteria

- IAC1201 Correct tools, lubricants, oil, solvents and cleaning agents are selected
- IAC1202 Correct lubrication selected and applied correctly
- IAC1203 Correct tension is set on different machines
- IAC1204 Machine is calibrated as required
- IAC1205 Safety devises are properly fitted on the machine
- IAC1206 Different spanner sizes are identified and used accordingly
- IAC1207 Running direction of blades is observed and blades are replaced correctly
- IAC1208 Worn out belts are replaced

5.2.13. PM-05-PS13: Produce engineering drawings

Scope of Practical Skill

Given drawing and measuring equipment and furniture specifications the learner must be able to:

- PA1301 Use drawing equipment to produce engineering drawing
- PA1302 Interpret and apply hidden details of the drawing
- PA1303 Understand and apply lines
- PA1304 Understand and apply angles and degrees
- PA1305 Take and apply accurate measurements and conduct accurate calculations

Applied Knowledge

- AK1301 Drawing equipment, different lines, and hidden details.

Internal Assessment Criteria

- IAC1301 Engineering drawings correctly interpreted, taking into account line structures and dimensions.
- IAC1302 Interpretation done in a methodical manner.
- IAC1303 Free hand sketches are drawn according to the pictures and or designs
- IAC1304 Cutting list is compiled according to sketches
- IAC1305 Work pieces selected corresponds to engineering drawing
- IAC1306 Different lines are used in the drawing
- IAC1307 All drawing projections are observed
- IAC1308 The drawing layout is according to specification
- IAC1309 Scale of drawing is according to specification
- IAC1310 Hidden details are shown my means of broken lines
- IAC1311 Hidden details are understood and information is applied to the work pieces
- IAC1312 Drawing labels are understood and according to specification, showing all details, chamfers, diameters, radiuses and depths

5.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 5 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation

- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

5.4 Exemptions

Learners who have achieved the following modules may be exempted from this module:

- 682201003-00-PM-03, Prepare, join and assemble cut components in the manufacturing process of crafted furniture, NQF Level 3, Credits 24

6. 682201001-00-PM-06, Establish Specifications of Articles to be Constructed or Repaired or Plan Methods or Operations for Shaping or Assembling Parts, based on Drawings/Sketches, Diagrams, Oral or Written instructions, NQF Level 4, Credits 40

6.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to plan and prepare for the manufacturing of crafted, bespoke or bulk furniture and manufacture prototypes or bespoke crafted furniture.

The learner will be required to:

- PM-06-PS01: Determine product specifications and related materials, work methods, and machine setup requirements to meet product specifications
- PM-06-PS02: Prepare for the bulk production of furniture (wood or board)
- PM-06-PS03: Prepare material and produce formers, moulds, jigs and templates for the production of prototypes or once-off/bespoke crafted furniture
- PM-06-PS04: Prepare and set-up machines in the machining department for operation and production of machined and profiled components for once-off, bespoke or bulk production ensuring safety during operation
- PM-06-PS05: Operate and tend machines in the machining department to produce once-off, bespoke or bulk products
- PM-06-PS06: Use CAD to develop basic 2D drawings and diagrams of furniture
- PM-06-PS07: Apply leadership principles in the furniture production flow to ensure optimization of processes through planning and monitoring

6.2 Guidelines for Practical Skills

6.2.1. PM-06-PS01: Determine product specifications and related materials, work methods, and machine setup requirements to meet product specifications

Scope of Practical Skill

Given oral or written instructions, technical drawings and diagrams, sketches, photos or work orders for a range of crafted furniture items including curved laminated products and raised and profiled doors the learner must be able to:

- PA0101 Study blueprints and plans and verify dimensions of articles to be made
- PA0102 Establish the specifications of furniture pieces to be constructed or repaired and plan the methods and operations for machining, shaping or assembling parts, based on drawings/sketches, diagrams, or oral or written instructions
- PA0103 Determine materials specifications, operational methods and sequence and machine setup requirements according to oral or written instructions, drawings, or work orders.
- PA0104 Compile work specifications, cutting lists, routing sheets, producing drawings using drawing tools and equipment, produce specifications for products
- PA0105 Apply mathematics and techniques to correctly complete measurements, calculate area and estimate material requirements for production
- PA0106 Conduct cost estimations for the manufacturing of the product

Applied Knowledge

- AK0101 Furniture construction of a range of furniture designs and types
- AK0102 Construction methods

- AK0103 Material types, characteristics and uses

Internal Assessment Criteria

- IAC0101 Product specifications, which could be oral or written instructions, technical drawings and diagrams, sketches, photos or work orders are accurately understood and interpreted for application
- IAC0102 Product and production requirements are correctly derived from the product specifications
- IAC0103 Work specifications and other documentation are accurate and ensure productivity and efficiency

6.2.2. PM-06-PS02: Prepare for the bulk production of furniture (wood or board)

Scope of Practical Skill

Given oral or written work instructions, cutting lists and routing sheets for a range of furniture items the learner must be able to:

- PA0201 Read and interpret drawings, sketches and samples for carcasses, cabinets and case goods
- PA0202 Determine and show all components, parts and fittings needed for the product
- PA0203 Identify types of raw materials
- PA0204 Measure and calculate sizes and quantities
- PA0205 Identify all machines and operations in the production according to machine capabilities and availability
- PA0206 Plan the production of the furniture product with a routing sheet (showing machines to be used and the sequence of the steps)
- PA0207 Identify and select fittings such as doors; drawers; general hardware; i.e. hinges; drawer runners; locks; knobs; handles; stays; edging; lipping; carving; moldings; supports

Applied Knowledge

- AK0201 In-depth knowledge of machines used in furniture manufacturing and machine settings
- AK0202 Bulk production methods and line setup

Internal Assessment Criteria

- IAC0201 All necessary preparation for the bulk production of a furniture product, such as raw materials, sizes and quantities, operations and machines according to capabilities, production information such as routing sheets and work instructions are conducted and ready for sign off by the production manager

6.2.3. PM-06-PS03: Prepare material and produce formers, moulds, jigs and templates for the production of prototypes or once-off/bespoke crafted furniture

Scope of Practical Skill

Given oral or written work instructions, cutting lists and routing sheets for a range of furniture items including curved laminated products and raised and profiled doors the learner must be able to:

- PA0301 Measure and mark dimensions of parts on paper or timber stock prior to cutting, following blueprints, to ensure a tight fit and quality product

- PA0302 Produce formers, moulds, jigs and templates for curved laminated products and cutting components to be used during production

Applied Knowledge

- AK0301 Accurate measuring techniques and tolerances
- AK0302 Accurate calculations

Internal Assessment Criteria

- IAC0301 Formers, moulds, jigs and templates are produced for use during the production process of the furniture product

6.2.4. PM-06-PS04: Prepare and set-up machines in the machining department for operation and production of machined and profiled components for once-off, bespoke or bulk production ensuring safety during operation

Scope of Practical Skill

Given oral or written work instructions, cutting lists and routing sheets for a range of furniture items the learner must be able to:

- PA0401 Set up and program a range of woodworking machines, such as band saw, table saw, planing saw, sanding machine drill presses, lathes, shapers, routers, sanders, planers, or wood-nailing machines
- PA0402 Select knives, saws, blades, cutter heads, cams, bits, or belts, according to workpiece, machine functions, or product specifications.
- PA0403 Install and adjust blades, cutter-heads, boring-bits, or sanding-belts, using hand tools and rules/manufacturer specifications
- PA0404 Adjust machine tables or cutting devices and set controls on machines to produce specified cuts or operations
- PA0405 Set and adjust various kinds of woodworking machines for operation by others

Applied Knowledge

- AK0401 In-depth knowledge of machines used in furniture manufacturing and machine settings

Internal Assessment Criteria

- IAC0401 Machines in the machining department are correctly set up according to the specifications of the product and are ready for use
- IAC0402 The machining department is inspected for safety, health and environmental compliance

6.2.5. PM-06-PS05: Operate and tend machines in the machining department to produce once-off, bespoke or bulk products

Scope of Practical Skill

Given oral or written work instructions, cutting lists and routing sheets for a range of furniture items the learner must be able to:

- PA0501 Operate, tend and monitor several types of woodworking machines for sawing, shaping, boring, drilling, planning, pressing, turning, sanding or carving to fabricate or repair wooden parts for furniture, fixtures and other wooden products

- PA0502 Operate, tend and monitor machines, including power saws, jointers, mortises, Tenon, molders, or shapers, to cut, mould, or shape woodstock or wood substitutes.
- PA0503 Operate, tend and monitor woodworking machines, such as power saws, jointers, mortisers and shapers, and using hand tools to cut, shape and form parts and components
- PA0504 Cut timber to the right size and shape and trim parts of joints to ensure a snug fit, using hand tools, such as planes, chisels, or wood files.

Applied Knowledge

- AK0501 In-depth knowledge of machines used in furniture manufacturing and machine settings and operation

Internal Assessment Criteria

- IAC0501 Several types of woodworking machines for sawing, shaping, boring, drilling, planning, pressing, turning, sanding or carving to fabricate or repair wooden parts for furniture, fixtures and other wooden products are operated and monitored
- IAC0502 Various types of machines, including power saws, jointers, mortises, Tenon, molders, or shapers, to cut, mould, or shape woodstock or wood substitutes are operated and monitored
- IAC0503 Woodworking machines, such as power saws, jointers, mortisers and shapers are operated and monitored
- IAC0504 Hand tools are used to cut, shape and form parts and components
- IAC0505 Final cut timber components are inspected to verify right size and shape whereby ensuring quality
- IAC0506 Operations are monitored for compliance with safety, health and environmental compliance

6.2.6. PM-06-PS06: Use CAD to develop basic 2D drawings and diagrams of furniture

Scope of Practical Skill

Given a computer with applicable software programme the learner must be able to:

- PA0601 Identify various hardware components and use applicable interfaces (such as mouse, keyboard, touch screen, pen)
- PA0602 Identify and operate the applicable software programme
- PA0603 Apply various elements of the software programme
- PA0604 Produce elementary sketches
- PA0605 Produce detailed 2D drawings of furniture
- PA0606 Produce annotations and drawing information

Applied Knowledge

- AK0601 Computer hardware and software

Internal Assessment Criteria

- IAC0601 The computer hardware and software programme is confidently used to produce sketches, 2D drawings and drawing details of basic and crafted furniture
- IAC0602 Technical drawings indicating all components in correct quantities, shapes and sizes of the furniture product

6.2.7. PM-06-PS07: Apply leadership principles in the furniture production flow to ensure optimization of processes through planning and monitoring

Scope of Practical Skill

Given a case study with production information, manufacturing information, production line flow and available equipment, machinery and machine operators the learner must be able to:

- PA0701 Organize work for the work team and employees
- PA0702 Provide briefing to employees of the new tasks
- PA0703 Involve the employees/fellow employees in the planning process
- PA0704 Contract employees to different tasks
- PA0705 Identify and list material, equipment as required by the product and indicate need for availability
- PA0706 Advise fellow employees quality requirements of each tasks
- PA0707 Compile a checklist to track the progress
- PA0708 Monitor progress, provide feedback and couching to junior employees
- PA0709 Report deviation to the relevant personnel
- PA0710 Ensure that processes are within the acceptable standard operating procedures

Applied Knowledge

- AK0701 Productivity measures
- AK0702 Monitoring techniques

Internal Assessment Criteria

- IAC0701 Optimization of furniture production processes is achieved through proper planning of operations, target setting, allocation of work tasks and monitoring of the achievement of targets
- IAC0702 Monitor production activities to ensure compliance with standard operating procedures and quality standards

6.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 4 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

6.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

7. 682201001-00-PM-07, Guide Teams in a Fair and Consistent Manner to Achieve Set Targets and Outputs, NQF Level 3, Credits 2

7.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to acquire the techniques and skills to supervise all activities of a work team to achieve the production targets

The learner will be required to:

- PM-07-PS01 : Supervise a team
- PM-07-PS02 : Allocate tasks, equipment and resources to achieve set targets and give instructions to team members and receive feedback
- PM-07-PS03 : Discipline poor performance
- PM-07-PS04 : Coach members to enhance skills
- PM-07-PS05 : Enforce occupational health and safety plans, policies and procedures

7.2 Guidelines for Practical Skills

7.2.1. PM-07-PS01 : Supervise a team

Scope of Practical Skill

Given case studies related to work performance and achievement of targets, the learner must be able to:

- PA0101 Identify areas of poor time keeping
- PA0102 Identify areas of poor performance
- PA0103 Identify areas of poor quality
- PA0104 Identify opportunities for maximising resource allocation
- PA0105 Identify opportunities for rewarding excellent performance
- PA0106 Identify corrective actions where required

Applied Knowledge

- AK0101 Time keeping skills
- AK0102 Determining quality
- AK0103 Rewarding performance techniques

Internal Assessment Criteria

- IAC0101 Corrective actions to address poor work performance and non-achievement of targets are proposed and are in line with the incident
- IAC0102 Resource allocation is maximised
- IAC0103 Excellent performance is rewarded

7.2.2 PM-07-PS02 : Allocate tasks, equipment and resources to achieve set targets and give instructions to team members and receive feedback

Scope of Practical Skill

Given a weekly action plan as well as different scenarios related to incorrect interpretation of instructions, monitoring and control, the learner must be able to:

- PA0201 Allocate to each team member a daily task or set of tasks
- PA0202 Allocate equipment and resources
- PA0203 Give clear instructions and ensure that the team member understand it
- PA0204 Apply the correct way of formulating the instruction
- PA0205 Identify areas of poor monitoring, control and poor feedback and identify corrective actions

Applied Knowledge

- AK0201 Planning techniques
- AK0202 Resource allocation
- AK0203 Instructions
- AK0204 Monitoring and controlling techniques

Internal Assessment Criteria

- IAC0201 The task and resource allocation and instructions are clear and in support of the action plan
- IAC0202 Clear, unambiguous and concise instructions are given and tested for the correct understanding thereof
- IAC0203 Corrective actions are appropriate to the identified problem areas

7.2.3. PM-07-PS03 : Discipline poor performance

Scope of Practical Skill

Given information on worker performance, attendance and work policies and procedures, the learner must be able to:

- PA0301 Identify the area of poor work performance
- PA0302 Identify the applicable disciplinary policy and procedure to apply
- PA0303 Conduct a disciplinary procedure
- PA0304 Keep records of the disciplinary procedure and actions

Applied Knowledge

- AK0301 Disciplinary policies and procedures
- AK0302 Performance evaluation

Internal Assessment Criteria

- IAC0301 The disciplinary procedures (verbal warning and first written warning) are correctly applied and are appropriate to the nature of the poor work performance

7.2.4. PM-07-PS04 : Coach members to enhance skills

Scope of Practical Skill

Given occupational health and safety policies and procedures and taken to a site, the learner must be able to:

- PA0401 Identify poor skills leading to poor performance and safety risks
- PA0402 Rectify by demonstrating correct application of the skills or tasks to improve performance or compliance with requirements
- PA0403 Explain efficiency and effectiveness in concise terms
- PA0404 Coach team members to enhance productivity
- PA0405 Conduct job observations for individual team members

Applied Knowledge

- AK0401 Coaching techniques
- AK0402 Communication techniques

Internal Assessment Criteria

- IAC0401 Coaching in furniture making skills is provided to individuals to address incorrect technical skills and enhance quality of product or process (the correct way of doing the task or showing a DVD is demonstrated)

- IAC0402 An engaging approach is applied when interacting with team members

7.2.5. PM-07-PS05 : Enforce occupational health and safety plans, policies and procedures

Scope of Practical Skill

Given case study with relevant information, the learner must be able to:

- PA0501 Complete a risk assessment to determine on-site compliance to occupational health and safety requirements

Applied Knowledge

- AK0501 Risk assessment techniques
- AK0502 Recording of information

Internal Assessment Criteria

- IAC0501 All areas of non-conformance are indicated by the risk assessment, the causes are identified and corrective actions suggested

7.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 4 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

7.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

8. 682201001-00-PM-08, Conceptualise and Develop the Business Concept, NQF Level 4, Credits 4

8.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to conceptualise and develop a business concept suitable for the manufacturing of crafted, bespoke or bulk furniture and manufacture prototypes or bespoke crafted furniture.

The learner will be required to:

- PM-08-PS01 : Step 1: Conduct a technical analysis of the concept
- PM-08-PS02 : Step 2: Conduct a market need analysis
- PM-08-PS03 : Step 3: Conduct a financial assessment for your venture
- PM-08-PS04 : Step 4: Investigate and determine feasibility (which may be technical aspect)
- PM-08-PS05 : Step 5: Investigate and determine market need
- PM-08-PS06 : Step 6: Investigate and determine economic feasibility
- PM-08-PS07 : Step 7: Investigate product prototype and/or model
- PM-08-PS08 : Step 8: Develop a strategic market plan
- PM-08-PS09 : Step 9: Develop a strategic business plan
- PM-08-PS10 : Step 10: Execute the business start-up

8.2 Guidelines for Practical Skills

8.2.1. PM-08-PS01 : Step 1: Conduct a technical analysis of the concept

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0101 Define the concept
- PA0102 Confirm the critical assumptions
- PA0103 Survey the state of the art
- PA0104 Identify critical barriers
- PA0105 Assess applicability of the concept (product or service)
- PA0106 Determine technology and technology cost

Applied Knowledge

- AK0101 Technical manufacturing requirements of furniture
- AK0102 Technology related to the manufacturing of furniture

Internal Assessment Criteria

- IAC0101 A technical analysis of the concept (product or service) is conducted
- IAC0102 Three quotes are obtained included technical proposals for the product/service

8.2.2 PM-08-PS02 : Step 2: Conduct a market need analysis

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0201 Conduct a market overview
- PA0202 Identify a pricing structure within the market
- PA0203 Identify market barriers
- PA0204 Identify risks
- PA0205 Identify distribution channels
- PA0206 Identify trends and competitors

Applied Knowledge

- AK0201 Market need analysis techniques and methods

Internal Assessment Criteria

- IAC0201 A market need analysis is conducted
- IAC0202 Complete 30 questionnaires and determine the outcome of these questionnaires

8.2.3. PM-08-PS03 : Step 3: Conduct a financial assessment for your venture

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0301 Identify capital needs
- PA0302 Identify professional needs
- PA0303 Estimate profit potential
- PA0304 Compile an initial budget
- PA0305 Conduct self, enterprise and commercialisation assessments
- PA0306 Open investment file

Applied Knowledge

- AK0301 Financial assessment principles, techniques and methods

Internal Assessment Criteria

- IAC0301 A financial assessment for the business venture is conducted
- IAC0302 Do a presentation of your findings of Step 1, Step 2 and Step 3
- IAC0303 Submit file to facilitator

8.2.4. PM-08-PS04 : Step 4: Investigate and determine feasibility (which may be technical aspect)

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0401 Identify partner if necessary and enter into an agreement
- PA0402 Develop mock-up/prototype and/or service model
- PA0403 Refine technical features
- PA0404 Determine preliminary productivity, efficiency and time management requirements
- PA0405 Conduct manufacturing process flow or service model process flow
- PA0406 From the process flow, determine the safety and environmental features (if applicable)

Applied Knowledge

- AK0401 Feasibility study methods and techniques

Internal Assessment Criteria

- IAC0401 Feasibility (which may be technical aspect) is investigated and determined

8.2.5. PM-08-PS05 : Step 5: Investigate and determine market need

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0501 Define brand, logos and image
- PA0502 Identify and quantify
    - Market size
    - Customers
    - Volumes
    - Prices
    - Distribution
    - Competition
- PA0503 Complete sample size research
- PA0504 Finalise designs after market analysis

Applied Knowledge

- AK0501 Market need analysis techniques and methods
- AK0502 Data analysis techniques

Internal Assessment Criteria

- IAC0501 The market need for the concept is investigated and determined
- IAC0502 Concept designs are finalised based on the findings of the market analysis

8.2.6. PM-08-PS06 : Step 6: Investigate and determine economic feasibility

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0601 Estimate profit potential estimates (worst case scenario)
- PA0602 Calculate breakeven point and potential growth (sweet spot and low hanging fruit)
- PA0603 Identify members for an advisory team and liaise/negotiate (business banker, mentor and incubator)
- PA0604 Finalise advisory team and sign agreements
- PA0605 Do a presentation of your findings of Step 4, Step 5 and Step 6
- PA0606 Identify seed capital and present
- PA0607 Submit file to the facilitator

Applied Knowledge

- AK0601 Economic feasibility study methods and techniques

Internal Assessment Criteria

- IAC0601 Economic feasibility is investigated and determined

8.2.7. PM-08-PS07 : Step 7: Investigate product prototype model

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0701 Develop my product prototype e model
- PA0702 Identify processes, materials and equipment
- PA0703 Conduct tests or trial runs
- PA0704 Develop manufacturing and/or service methods if applicable
- PA0705 Finalise intellectual property applicability

Applied Knowledge

- AK0701 Furniture manufacturing processes and technologies

Internal Assessment Criteria

- IAC0701 Product prototype and/or service model is investigated and determined

8.2.8. PM-08-PS08 : Step 8: Develop a strategic market plan

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0801 Identify suitable marketing strategies
- PA0802 Select market channels
- PA0803 Identify the marketing team (extended team and contracted services)
- PA0804 Pilot (field testing) the marketing strategy

Applied Knowledge

- AK0801 Strategic planning techniques

Internal Assessment Criteria

- IAC0801 A strategic market plan is developed

8.2.9. PM-08-PS09 : Step 9: Develop a strategic business plan

Scope of Practical Skill

Given a self-identified concept (product or service), the learner must be able to:

- PA0901 Decide venture type and/or licence agreements
- PA0902 Decide on the type of entity and register the business according to CIPC principles
- PA0903 Identify management team if applicable
- PA0904 Select organisational structure including HR structure
- PA0905 Compile business plan
- PA0906 Submit file to facilitator
- PA0907 Secure first stage funding if necessary
- PA0908 Do a presentation of your findings of Step 7, Step 8 and Step 9 with your strategic plan
- PA0909 Submit file to the facilitator

Applied Knowledge

- AK0901 Strategic planning techniques
- AK0902 Business planning techniques

Internal Assessment Criteria

- IAC0901 A strategic business plan is developed
- IAC0902 Compile a 2-year strategic business plan with 6-monthly goals and outcomes and financial milestones

8.2.10. PM-08-PS10 : Execute the business start-up

Scope of Practical Skill

Given a researched concept (product or service), market analysis, business plan, the learner must be able to:

- PA1001 Establish your business
- PA1002 Hire staff
- PA1003 Execute orders
- PA1004 Secure second-stage financing if applicable

Applied Knowledge

- AK1001 Business operations and processes

Internal Assessment Criteria

- IAC1001 Execute business start-up processes

8.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 4 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

8.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

9. 682201001-00-PM-09, Manage and Grow the Business, NQF Level 4, Credits 4

9.1 Purpose of the Practical Skill Modules

The focus of the learning in this module is on providing the learner an opportunity to plan, prepare, manage and grow the business for the manufacturing of crafted, bespoke or bulk furniture and manufacture prototypes or bespoke crafted furniture.

The learner will be required to:

- PM-09-PS01 : Establish production (applicable to learners manufacturing or processing a product) and/or service
- PM-09-PS02 : Manage business performance
- PM-09-PS03 : Monitor business performance
- PM-09-PS04 : Monitor and expand sales and distribution

9.2 Guidelines for Practical Skills

9.2.1. PM-09-PS01 : Establish production for manufacturing or processing a product

Scope of Practical Skill

Given a case study on a small venture business, concept design, market analysis, business plan, the learner must be able to:

- PA0101 Instate vision, mission and management policies
- PA0102 Hire and train personnel according to the employment strategy
- PA0103 Arrange financing if applicable
- PA0104 Establish quality control
- PA0105 Construct and engage full production or service
- PA0106 Finalise internal distribution channel (if applicable)
- PA0107 Execute contracts

Applied Knowledge

- AK0101 Strategic planning techniques

Internal Assessment Criteria

- IAC0101 Production of manufacturing or processing a product is established

9.2.2 PM-09-PS02 : Manage business performance

Scope of Practical Skill

Given a case study on a small venture business, concept design, market analysis, business plan, the learner must be able to:

- PA0201 Stay on top of deadlines
- PA0202 Monitor spending
- PA0203 Don't forget about accounts receivable
- PA0204 Separate business and personal funds
- PA0205 Time your purchases
- PA0206 Monitor a budget and cash flow
- PA0207 Manage inventory
- PA0208 Cut costs and increase revenue
- PA0209 Have a cash reserve

Applied Knowledge

- AK0201 Business monitoring and evaluation techniques

Internal Assessment Criteria

- IAC0201 Business performance is managed

9.2.3. PM-09-PS03 : Monitor business performance

Scope of Practical Skill

Given a case study on a small venture business, concept design, market analysis, business plan, the learner must be able to:

- PA0301 Monitor enterprise position in the market
- PA0302 Monitor sales
- PA0303 Monitor finances (income and expenditure)
- PA0304 Write a management report to evaluate your business

Applied Knowledge

- AK0301 Business performance monitoring techniques

Internal Assessment Criteria

- IAC0301 Business performance is monitored

9.2.4. PM-09-PS04 : Monitor and expand sales and distribution

Scope of Practical Skill

Given a case study on a small venture business, concept design, market analysis, business plan, the learner must be able to:

- PA0401 Build a sales funnel
- PA0402 Increase customer retention
    - Prioritise customer service
    - Using a customer relations management system (CRM)
    - Create customer loyalty programs to establish loyalty
    - Launch and email campaign
    - Engage with customers on social media
    - Keep your promises
- PA0403 Expand distribution
- PA0404 Analyse competitor response (if applicable)
- PA0405 Assess customer satisfaction
- PA0406 Assess distributor satisfaction (if applicable)
- PA0407 Refine product features

Applied Knowledge

- AK0401 Sales and distribution expansion techniques

Internal Assessment Criteria

- IAC0401 Sales and distribution is monitored and expanded

9.3 Provider Programme Accreditation Criteria

Physical Requirements:

- The provider must have a work site with all the machines, machine parts, attachments, equipment, control systems, lockout systems, tools, consumables, raw material, utensils, safety equipment, protective clothing, work instructions, internal practical assessment tools and practical training manual specified in the practical skill scope statement

Human Resource Requirements:

- Qualified and accredited facilitator or supervisor with a minimum of 3 years of experience in a furniture manufacturing environment and be NQF 4 qualified in furniture manufacturing processes.
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with all occupational health and safety legislation
- Compliance with Skills Development Act and Regulations
- Compliance with Labour Legislation

9.4 Exemptions

- No exemptions, but the module can be achieved in full through a normal RPL process

SECTION 3C: WORK EXPERIENCE MODULE SPECIFICATIONS

List of Work Experience Module Specifications

- 682201001-00-WM-01, Furniture Machining Operations, NQF Level 2, Credits 30
- 682201001-00-WM-02, Furniture Assembling Operations, NQF Level 2, Credits 24
- 682201001-00-WM-03, Furniture Finishing Operations, NQF Level 2, Credits 25
- 682201001-00-WM-04, Crafted Furniture Machining Operations, NQF Level 4, Credits 70
- 682201001-00-WM-05, Crafted Furniture Assembling Operations, NQF Level 3, Credits 55
- 682201001-00-WM-06, Prototype and Crafted Furniture making and Furniture repairing Processes, NQF Level 4, Credits 85

1. 682201001-00-WM-01, Furniture Machining Operations, NQF Level 2, Credits 30

1.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Produce cut timber components for the manufacturing of furniture using a range of basic machines, power tools, hand tools and equipment.

The learner will be required to:

- WM-01-WE01: Read and interpret work instructions and product specifications for machining operations
- WM-01-WE02: Prepare a workstation for machining operations
- WM-01-WE03: Perform breakout operations by operating a crosscut saw and ripsaw using solid timber by cutting a minimum of 30 components of the required length and width according to the cutting list
- WM-01-WE04: Produced planed timber and board product components and products (planing straight timber, laminated timber) using surface planer and thickness planer for a minimum period of 3 weeks
- WM-01-WE05: Produce sawn timber and board product components and products (producing straight cuts, mitred cuts grooves and half laps) for a minimum period of 5 week using panel saw and radial arm saw
- WM-01-WE06: Produce shaped timber and board product components and products (simple to more complex shapes) using the band saw for a period of 2 weeks
- WM-01-WE07: Produce machine sanded timber and board components and products (sanding solid timber, veneered bards and composite boards) for a minimum period of 2 week using edge sander, stroke sander and wide belt sander
- WM-01-WE08: Produce straight laminated timber and board components
- WM-01-WE09: Apply safety measures and equipment
- WM-01-WE10: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations
- WM-01-WE11: Ensure quality of the machined product by identifying machine faults
- WM-01-WE12: Ensure quality of the machined product by identifying raw material faults and handling and storing it correctly
- WM-01-WE13: Ensure quality of the machined product by identifying process faults
- WM-01-WE14: Conduct continuous quality inspection of the machined product throughout the machining operation
- WM-01-WE15: Perform maintenance activities to ensure a well maintain machine and workshop

1.2 Guidelines for Work Experiences

1.2.1. WM-01-WE01: Read and interpret work instructions and product specifications for machining operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Interpret a job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations as well as jigs and templates for specific tasks
- WA0102 Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications

Supporting Evidence

- SE0101 Signed job card

1.2.2. WM-01-WE02: Prepare a workstation for machining operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Obtain all required timber and conduct quality checks to ensure the timber quality conforms to specifications
- WA0202 Conduct prestart checks on all machines, equipment and attachments ensuring it complies with safety and working specifications and are in good working order (Inspect that the machine is operational, inspect blade for sharpness and correct blade and v-belts, etc.)
- WA0203 Select and apply personal protective clothing and equipment (PPE and PPC) for the specific machine
- WA0204 Identify and report substandard raw material, machines or PPE

Supporting Evidence

- SE0201 Prestart check list

1.2.3. WM-01-WE03: Perform breakout operations by operating a crosscut saw and ripsaw using solid timber by cutting a minimum of 30 components of the required length and width according to the cutting list

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Conduct the appropriate setting up procedure of the crosscut saw and ripsaw according to the product specifications on the work instruction
- WA0302 Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements
- WA0303 Observe the direction of the grain of the timber before feeding into the saw
- WA0304 Check cut components at set intervals (do spot checks) for correctness and consistency of cut and grain direction
- WA0305 Use measuring equipment to check that the length or width correspond to cutting list
- WA0306 Label or group components on pallets according to the workplace procedures
- WA0307 Identify, mark and report substandard raw material and components
- WA0308 Dispose of off-cuts safely and store re-useable off-cuts according to sizes and type of timber

Supporting Evidence

- SE0301 Completed job card signed by supervisor to confirm work completed

1.2.4. WM-01-WE04: Produced planed timber and board product components and products (planing straight timber, laminated timber) using surface planer and thickness planer for a minimum period of 3 weeks

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction
- WA0402 Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements
- WA0403 Operate the surface planer and thickness planer complying with safety standards
- WA0404 Use vernier calliper to verify if the timber is according to specified width and thickness
- WA0405 Label or group components on pallets according to the workplace procedures
- WA0406 Identify, mark and report substandard raw material and components

Supporting Evidence

- SE0401 Completed job card signed by the supervisor to confirm work completed to company standards

1.2.5. WM-01-WE05: Produce sawn timber and board product components and products (producing straight cuts, mitred cuts grooves and half laps) for a minimum period of 5 week using panel saw and radial arm saw

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction
- WA0502 Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements
- WA0503 Operate a panel saw and radial arm saw to get the required length, and angles that are required.
- WA0504 Check cut components at set intervals (do spot checks) for correctness and consistency of length and angles
- WA0505 Label or group components on pallets according to the workplace procedures
- WA0506 Identify, mark and report substandard raw material and components

Supporting Evidence

- SE0501 Completed job card signed by the supervisor to confirm work completed to company standards

1.2.6. WM-01-WE06: Produce shaped timber and board product components and products (simple to more complex shapes) using the band saw for a period of 2 weeks

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Conduct the appropriate setting up of the band saw
- WA0602 Conduct safety checks
- WA0603 Confirm if the blade is size and thickness is relevant to the work to be produced
- WA0604 Operate band saw safely and produce required shape and size.
- WA0605 Label components according to work procedures
- WA0606 Identify, mark and report substandard raw material and components.

Supporting Evidence

- SE0601 Completed job card signed by the supervisor to confirm work completed to company standards

1.2.7. WM-01-WE07: Produce machine sanded timber and board components and products (sanding solid timber, veneered bards and composite boards) for a minimum period of 2 week using edge sander, stroke sander and wide belt sander

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction
- WA0702 Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements
- WA0703 Operate the relevant machines to get the required length and angles
- WA0704 Check cut components at set intervals (do spot checks) for correctness and consistency of length and angles
- WA0705 Label or group components on pallets according to the workplace procedures
- WA0706 Identify, mark and report substandard raw material and components

Supporting Evidence

- SE0701 Completed job card signed by the supervisor to confirm work completed to company standards

1.2.8. WM-01-WE08: Produce straight laminated timber and board components

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Use tape measure to verify if the length is according to cutting list
- WA0802 Use hand clamps and or laminating press to laminate timber.
- WA0803 Use correct adhesives for the job.

Supporting Evidence

- SE0801 Completed job card signed by the supervisor to confirm work completed to company standards

1.2.9. WM-01-WE09: Apply safety measures and equipment

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0901 Maintain safe working environment to comply with safety standards
- WA0902 Apply ear and eye protection, dust masks, overall and no loose clothes
- WA0903 Attend regular safety meetings according to the requirements of the workplace
- WA0904 Report inadequate lighting in the machine shop
- WA0905 Participate in simulated fire emergency evacuation procedures

Supporting Evidence

- SE0901 Completed job card signed by the supervisor to confirm work completed

1.2.10. WM-01-WE10: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1001 Clean dust extraction bags where applicable
- WA1002 Check the dust extraction system for working condition
- WA1003 Comply with attendance and time keeping standards as determined by the company
- WA1004 Take necessary actions and measures and to reduce wastage
- WA1005 Produce minimum waste levels as determined by the company within set tolerances
- WA1006 Apply all safety routines and procedures when working with compressed air

Supporting Evidence

- SE1001 Completed job card signed by the supervisor to confirm work completed

1.2.11. WM-01-WE11: Ensure quality of the machined product by identifying machine faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1101 Identify and immediately report any machine defects
- WA1102 Ensure the machine is operated within design specifications
- WA1103 Identify any wrongly fitted attachment and replace
- WA1104 Identify and correct incorrect machine settings
- WA1105 Identify and correct any incorrect speed setting in terms of the rotation of the blade

- WA1106 Conduct calibration routines within the authority of the operator and report any deviations to the supervisor

Supporting Evidence

- SE1101 Job card from the supervisor

1.2.12. WM-01-WE12: Ensure quality of the machined product by identifying raw material faults and handling and storing it correctly

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1201 Inspect, identify and report all timber defects such as cracks, knots, twists, insects, wet rot and dry rot
- WA1202 Identify the incorrect moisture content of the raw material causing defects such as swelling of boards
- WA1203 Select material correctly according to type as specified on the job card
- WA1204 Handle timber and recuts as delicately as possible avoiding bumping and damaging the edges/chips using trolleys to cart it
- WA1205 Store timber correctly in an area free from moisture
- WA1206 Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear

Supporting Evidence

- SE1201 Job card from the supervisor

1.2.13. WM-01-WE13: Ensure quality of the machined product by identifying process faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1301 Accurately determine the type of material to set the correct working speed of the machine
- WA1302 Accurately determine the type of material to apply the correct feeding of timber to the machine
- WA1303 Ensure the wood is correctly clamped to the jig to avoid damage to machine, unsafe working condition, or not producing the designed product

Supporting Evidence

- SE1301 Job card from the supervisor

1.2.14. WM-01-WE14: Conduct continuous quality inspection of the machined product throughout the machining operation

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1401 Conduct a quality inspection checking for consistency, accuracy, defects of the product

- WA1402 Conduct a final quality inspection of the machined product before hand over to next process
- WA1403 Record all defects

Supporting Evidence

- SE1401 Quality checklist

1.2.15. WM-01-WE15: Perform maintenance activities to ensure a well maintain machine and workshop

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1501 Lubricate, clean and service the machine at required intervals as part of routine maintenance activities
- WA1502 Identify and immediately report any machine or machine part or attachment defects
- WA1503 Service the machine at required intervals by replacing belts and applying calibration routines
- WA1504 Check the sharpness of blades, replace cutting tools and inspect v-belts at required intervals

Supporting Evidence

- SE1501 Completed machine maintenance checklist signed by the supervisor to confirm work completed

1.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and designated areas

6 Personal protective clothing and equipment

1.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material
- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 2 qualified in furniture technology with 3 years of experience in the furniture making industry
- Supervisor/subordinate ratios = 1:20

- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

1.5 Additional Assignments to be Assessed Externally

None

2. 682201001-00-WM-02, Furniture Assembling Operations, NQF Level 2, Credits 24

2.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Demonstrate the ability to identify tools and equipment and produce joints, perform lamination and assemble finished furniture product.

The learner will be required to:

- WM-02-WE01: Read and interpret work instructions and product specifications for furniture assembling operations
- WM-02-WE02: Prepare a workstation for furniture assembly operations
- WM-02-WE03: Obtain and prepare tools required to produce joints (tools including jig saws, hand routers, drills, doweling jigs, hand saws, sliding bevels, marking gauge and mortise gauge)
- WM-02-WE04: Produce minimum of 50 of each of the following joints include dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove as per cutting list and drawings
- WM-02-WE05: Fit and dry assemble at least 50 of each of the following joints: dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove and inspect for a snug fit
- WM-02-WE06: Produce 50 different profiles, chamfers, radiuses, rebates, dowelling necessary for the job
- WM-02-WE07: Conduct a dry assembly by fitting all components according to specification of a minimum of 100 furniture products
- WM-02-WE08: Perform final assembling of minimum 100 furniture products using clamps, glue, screws and nails
- WM-02-WE09: Perform sanding and smooth the surface and sharp edges of a minimum of 100 furniture products
- WM-02-WE10: Apply safety measures and equipment
- WM-02-WE11: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations
- WM-02-WE12: Ensure quality of the assembled product by identifying machine faults
- WM-02-WE13: Ensure quality of the assembled product by identifying raw material faults
- WM-02-WE14: Ensure quality of the assembled product by identifying process faults
- WM-02-WE15: Conduct continuous quality inspection of the assembled product throughout the assembling operation
- WM-02-WE16: Perform maintenance activities to ensure a well maintain machine and workshop

2.2 Guidelines for Work Experiences

2.2.1. WM-02-WE01: Read and interpret work instructions and product specifications for furniture assembling operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Interpret the job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations
- WA0102 Identify furniture types, styles and designs from the job card
- WA0103 Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications

Supporting Evidence

- SE0101 Signed job card

2.2.2. WM-02-WE02: Prepare a workstation for furniture assembly operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Obtain all required timber and conduct quality checks to ensure the timber quality conforms to specifications
- WA0202 Obtain all required consumables and accessories specified in the job card and conduct a quality check
- WA0203 Prepare workbenches and equipment to be used
- WA0204 Select and apply personal protective clothing and equipment (PPE and PPC) for the specific machine (such as gloves, dust masks, respirators, etc.)

Supporting Evidence

- SE0201 Time sheet/ job card

2.2.3. WM-02-WE03: Obtain and prepare tools required to produce joints (tools including jig saws, hand routers, drills, doweling jigs, hand saws, sliding bevels, marking gauge and mortise gauge)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Compile and send tool list request to the store room or relevant person
- WA0302 Identify tools from the store room and sign them out as per the company policies
- WA0303 Confirm that the tools obtained are relevant to the job and joints to be produced
- WA0304 Set up the tool/ machine correctly
- WA0305 Adjust the cutting tools to meet specifications
- WA0306 Receive and inspect the tools to ensure it meet the specifications and are in good working order and select and fit attachments accurately
- WA0307 Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction Safely handle, care for and store tools correctly without damaging them

Supporting Evidence

- SE0301 Tool request completed and sign by the store room attendant

2.2.4. WM-02-WE04: Produce minimum of 50 of each of the following joints include dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove as per cutting list and drawings

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Mark-out joints as per drawings
- WA0402 Use correct tools and/or correct machine to cut joints
- WA0403 Use vises to secure workpiece to avoid injuries to self and damage to furniture component
- WA0404 Handle cutting tools correctly and safely
- WA0405 Replace bits and cutters where necessary
- WA0406 Produce quality joints in compliance with specifications and tolerances in the time allocated

Supporting Evidence

- SE0401 Time sheet/ job card and photos

2.2.5. WM-02-WE05: Fit and dry assemble at least 50 of each of the following joints: dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove and inspect for a snug fit

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Fit the male and female components of the joint and check if a snug fit is obtained
- WA0502 Make a final cleanout of the joints that are too tight
- WA0503 Observe the shoulder to shoulder size according to the product specifications
- WA0504 Check if joints correspond with the specification on the drawing

Supporting Evidence

- SE0501 Time sheet/ job card and photos

2.2.6. WM-02-WE06: Produce 50 different profiles, chamfers, radiuses, rebates, dowelling necessary for the job

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Prepare a hand router by selecting and attaching the required bits
- WA0602 Confirm the radiuses and profile with the relevant person
- WA0603 Produce profile, chamfer, radiuses, rebates according to specification
- WA0604 Use dowelling jig to produce dowel holes
- WA0605 Check if all profiles and work produced meet requirements
- WA0606 Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction

Supporting Evidence

- SE0601 Time sheet/ job card and photos

2.2.7. WM-02-WE07: Conduct a dry assembly by fitting all components according to specification of a minimum of 100 furniture products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Perform dry assemble to check if the product components fit
- WA0702 Check if the product meets specifications as specified in the drawing
- WA0703 Check product for squareness and stability
- WA0704 Report any deviations to the relevant person

Supporting Evidence

- SE0701 Time sheet/ job card and photos

2.2.8. WM-02-WE08: Perform final assembling of minimum 100 furniture products using clamps, glue, screws and nails

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Perform final assembly of the product using glue, nails screws and clamps
- WA0802 Use tape measure to check if the product is square
- WA0803 Remove excess glue from the joints
- WA0804 Countersink all screws
- WA0805 Punch all nails to ensure they are not protruding to the surface

Supporting Evidence

- SE0801 Time sheet/ job card and photos

2.2.9. WM-02-WE09: Perform sanding and smooth the surface and sharp edges of a minimum of 100 furniture products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0901 Select and use the correct sand paper
- WA0902 Sand all surfaces and ensure that it is ready to accept finishing material
- WA0903 Remove all sharp edges by sanding them off
- WA0904 Apply stopping on the surface to rectify faults where necessary

Supporting Evidence

- SE0901 Time sheet/ job card and photos

2.2.10. WM-02-WE10: Apply safety measures and equipment

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1001 Maintain safe working environment to comply with safety standards
- WA1002 Apply ear and eye protection, dust masks, overall and no loose clothes
- WA1003 Attend regular safety meetings according to the requirements of the workplace
- WA1004 Report inadequate lighting in the assembly shop
- WA1005 Participate in a simulated fire emergency evacuation procedure

Supporting Evidence

- SE1001 Time sheet/ job card and photos

2.2.11. WM-02-WE11: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1101 Record and report assembly production information and prepare assembly documentation
- WA1102 Clean dust extraction bags where applicable
- WA1103 Check the dust extraction system for working condition
- WA1104 Comply with attendance and time keeping standards as determined by the company
- WA1105 Take necessary actions and measures and to reduce wastage
- WA1106 Produce minimum waste levels as determined by the company within set tolerances
- WA1107 Apply all safety routines and procedures when working with compressed air

Supporting Evidence

- SE1101 Time sheet/ job card and photos

2.2.12. WM-02-WE12: Ensure quality of the assembled product by identifying machine faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1201 Identify and immediately report any power tool defects
- WA1202 Ensure the power tool is operated within design specifications
- WA1203 Identify any wrongly fitted attachment and replace
- WA1204 Identify and correct incorrect power tool settings
- WA1205 Conduct calibration routines within the authority of the operator and report any deviations to the supervisor

Supporting Evidence

- SE1201 Time sheet/ job card and photos

2.2.13. WM-02-WE13: Ensure quality of the assembled product by identifying raw material faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1301 Inspect, identify and report all component defects such as cracks, knots, twists, insects, wet rot and dry rot
- WA1302 Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches
- WA1303 Select components correctly according to type as specified on the job card
- WA1304 Handle furniture product components with utmost care to prevent damaging or chipping the edges
- WA1305 Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear

Supporting Evidence

- SE1301 Time sheet/ job card and photos

2.2.14. WM-02-WE14: Ensure quality of the assembled product by identifying process faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1401 Observe the direction of the grains of the wood while drilling or producing a joint to ensure the pattern of the grain is correct
- WA1402 Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to settings such as speed and cleaning to prevent scratching
- WA1403 Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product
- WA1404 Store and label components and assembled furniture according to specifications and size
- WA1405 Ensure the wood is correctly clamped in the vice to avoid damage to machine, unsafe working condition, or not producing the designed product

Supporting Evidence

- SE1401 Time sheet/ job card and photos

2.2.15. WM-02-WE15: Conduct continuous quality inspection of the assembled product throughout the assembling operation

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1501 Check samples at set intervals (spot checks) for correctness and consistency of cut components
- WA1502 Conduct a quality inspection checking for consistency, accuracy, defects of the product
- WA1503 Conduct a final quality inspection of the machined product before hand over to next process
- WA1504 Record all defects

Supporting Evidence

- SE1501 Quality checklist

2.2.16. WM-02-WE16: Perform maintenance activities to ensure a well maintain machine and workshop

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1601 Lubricate, clean and service the machine at required intervals as part of routine maintenance activities
- WA1602 Identify and immediately report any machine or machine part or attachment defects

Supporting Evidence

- SE1601 Completed machine maintenance checklist

2.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and other designated areas

6 Personal protective clothing and equipment

2.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material
- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 2 qualified finishing and heat setting machine operator with 3 years of experience in the finishing and heat setting department
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

2.5 Additional Assignments to be Assessed Externally

None

3. 682201001-00-WM-03, Furniture Finishing Operations, NQF Level 2, Credits 25

3.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Demonstrate the ability to prepare workstation, material products and perform spraying of a furniture product.

The learner will be required to:

- WM-03-WE01: Read and interpret work instruction and product specifications for furniture finishing operations
- WM-03-WE02: Prepare a furniture finishing workstation by obtaining all necessary tools, equipment and removing all foreign objects from the workstation
- WM-03-WE03: Prepare a minimum of 100 products or components for initial/ base coat
- WM-03-WE04: Identify, select and prepare finishing chemicals such as lacquers, varnishes, tinted lacquers, paints, varnishes, stains, sealers and primers
- WM-03-WE05: Identify, select and adjust spraying equipment for furniture finishing operations
- WM-03-WE06: Perform spraying application using conventional spray guns or pumps for a minimum of 100 products
- WM-03-WE07: Prepare workpieces for the next coat by denibbing and/or sanding between coats for a minimum of 100 products/ components using correct grit sandpaper
- WM-03-WE08: Perform all operations by adhering to safety and housekeeping rules consistently and continuously
- WM-03-WE09: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations
- WM-03-WE10: Ensure quality of the finished furniture product by identifying machine faults
- WM-03-WE11: Ensure quality of the finished furniture product by identifying raw material faults
- WM-03-WE12: Ensure quality of the finished furniture product by identifying process and product faults
- WM-03-WE13: Conduct continuous quality inspection of the finished furniture product throughout the assembling operation
- WM-03-WE14: Perform minor maintenance activities to ensure a well maintain machine

3.2 Guidelines for Work Experiences

3.2.1. WM-03-WE01: Read and interpret work instruction and product specifications for furniture finishing operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Interpret the job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations for the finishing of furniture
- WA0102 Identify furniture types, styles and designs from the job card
- WA0103 Identify all finishing and chemical applications indicated on the job card
- WA0104 Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications

Supporting Evidence

- SE0101 Time sheet/ job card and photos

3.2.2. WM-03-WE02: Prepare a furniture finishing workstation by obtaining all necessary tools, equipment and removing all foreign objects from the workstation

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Obtain all required material such as sanding papers
- WA0202 Prepare workbenches and equipment to be used
- WA0203 Obtain all PPE required such as gloves, dust masks, respirators, etc.
- WA0204 Remove all foreign objects from the workbench
- WA0205 Obtain and set a stop watch
- WA0206 Ensure the spray room/booth is dust free and the extraction system is in working order

Supporting Evidence

- SE0201 Time sheet/ job card and photos

3.2.3. WM-03-WE03: Prepare a minimum of 100 products or components for initial/ base coat

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Identify and rectify faults on the surface of the work piece
- WA0302 Apply stopping where required selecting a matching colour
- WA0303 Perform hand sanding using the correct sand paper grit to achieve the required surface in preparation for the base coat application
- WA0304 Remove dust from the work piece
- WA0305 Cover handles, hinges and areas with masking tape where necessary
- WA0306 Label all covered areas to ensure correct colour/chemical is applied

Supporting Evidence

- SE0301 Time sheet/ job card and photos

3.2.4. WM-03-WE04: Identify, select and prepare finishing chemicals such as lacquers, varnishes, tinted lacquers, paints, varnishes, stains, sealers and primers

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Confirm with the specification sheet the type of finish to be used
- WA0402 Obtain relevant finishing chemicals
- WA0403 Ensure that the finishing chemicals is within its shelf life

- WA0404 Prepare the required amount of finishing chemicals to avoid waste
- WA0405 Read and understand the relevant material safety data sheet (MSDS)
- WA0406 Mix chemicals and add catalyst where required
- WA0407 Perform viscosity checks to determine readiness for spraying

Supporting Evidence

- SE0401 Time sheet/ job card and photos

3.2.5. WM-03-WE05: Identify, select and adjust spraying equipment for furniture finishing operations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Assemble the spray gun and rinse with relevant solvent ensuring the gun is properly clean and free from oil and water
- WA0502 Connect the spray gun to an air pipe and airline and allow flow of air to the spraying equipment
- WA0503 Check and adjust compressed air to the required pressure bar
- WA0504 Adjust the spray gun according to required pressure, fluid, pattern and size of the work piece
- WA0505 Run a sample to ensure specifications are met and adjust settings if necessary

Supporting Evidence

- SE0501 Time sheet/ job card and photos

3.2.6. WM-03-WE06: Perform spraying application using conventional spray guns or pumps for a minimum of 100 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Use turn tables for spraying in the spray booth/room
- WA0602 Start the extraction booth and fan
- WA0603 Place work piece in such a way that excess spray flows through freely
- WA0604 Handle the gun correctly and perpendicular to the surface
- WA0605 Ensure the movement of the gun is straight avoiding twisting of the hand and over lapping strokes ensuring even coverage of the workpiece

Supporting Evidence

- SE0601 Time sheet/ job card and photos

3.2.7. WM-03-WE07: Prepare workpieces for the next coat by denibbing and/or sanding between coats for a minimum of 100 products/ components using correct grit sandpaper

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Obtain correct grit sanding paper for denibbing
- WA0702 Sand product without removing the initial coat
- WA0703 Clean the workpiece and ensure that the surface is dry and ready to accept the final coat

Supporting Evidence

- SE0701 Time sheet/ job card and photos

3.2.8. WM-03-WE08: Perform all operations by adhering to safety and housekeeping rules consistently and continuously

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Maintain safe working environment by compling with safety standards and using PPE such as ear and eye protection, dust masks, overall and no loose clothes
- WA0802 Ensure lifting equipment is used for moving heavy products material
- WA0803 Dispose of waste according to regulation and company policy
- WA0804 Work area is kept clean at all times
- WA0805 All chemicals are stored safely in fireproof storage according to safety requirements
- WA0806 Label all material in the storage facility
- WA0807 Attend regular safety meetings according to the requirements of the workplace
- WA0808 Report inadequate lighting in the finishing department
- WA0809 Participate in a simulated fire emergency evacuation procedure

Supporting Evidence

- SE0801 Time sheet/ job card and photos

3.2.9. WM-03-WE09: Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0901 Record and report furniture finishing production information and prepare assembly documentation
- WA0902 Clean dust extraction bags where applicable
- WA0903 Check the dust extraction system for working condition
- WA0904 Comply with attendance and time keeping standards as determined by the company
- WA0905 Take necessary actions and measures and to reduce wastage
- WA0906 Produce minimum waste levels as determined by the company within set tolerances
- WA0907 Apply all safety routines and procedures when working with compressed air

- WA0908 Store and label components and assembled furniture according to specifications and size

Supporting Evidence

- SE0901 Time sheet/ job card and photos

3.2.10. WM-03-WE10: Ensure quality of the finished furniture product by identifying machine faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1001 Inspect the finished product visually and by feel to ensure compliance with product specifications
- WA1002 Check the finished product against specification
- WA1003 Identify and immediately report any power tool defects
- WA1004 Ensure the power tool is operated within design specifications
- WA1005 Identify any wrongly fitted attachment and replace
- WA1006 Identify and correct incorrect power tool settings
- WA1007 Identify machine faults such as wrong nozzle, pressure that is too high or low or incorrect balance of air extraction
- WA1008 Identify product faults such as incorrect shape, warped joints, incorrect size and scratches
- WA1009 Identify process faults such as blade marks, paint/coating contaminated with water, over spraying, running, mixing of wrong paints/chemicals, wrong viscosity, wrong reaction or inconsistencies in the cut product

Supporting Evidence

- SE1001 Time sheet/ job card and photos

3.2.11. WM-03-WE11: Ensure quality of the finished furniture product by identifying raw material faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1101 Inspect the finished product visually and by feel to ensure compliance with product specifications and identify and report all component defects such as cracks, knots, twists, insects, wet rot and dry rot
- WA1102 Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches

Supporting Evidence

- SE1101 Time sheet/ job card and photos

3.2.12. WM-03-WE12: Ensure quality of the finished furniture product by identifying process and product faults

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1201 Inspect the finished product visually and by feel to ensure compliance with product specifications
- WA1202 Check the finished product against specification
- WA1203 Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to tool settings such as speed and cleaning to prevent scratching
- WA1204 Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product
- WA1205 Ensure the wood is correctly clamped in the vice to avoid damage to machine, unsafe working condition, or not producing the designed product
- WA1206 Select components correctly according to type as specified on the job card
- WA1207 Handle furniture product components with utmost care to prevent damaging or chipping the edges
- WA1208 Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear

Supporting Evidence

- SE1201 Time sheet/ job card and photos

3.2.13. WM-03-WE13: Conduct continuous quality inspection of the finished furniture product throughout the assembling operation

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1301 Check samples at set intervals (spot checks) for correctness and consistency of cut components
- WA1302 Conduct a quality inspection checking for consistency, accuracy, defects of the product
- WA1303 Conduct a final quality inspection of the machined product before hand over to next process
- WA1304 Record all defects

Supporting Evidence

- SE1301 Quality checklist

3.2.14. WM-03-WE14: Perform minor maintenance activities to ensure a well maintain machine

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1401 Lubricate, clean and service the machine at required intervals as part of routine maintenance activities
- WA1402 Identify and immediately report any machine or machine part or attachment defects

Supporting Evidence

- SE1401 Completed machine maintenance checklist

3.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and designated areas

6 Personal protective clothing and equipment

3.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material
- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 2 qualified finishing and heat setting machine operator with 3 years of experience in the finishing and heat setting department
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

3.5 Additional Assignments to be Assessed Externally

None

4. 682201001-00-WM-04, Crafted Furniture Machining Operations, NQF Level 4, Credits 70

4.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Demonstrate the ability to produce bored, jointed, profiled, moulded and turned wooden components working from drawings and product specifications by operating various machines, taking accurate measurements and calculations, using jigs and templates

The learner will be required to:

- WM-04-WE01: Read, interpret and produce basic engineering drawings
- WM-04-WE02: Prepare for operations in the machining department
- WM-04-WE03: Design, construct and test jigs and templates for back legs of a chair, tempered legs of a server and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the jig or template (Masonite, MDF; Perspex; plywood; appropriate new materials or off cuts)
- WM-04-WE04: Repair jigs and templates
- WM-04-WE05: Modify jigs and templates
- WM-04-WE06: Produce bored timber and board product components and products operating a multi-borer at 90 degrees and 45 degrees drilling and different angles
- WM-04-WE07: Operate the edge bander to produce machine banded product for a period of 2 weeks working with solid edging, impact and veneer edging
- WM-04-WE08: Produce profiled timber and board product components and products by operating a spindle, moulder and overhead router to produce components with different profiles, moulds, rebates, grooves, chamfers, radiuses, and bullnoses for a period of 3 weeks
- WM-04-WE09: Produce turned timber components and products by operating a lathe and copy lathe to produce 100 turned components
- WM-04-WE10: Produce jointed timber producing different sizes and angles of Mortise-and-Tenon joints by operating the Mortise-and-Tenon machine for a period of 2 weeks in the machining department
- WM-04-WE11: Conclude operations according to workplace requirements
- WM-04-WE12: Perform routine cleaning and minor maintenance in the workshop to maintain the good working order of the machines, tooling, equipment and safe working conditions
- WM-04-WE13: Apply safety procedures and equipment when operating machines, working with chemicals, handling wood, board and components for the duration of the work experience

4.2 Guidelines for Work Experiences

4.2.1. WM-04-WE01: Read, interpret and produce basic engineering drawings

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Produce engineering drawings for a chair, stool, table, box, cabinet, book shelve
- WA0102 Identify all components to be cut and processed in the machining department and compile a cutting list
- WA0103 Identify the manufacturing processes from the drawing and compile routing sheets

- WA0104 Identify and correctly calculate the raw material needed for the product

Supporting Evidence

- SE0101 Completed drawings
- SE0102 Completed routing sheet
- SE0103 Completed cutting list
- SE0104 Completed raw material list

4.2.2. WM-04-WE02: Prepare for operations in the machining department

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Receive cutting list and other production information and check for accuracy and sufficiency and report any incorrect information
- WA0202 Receive all necessary materials and equipment for the task and confirm that all components are according to sizes, numbers and quality as per cutting list
- WA0203 Prepare the working area for the task ensuring it is clean and free from dust and oil or any foreign material which can contaminate the work piece
- WA0204 Production information is checked for accuracy and sufficiency and any incorrect information is reported to the relevant person
- WA0205 All necessary materials and equipment for the job are identified and accessed, and any non-availability is reported to the relevant person
- WA0206 The quality and quantity of materials is checked and remedial action taken if there is non-conformity
- WA0207 Accurately establish the compatibility of materials with the boring machine to be used and take correct remedial action to address non-conformity
- WA0208 Jigs, templates and other necessary dimension control aids are available, correct and fit for the purpose

Supporting Evidence

- SE0201 Prepared work area

4.2.3. WM-04-WE03: Design, construct and test jigs and templates for back legs of a chair, tempered legs of a server and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the jig or template (Masonite, MDF; Perspex; plywood; appropriate new materials or off cuts)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Read and interpret the requirements and sample for the jigs and templates according to production, quality and organisational requirements
- WA0302 Jigs and templates made, provide for secure and safe attachment, accurate calibrators and sizing for their production purpose
- WA0303 Inspect jigs and templates to confirm specification accuracy and accurate sample match

- WA0304 Correctly label jigs and templates are and place in the designated location
- WA0305 Documentation is completed accurately and according to organisational requirements

Supporting Evidence

- SE0301 Photos of completed jigs
- SE0302 Completed job card confirming completion of work

4.2.4. WM-04-WE04: Repair jigs and templates

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Inspect jigs and templates for damage to maintain accuracy and quality of the operations and identify damage or faults
- WA0402 Plan the repair operation to minimise production downtime
- WA0403 Repair the jig or template confirming accurate sample match

Supporting Evidence

- SE0401 Photos of repaired jigs and templates (before and after)
- SE0402 Completed job card confirming completion of work

4.2.5. WM-04-WE05: Modify jigs and templates

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Determine the feasibility of the intended modification
- WA0502 Identify the modification requirement and confirm with the relevant person
- WA0503 Plan the modification process to minimise production downtime
- WA0504 Conduct the modification accurately to specification and inspect the jig or template to confirm an accurate sample match is obtained
- WA0505 Perform the modification safely and within the optimum time scales
- WA0506 Correctly mark modified jigs and templates for identification and return to their correct location

Supporting Evidence

- SE0501 Photos of modified jigs and templates (before and after)
- SE0502 Completed job card confirming completion of work

4.2.6. WM-04-WE06: Produce bored timber and board product components and products operating a multi-borer at 90 degrees and 45 degrees drilling and different angles

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Set out, measure and mark material for boring applying the correct dimensions and calculations
- WA0602 Inspect and set up the machine for boring by inserting cutters, adjusting clamps and stoppers ensuring left side drills corresponds with the right hand side components
- WA0603 Identify correct dowel sizes
- WA0604 Set the correct pressure of the machine and run a test piece and correct all deviations
- WA0605 Drill materials at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations
- WA0606 Inspect the bored components to confirm quality and meeting product specifications
- WA0607 Identify and report substandard raw material and components
- WA0608 Label or group components on pallets for dispatch to the next operation

Supporting Evidence

- SE0601 Photos of bored timber and bored board products or components
- SE0602 Completed job card confirming accurate completion of work

4.2.7. WM-04-WE07: Operate the edge bander to produce machine banded product for a period of 2 weeks working with solid edging, impact and veneer edging

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Set out, measure and mark material for edging applying the correct dimensions and calculations
- WA0702 Inspect and set up the machine for edging by adjusting cutters, rollers, pressure and height of the machine cutting unit
- WA0703 Ensure that temperature of the glue is according to edging and machine specification
- WA0704 Run and inspect a test piece to confirm correct settings
- WA0705 Edge band materials at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations
- WA0706 Inspect the edge banded components to confirm quality and meeting product specifications
- WA0707 Identify and report substandard raw material and components
- WA0708 Label or group components on pallets for dispatch to the next operation

Supporting Evidence

- SE0701 Photos of edge banded timber and bored board products or components
- SE0702 Completed job card confirming accurate completion of work

4.2.8. WM-04-WE08: Produce profiled timber and board product components and products by operating a spindle, moulder and overhead router to produce components with different profiles, moulds, rebates, grooves, chamfers, radiuses, and bullnoses for a period of 3 weeks

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Set out, measure and mark material for profiling applying the correct dimensions and calculations
- WA0802 Inspect and set up the machine for profiling operations
- WA0803 Adjust the spindle feeder to correct height
- WA0804 Select the correct feeding speed and direction
- WA0805 Adjust cutting tools to correct angles, width and length and depth
- WA0806 Run and inspect a test piece to confirm correct settings
- WA0807 Operate the spindle, moulder and overhead router to produce components with different profiles, moulds, rebates, grooves, chamfers, radiuses, and bullnoses at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations
- WA0808 Inspect the profiled components to confirm quality and meeting product specifications
- WA0809 Identify and report substandard raw material and components
- WA0810 Label or group components on pallets for dispatch to the next operation

Supporting Evidence

- SE0801 Photos of profiled timber board products or components
- SE0802 Completed job card confirming accurate completion of work

4.2.9. WM-04-WE09: Produce turned timber components and products by operating a lathe and copy lathe to produce 100 turned components

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0901 Set out, measure and mark material for profiling applying the correct dimensions and calculations
- WA0902 Inspect and set up the machine for wood turning operations
- WA0903 Adjust the lathe and copy lathe to required adjustments
- WA0904 Fit components securely to the machines
- WA0905 Select and fit the correct chisels
- WA0906 Secure the templates and jigs to the machine
- WA0907 Operate a lathe and copy lathe to produce 100 turned components using the lathe and copy lathe
- WA0908 Inspect the profiled components to confirm quality and meeting product specifications
- WA0909 Identify and report substandard raw material and components
- WA0910 Label or group components on pallets for dispatch to the next operation

Supporting Evidence

- SE0901 Photos of turned timber products or components

- SE0902 Completed job card confirming accurate completion of work

4.2.10. WM-04-WE10: Produce jointed timber producing different sizes and angles of Mortise-and-Tenon joints by operating the Mortise-and-Tenon machine for a period of 2 weeks in the machining department

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1001 Set out, measure and mark timber and composite board for profiling applying the correct dimensions and calculations
- WA1002 Inspect and set up the machine for cutting joints
- WA1003 Set-up correct shoulder sizes and adjust cutting tools to correct angles, width and length and depth
- WA1004 Set the correct pressure of the machine
- WA1005 Run and inspect a test piece to confirm correct settings
- WA1006 Start, stop and control the Mortise-and-Tenon producing different sizes and angles of Mortise-and-Tenon joints
- WA1007 Cut joints according specification (joints include but not limited to: double end mortise, mitred butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint)
- WA1008 Inspect the jointed components to confirm quality and meeting product specifications
- WA1009 Identify and report substandard raw material and components
- WA1010 Label or group components on pallets for dispatch to the next operation

Supporting Evidence

- SE1001 Photos of jointed timber products or components
- SE1002 Completed job card confirming accurate completion of work

4.2.11. WM-04-WE11: Conclude operations according to workplace requirements

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1101 Unused materials are returned to appropriate storage
- WA1102 Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated
- WA1103 Perform the process according to health and safety requirements within the allocated time
- WA1104 Record and submit all production information and processes
- WA1105 Faulty and/or defective equipment is tagged and reported in accordance with workplace practices
- WA1106 Waste and scrap materials are dealt with following workplace procedures in compliance with environmental requirements

Supporting Evidence

- SE1101 Completed job card confirming accurate completion of work

4.2.12. WM-04-WE12: Perform routine cleaning and minor maintenance in the workshop to maintain the good working order of the machines, tooling, equipment and safe working conditions

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1201 Inspect, clean and conduct minor maintenance tasks on machines (such as lubrication, belt tension, etc.) to maintain serviceability of the machines
- WA1202 Inspect, clean and conduct minor maintenance tasks on tooling and equipment such as sharpening to maintain the good working order
- WA1203 Faulty and/or defective equipment is tagged and reported in accordance with workplace practices
- WA1204 Clean the working environment and inspect for compliance with safety requirements

Supporting Evidence

- SE1201 Completed checklists and reports

4.2.13. WM-04-WE13: Apply safety procedures and equipment when operating machines, working with chemicals, handling wood, board and components for the duration of the work experience

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1301 Operate machines ensuring work practices minimise the risk of injury and damage to machinery, equipment and safety of self and others
- WA1302 Inspect the workshop, machines, tools and equipment to determine whether these aspects comply with occupational health and safety requirements
- WA1303 Identify, record and report conditions that present a threat to safety, health and the environment
- WA1304 Promptly identify appropriate corrective actions and consult the appropriate parties about these actions
- WA1305 Trace and report ongoing safety concerns in work area ensuring corrective actions are taken
- WA1306 Complete health, safety and environment reports using the required format
- WA1307 Identify, select and apply personal protective clothing and equipment appropriate to the task
- WA1308 Participate in a fire evacuation drill

Supporting Evidence

- SE1301 Completed checklists and reports

4.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and designated areas

6 Personal protective clothing and equipment

4.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material
- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 4 qualified in furniture technology with 3 years of relevant experience in the furniture industry
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

4.5 Additional Assignments to be Assessed Externally

None

5. 682201001-00-WM-05, Crafted Furniture Assembling Operations, NQF Level 3, Credits 55

5.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Demonstrate the ability to complete crafted furniture, select prepare and lay veneers, produce curved laminated timber and perform manual edging

The learner will be required to:

- WM-05-WE01: Read, interpret and produce basic engineering drawings
- WM-05-WE02: Prepare for operations in the assembling department
- WM-05-WE03: Design, construct and test templates, moulds and formers for curved, laminated drawers and raised and curved doors and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the templates, moulds and formers
- WM-05-WE04: Repair templates, moulds and formers
- WM-05-WE05: Modify templates, moulds and formers
- WM-05-WE06: Plan, cut and joint veneers
- WM-05-WE07: Lay veneers and hand fit inlays
- WM-05-WE08: Assemble and complete crafted furniture

5.2 Guidelines for Work Experiences

5.2.1. WM-05-WE01: Read, interpret and produce basic engineering drawings

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Produce engineering drawings for a chair, stool, table, box, cabinet, book shelve
- WA0102 Identify all components to be assembled and processed in the assembling department and compile a checklist
- WA0103 Identify the manufacturing processes from the drawing and compile routing sheets
- WA0104 Identify and correctly calculate the raw material (finishings, etc.) needed for the product

Supporting Evidence

- SE0101 Completed drawings
- SE0102 Completed routing sheet
- SE0103 Completed checklist
- SE0104 Completed raw material list

5.2.2. WM-05-WE02: Prepare for operations in the assembling department

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Receive work instructions and product specifications and other production information and check for accuracy and sufficiency and report any incorrect information

- WA0202 Select and obtain all necessary materials and equipment for the task and confirm that all components are according to sizes, numbers and quality as per cutting list
- WA0203 Prepare the working area for the task ensuring it is clean and free from dust and oil or any foreign material which can contaminate the workpiece
- WA0204 Production information is checked for accuracy and sufficiency and any incorrect information is reported to the relevant person
- WA0205 All necessary materials and equipment for the job are identified and accessed, and any non-availability is reported to the relevant person
- WA0206 The quality and quantity of materials is checked and remedial action taken if there is non-conformity
- WA0207 Accurately establish the compatibility of materials with the boring machine to be used and take correct remedial action to address non-conformity
- WA0208 Inspect jigs, templates and other necessary dimension control aids ensuring they are available, correct and fit for the purpose

Supporting Evidence

- SE0201 Prepared work area

5.2.3. WM-05-WE03: Design, construct and test templates, moulds and formers for curved, laminated drawers and raised and curved doors and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the templates, moulds and formers

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Read and interpret the requirements and sample for the templates, moulds and formers according to production, quality and organisational requirements
- WA0302 Templates, moulds and formers made, provide for secure and safe attachment, accurate calibrators and sizing for their production purpose
- WA0303 Inspect templates, moulds and formers to confirm specification accuracy and accurate sample match
- WA0304 Correctly label templates, moulds and formers are and place in the designated location
- WA0305 Documentation is completed accurately and according to organisational requirements

Supporting Evidence

- SE0301 Photos of completed jigs
- SE0302 Completed job card confirming completion of work

5.2.4. WM-05-WE04: Repair templates, moulds and formers

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Inspect templates, moulds and formers for damage to maintain accuracy and quality of the operations and identify damage or faults

- WA0402 Plan the repair operation to minimise production downtime
- WA0403 Repair the templates, moulds and formers confirming accurate sample match

Supporting Evidence

- SE0401 Photos of repaired jigs and templates (before and after)
- SE0402 Completed job card confirming completion of work

5.2.5. WM-05-WE05: Modify templates, moulds and formers

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Determine the feasibility of the intended modification
- WA0502 Identify the modification requirement and confirm with the relevant person
- WA0503 Plan the modification process to minimise production downtime
- WA0504 Conduct the modification accurately to specification and inspect the templates, moulds and formers to confirm an accurate sample match is obtained
- WA0505 Perform the modification safely and within the optimum time scales
- WA0506 Correctly mark modified templates, moulds and formers for identification and return to their correct location

Supporting Evidence

- SE0501 Photos of modified jigs and templates (before and after)
- SE0502 Completed job card confirming completion of work

5.2.6. WM-05-WE06: Plan, cut and joint veneers

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Read and interpret work instruction, product requirements and drawings for the manufacturing of veneers and select appropriate type of cut, matching of materials and jointing type and method for the task
- WA0602 Identify, select and use tools and equipment for cutting, sawing and sanding of veneers
- WA0603 Identify, select and measure materials for veneers and perform matching to achieve aesthetic and light refraction requirements
- WA0604 Inspect veneers and confirm accuracy of measuring, matching of grain direction and light refraction and cutting tasks
- WA0605 Identify, select and prepare adhesives for the jointing procedure
- WA0606 Identify jointing and veneer problems and faults and reject and replace and report to the relevant person
- WA0607 Handle, move and store workpiece in a manner which does not cause damage
- WA0608 Unused materials are returned to appropriate storage

- WA0609 Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated

Supporting Evidence

- SE0601 Copy of signed job card
- SE0602 Photos of completed inlays
- SE0603 Production records

5.2.7. WM-05-WE07: Lay veneers and hand fit inlays

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Read and correctly interpret specifications for the laying of veneers and hand fitting of inlays to identify the type and quality of veneers; grain matching; colour matching; moisture content, etc.
- WA0702 Identify, select and use tools and equipment for inlay and adhesive application and inspect to confirm correct condition for safe and effective production
- WA0703 Identify, select and inspect material surfaces and to confirm quality, to ensure it is free of defects; dust; chippings and ready to receive veneer or inlay
- WA0704 Check and confirm the inlay design and type with specification
- WA0705 Sequence of inlay settings are determined
- WA0706 Identify, correctly mix and apply adhesives in the inlaying process according to the manufacturer specifications (MSDS)
- WA0707 Apply the inlay using selected pressing and inlay techniques ensuring the lateral and vertical fit conforms to specification requirements
- WA0708 Inspect the workpiece to identify faults, ensuring the surface is from excess adhesives and exposed surfaces are straight and even
- WA0709 Unused materials are returned to appropriate storage
- WA0710 Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated
- WA0711 Perform the process according to health and safety requirements within the allocated time
- WA0712 Record and submit all production information and processes

Supporting Evidence

- SE0701 Copy of signed job card
- SE0702 Photos of completed inlays
- SE0703 Production records

5.2.8. WM-05-WE08: Assemble and complete crafted furniture

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Read and correctly interpret specifications for the manufacturing of crafted furniture to identify the type and quality of the various features of the workpiece such as veneers, inlays, moulded features, laminated features, curved drawers and doors, curved and raised panel doors, etc.
- WA0802 Check and confirm the workpiece design and type with specification
- WA0803 Identify, select and use tools and equipment for the manufacturing of the respective features and inspect to confirm correct condition for safe and effective operation
- WA0804 Identify, select and inspect material surfaces and to confirm quality, to ensure it is free of defects; dust; chippings and ready for the manufacturing process
- WA0805 Identify and select accessories, fittings and finishings as per specifications
- WA0806 Identify, correctly mix and apply adhesives in the inlaying process according to the manufacturer specifications (MSDS)
- WA0807 Apply the inlay according to the sequence using selected pressing and inlay techniques ensuring the lateral and vertical fit conforms to specification requirements
- WA0808 Produce drawer components using various machines and hand held machines for 50 drawers of different shapes and sizes including curved and laminated drawers and fit drawer bottom and front pieces and runners ensuring a smooth sliding action
- WA0809 Produce 25 curved and raised panel doors and fit to carcasses ensuring the doors fit square and true
- WA0810 Cut and prepare joints according specification including but not limited to: double end mortise, mitred butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint) ensuring a snug and stable fit
- WA0811 Produce mouldings according to specification (mouldings includes chamfers, radiuses, bullnoses)
- WA0812 Cut, shape and mould components according to specification (shapes include but not limited to: square, arch, concave, convex, L-shape, U-shape)
- WA0813 Inspect the work piece to identify faults, ensuring the surface is from excess adhesives and exposed surfaces are straight and even
- WA0814 Unused materials are returned to appropriate storage
- WA0815 Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated
- WA0816 Perform the process according to health and safety requirements within the allocated time
- WA0817 Record and submit all production information and processes

Supporting Evidence

- SE0801 Time sheet/ job card, photos and log book completed and signed by the supervisor

5.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and designated areas

6 Personal protective clothing and equipment

5.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material
- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 4 qualified in furniture technology with 3 years of relevant experience in the furniture industry
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

5.5 Additional Assignments to be Assessed Externally

None

6. 682201001-00-WM-06, Prototype and Crafted Furniture making and Furniture repairing Processes, NQF Level 4, Credits 85

6.1 Purpose of the Work Experience Modules

The focus of the work experience is on providing the learner an opportunity to:

Manufacture furniture prototypes, crafted or bespoke furniture and lead a team in the manufacturing processes.

The learner will be required to:

- WM-06-WE01: Develop and construct technical drawings indicating all components in correct quantities, shapes and sizes of the furniture product whilst evaluating the design for feasibility and practicality for 10 products
- WM-06-WE02: Identify suitable construction methods (i.e. jointing solutions) to standardise components and to simplify or optimise production and compile production documentation for 5 products
- WM-06-WE03: Determine and inspect suitable timber, fittings and finishings according to design or product specifications for 5 products
- WM-06-WE04: Prepare and set-up machines of which basic 5 machines unsupervised and on his own and a complete range of woodwork machines supervised for period of 20 days in the machining and assembling department for operation and production of machined and profiled components for once-off or bulk production ensuring optimum workflow
- WM-06-WE05: Do a mock-up development to assess the design, technical drawing and raw material for compatibility and recommend adaptations and modifications to solve potential technical, resources, budgetary, time, materials and equipment problems for 5 basic products
- WM-06-WE06: Manufacture (machine and assemble) prototype components according to the final design and finish and prepare the prototype for display to and approval from the client or designer for 5 products
- WM-06-WE07: Produce or assemble components of furniture articles, such as store fixtures, office equipment, cabinets, or crafted furniture for 5 products
- WM-06-WE08: Modify, restyle or repair various wooden furniture, cabinets, fixtures, panelling, or other pieces
- WM-06-WE09: Finish surfaces of wooden articles or furniture (spray-on applications of 5 products)
- WM-06-WE10: Inspect quality, monitor productivity and comply with requirements (1 week)
- WM-06-WE11: Monitor safety, health, quality and productivity in the furniture machining, assembling or finishing departments (40 hours)
- WM-06-WE12: Oversee the activities of a team of operators in the furniture machining, assembling or finishing departments (side assistance) (10 days)

6.2 Guidelines for Work Experiences

6.2.1. WM-06-WE01: Develop and construct technical drawings indicating all components in correct quantities, shapes and sizes of the furniture product whilst evaluating the design for feasibility and practicality for 10 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0101 Develop and produce computer aided technical drawings using a CAD application or manual tools and equipment

- WA0102 Conceptualise and visualise the final work piece in three dimensions: length, width and depth
- WA0103 Asses the feasibility for manufacturing and alert designer to any deviations from design
- WA0104 Estimate material requirements for production and estimate the amounts, types, or costs of needed materials
- WA0105 Determine the cost specifications of the product

Supporting Evidence

- SE0101 Technical drawings

6.2.2. WM-06-WE02: Identify suitable construction methods (i.e. jointing solutions) to standardise components and to simplify or optimise production and compile production documentation for 5 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0201 Determine product specifications and materials, work methods, and machine setup requirements, according to oral or written instructions, drawings, or work orders
- WA0202 Review blueprints or other instructions to determine operational methods or sequences
- WA0203 Produce furniture construction specifications according to a furniture design
- WA0204 Establish the specifications of articles to be constructed or repaired or plan the methods or operations for shaping or assembling parts, based on blueprints, drawings, diagrams, or oral or written instructions
- WA0205 Draw up and produce cutting lists for furniture products
- WA0206 Produce specifications for curved, laminated, profile or formed products
- WA0207 Produce furniture finishing specifications
- WA0208 Produce a job card, cutting list, production flow/routing chart

Supporting Evidence

- SE0201 Work instructions, job card, cutting list, production flow/routing chart
- SE0202 Furniture finishing specifications

6.2.3. WM-06-WE03: Determine and inspect suitable timber, fittings and finishings according to design or product specifications for 5 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0301 Compare physical characteristics of materials or products to specifications or standards
- WA0302 Select appropriate finishing ingredients such as paint, stain, lacquer, shellac, or varnish, depending on factors such as wood hardness and surface type.
- WA0303 Recommend woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles.

Supporting Evidence

- SE0301 Product specifications

6.2.4. WM-06-WE04: Prepare and set-up machines of which basic 5 machines unsupervised and on his own and a complete range of woodwork machines supervised for period of 20 days in the machining and assembling department for operation and production of machined and profiled components for once-off or bulk production ensuring optimum workflow

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0401 Set up and program a range of woodworking machines, such as band saw, table saw, planing saw, sanding machine drill presses, lathes, shapers, routers, sanders, planers, or wood-nailing machines
- WA0402 Select knives, saws, blades, cutter heads, cams, bits, or belts, according to work piece, machine functions, or product specifications.
- WA0403 Install and adjust blades, cutter heads, boring-bits, or sanding-belts, using hand tools and rules/manufacturer specifications
- WA0404 Adjust machine tables or cutting devices and set controls on machines to produce specified cuts or operations
- WA0405 Set and adjust various kinds of woodworking machines for operation by others

Supporting Evidence

- SE0401 Machines and line setup

6.2.5. WM-06-WE05: Do a mock-up development to assess the design, technical drawing and raw material for compatibility and recommend adaptations and modifications to solve potential technical, resources, budgetary, time, materials and equipment problems for 5 basic products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0501 Do a dry assembling to check that the construction is correct, can stand without glue, look for rigidity of the wood carcass (test run) and pieces are correct size, that it fit, squareness, angles
- WA0502 Interact with the designer, production manager and suppliers during the prototype making process

Supporting Evidence

- SE0501 Dry assembly assessment information and documentation

6.2.6. WM-06-WE06: Manufacture (machine and assemble) prototype components according to the final design and finish and prepare the prototype for display to and approval from the client or designer for 5 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0601 Select and draw raw material from wood store or yard or consumables from hardware store according to the requirements of the product

- WA0602 Identify compatibility/incompatibility of materials, adhesives, fittings and fasteners for the application
- WA0603 Select and use appropriate materials, equipment and processes for the item being constructed
- WA0604 Select and apply appropriate joinery, construction and finishing techniques
- WA0605 Machine furniture prototype components
- WA0606 Joint and assemble furniture prototype components
- WA0607 Attach parts or subassemblies to form completed units, using glue, dowels, panel pins, screws, or clamps
- WA0608 Trim joints and fit parts and subassemblies to form complete units using glue and clamps, and reinforcing joints using nails, screws or other fasteners
- WA0609 Decorate furniture and fixtures by inlaying wood, applying veneer and carving designs according to the specifications
- WA0610 Demonstrate how the design of the prototype components will influence the working lifetime of the item
- WA0611 Ensure that the prototype satisfies the original or varied specification
- WA0612 Finish prototype

Supporting Evidence

- SE0601 Prototype manufacturing documentation

6.2.7. WM-06-WE07: Produce or assemble components of furniture articles, such as store fixtures, office equipment, cabinets, or crafted furniture for 5 products

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0701 Select and draw raw material from wood store or yard or consumables from hardware store according to the requirements of the product
- WA0702 Identify compatibility/incompatibility of materials, adhesives, fittings and fasteners for the application
- WA0703 Select and use appropriate materials, equipment and processes for the item being constructed
- WA0704 Select and apply appropriate joinery, construction and finishing techniques
- WA0705 Machine furniture components
- WA0706 Joint and assemble furniture components
- WA0707 Attach parts or subassemblies to form completed units, using glue, dowels, panel pins, screws, or clamps
- WA0708 Trim joints and fit parts and subassemblies to form complete units using glue and clamps, and reinforcing joints using nails, screws or other fasteners
- WA0709 Decorate furniture and fixtures by inlaying wood, applying veneer and carving designs according to the specifications

Supporting Evidence

- SE0701 Production documentation

6.2.8. WM-06-WE08: Modify, restyle or repair various wooden furniture, cabinets, fixtures, panelling, or other pieces

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0801 Examine furniture to determine the extent of damage or deterioration, and to decide on the best method for repair or restoration.
- WA0802 Remove old finishes and damaged or deteriorated parts, using hand tools, stripping tools, sandpaper, steel wool, abrasives, solvents, or dip baths.
- WA0803 Fill and smooth cracks or depressions, remove marks and imperfections, and repair broken parts, using plastic or wood putty, glue, nails, or screws.
- WA0804 Produce replacement parts by recommending woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles and matching types of wood, colour, grain, texture
- WA0805 Repairs to damaged furniture, repairs to damaged furnisher finishings, restoring finishes
- WA0806 Match materials for colour, grain, or texture, giving attention to knots or other features of the wood.
- WA0807 Carry out assembly repairs to damaged furniture
- WA0808 Examine furniture to determine the extent of damage or deterioration, and to decide on the best method for repair or alteration
- WA0809 Repairs to damaged furniture, repairs to damaged furnisher finishings, restoring finishes
- WA0810 Remove old finishes and damaged or deteriorated parts, using hand tools, stripping tools, sandpaper, steel wool, abrasives, solvents, or dip baths.

Supporting Evidence

- SE0801 Production documentation

6.2.9. WM-06-WE09: Finish surfaces of wooden articles or furniture (spray-on applications of 5 products)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA0901 Recommend woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles.
- WA0902 Select appropriate finishing ingredients such as paint, stain, lacquer, shellac, or varnish, depending on factors such as wood hardness and surface type.
- WA0903 Trim, sand, or scrape surfaces or joints to prepare articles for finishing.
- WA0904 Smooth, shape, and touch up surfaces to prepare them for finishing, using sandpaper, pumice stones, steel wool, chisels, sanders, or grinders.
- WA0905 Mix finishing ingredients to obtain desired colours or shades.

- WA0906 Brush, spray, or hand-rub finishing ingredients, such as paint, oil, stain, or wax, onto and into wood grain and apply lacquer or other sealers.
- WA0907 Paint metal surfaces electrostatically, or by using a spray gun or other painting equipment.
- WA0908 Distress surfaces with woodworking tools or abrasives before staining to create an antique appearance, or rub surfaces to bring out highlights and shadings. (Roughens the surface â€“ open the grain with a wire brush)

Supporting Evidence

- SE0901 Production documentation

6.2.10. WM-06-WE10: Inspect quality, monitor productivity and comply with requirements (1 week)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1001 Complete timesheets and other production information at the end of the job to reflect and determine productivity
- WA1002 Inspect components and finished furniture products by observing structure, squareness, the finish, the way it is constructed, how it was fit, feel and look, smooth and all rounded of, sturdiness and craftsmanship to ensure quality
- WA1003 Inspect furniture products for meeting specifications
- WA1004 Tend to bottlenecks
- WA1005 Optimize company production by planning and finding quicker and better ways and measuring against the maximum output of the company

Supporting Evidence

- SE1001 Production records
- SE1002 Attendance registers

6.2.11. WM-06-WE11: Monitor safety, health, quality and productivity in the furniture machining, assembling or finishing departments (40 hours)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1101 Verify dimensions and check the quality or fit of furniture pieces to ensure adherence to specifications
- WA1102 Compare physical characteristics of materials or products to specifications or standards
- WA1103 Inspect tolerances and allowances for accuracy
- WA1104 Avoid backtracking, work flow interruptions or wastage
- WA1105 Use workplace technology related to the coordination, including communication equipment, time and management aids and other measuring devices
- WA1106 Communicate ideas and information to enable confirmation of work requirements and specifications and the reporting of work outcomes and problems
- WA1107 Ensure the application of safety and environmental procedures

- WA1108 Inspect the workshop for hazards and report and mitigate risks

Supporting Evidence

- SE1101 Safety, health and environmental records
- SE1102 Incident and accident reports
- SE1103 Attendance registers

6.2.12. WM-06-WE12: Oversee the activities of a team of operators in the furniture machining, assembling or finishing departments (side assistance) (10 days)

Scope of Work Experience

The person will be expected to engage in the following work activities:

- WA1201 Identify a team of operators
- WA1202 Conduct and record a daily briefing meeting
- WA1203 Delegate tasks to different team members
- WA1204 Coach, guide and advice team members on different processes, machines, tools and other resources required.
- WA1205 Record meeting
- WA1206 Lead the team in the workplace
- WA1207 Organise all materials, equipment and tools for the team members and operations
- WA1208 Record all processes and report to relevant person
- WA1209 Attend to conflicts in the work area and report accordingly

Supporting Evidence

- SE1201 Production records
- SE1202 Briefing session notes/minutes
- SE1203 Coaching session attendance registers

6.3 Contextualised Workplace Knowledge

1 Company products

2 Various departments and workflow

3 Reporting structures

4 Company standard operating and safety procedures and quality standards

5 Workshop layout and designated areas

6 Personal protective clothing and equipment

6.4 Criteria for Workplace Approval

Physical Requirements:

- Fully equipment wood machining department with advanced wood and board machining machines, tools and equipment and various types of raw material

- Compressed airline and extraction
- Key processes: wood machining processes using advanced machines

Human Resource Requirements:

- Qualifications, registration or experience of supervisor: NQF 4 qualified in furniture technology with 3 years of relevant experience in the furniture industry
- Supervisor/subordinate ratios = 1:20
- Availability of coaches and mentors = 1:5

Legal Requirements:

- Compliance with occupational health and safety regulations
- Compliance with Labour Legislation
- Bargaining Council Main Agreement

6.5 Additional Assignments to be Assessed Externally

None

SECTION 4: STATEMENT OF WORK EXPERIENCE

Curriculum Number:	682201001
Curriculum Title:	Furniture Maker

Learner Details	
Name:	
ID Number:	

Employer Details	
Company Name:	
Address:	
Supervisor Name:	
Work Telephone:	
E-Mail:	

682201001-00-WM-01, Furniture Machining Operations, NQF Level 2, Credits 30

WM-01-WE01	Read and interpret work instructions and product specifications for machining operations		
	Scope Work Experience	Date	Signature
WA0101	Interpret a job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations as well as jigs and templates for specific tasks		
WA0102	Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications		
	Supporting Evidence	Date	Signature
SE0101	Signed job card		
WM-01-WE02	Prepare a workstation for machining operations		
	Scope Work Experience	Date	Signature
WA0201	Obtain all required timber and conduct quality checks to ensure the timber quality conforms to specifications		
WA0202	Conduct prestart checks on all machines, equipment and attachments ensuring it complies with safety and working specifications and are in good working order (Inspect that the machine is operational, inspect blade for sharpness and correct blade and v-belts, etc.)		
WA0203	Select and apply personal protective clothing and equipment (PPE and PPC) for the specific machine		
WA0204	Identify and report substandard raw material, machines or PPE		
	Supporting Evidence	Date	Signature
SE0201	Prestart check list		
WM-01-WE03	Perform breakout operations by operating a crosscut saw and ripsaw using solid timber by cutting a minimum of 30 components of the required length and width according to the cutting list		
	Scope Work Experience	Date	Signature
WA0301	Conduct the appropriate setting up procedure of the crosscut saw and ripsaw according to the product		

	specifications on the work instruction		
WA0302	Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements		
WA0303	Observe the direction of the grain of the timber before feeding into the saw		
WA0304	Check cut components at set intervals (do spot checks) for correctness and consistency of cut and grain direction		
WA0305	Use measuring equipment to check that the length or width correspond to cutting list		
WA0306	Label or group components on pallets according to the workplace procedures		
WA0307	Identify, mark and report substandard raw material and components		
WA0308	Dispose of off-cuts safely and store re-useable off-cuts according to sizes and type of timber		
	Supporting Evidence	Date	Signature
SE0301	Completed job card signed by supervisor to confirm work completed		
WM-01-WE04	Produced planed timber and board product components and products (planing straight timber, laminated timber) using surface planer and thickness planer for a minimum period of 3 weeks		
	Scope Work Experience	Date	Signature
WA0401	Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction		
WA0402	Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements		
WA0403	Operate the surface planer and thickness planer complying with safety standards		
WA0404	Use vernier calliper to verify if the timber is according to specified width and thickness		

WA0405	Label or group components on pallets according to the workplace procedures		
WA0406	Identify, mark and report substandard raw material and components		
	Supporting Evidence	Date	Signature
SE0401	Completed job card signed by the supervisor to confirm work completed to company standards		
WM-01-WE05	Produce sawn timber and board product components and products (producing straight cuts, mitred cuts grooves and half laps) for a minimum period of 5 week using panel saw and radial arm saw		
	Scope Work Experience	Date	Signature
WA0501	Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction		
WA0502	Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements		
WA0503	Operate a panel saw and radial arm saw to get the required length, and angles that are required.		
WA0504	Check cut components at set intervals (do spot checks) for correctness and consistency of length and angles		
WA0505	Label or group components on pallets according to the workplace procedures		
WA0506	Identify, mark and report substandard raw material and components		
	Supporting Evidence	Date	Signature
SE0501	Completed job card signed by the supervisor to confirm work completed to company standards		
WM-01-WE06	Produce shaped timber and board product components and products (simple to more complex shapes) using the band saw for a period of 2 weeks		
	Scope Work Experience	Date	Signature

WA0601	Conduct the appropriate setting up of the band saw		
WA0602	Conduct safety checks		
WA0603	Confirm if the blade is size and thickness is relevant to the work to be produced		
WA0604	Operate band saw safely and produce required shape and size.		
WA0605	Label components according to work procedures		
WA0606	Identify, mark and report substandard raw material and components.		
	Supporting Evidence	Date	Signature
SE0601	Completed job card signed by the supervisor to confirm work completed to company standards		
WM-01-WE07	Produce machine sanded timber and board components and products (sanding solid timber, veneered bards and composite boards) for a minimum period of 2 week using edge sander, stroke sander and wide belt sander		
	Scope Work Experience	Date	Signature
WA0701	Conduct the appropriate setting up procedure of the surface planer and thickness planer according to the product specifications on the work instruction		
WA0702	Conduct safety checks on the machines, equipment and workstation to ensure compliance with safety requirements		
WA0703	Operate the relevant machines to get the required length and angles		
WA0704	Check cut components at set intervals (do spot checks) for correctness and consistency of length and angles		
WA0705	Label or group components on pallets according to the workplace procedures		
WA0706	Identify, mark and report substandard raw material and components		
	Supporting Evidence	Date	Signature

SE0701	Completed job card signed by the supervisor to confirm work completed to company standards		
WM-01-WE08	Produce straight laminated timber and board components		
	Scope Work Experience	Date	Signature
WA0801	Use tape measure to verify if the length is according to cutting list		
WA0802	Use hand clamps and or laminating press to laminate timber.		
WA0803	Use correct adhesives for the job.		
	Supporting Evidence	Date	Signature
SE0801	Completed job card signed by the supervisor to confirm work completed to company standards		
WM-01-WE09	Apply safety measures and equipment		
	Scope Work Experience	Date	Signature
WA0901	Maintain safe working environment to comply with safety standards		
WA0902	Apply ear and eye protection, dust masks, overall and no loose clothes		
WA0903	Attend regular safety meetings according to the requirements of the workplace		
WA0904	Report inadequate lighting in the machine shop		
WA0905	Participate in simulated fire emergency evacuation procedures		
	Supporting Evidence	Date	Signature
SE0901	Completed job card signed by the supervisor to confirm work completed		
WM-01-WE10	Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations		
	Scope Work Experience	Date	Signature

WA1001	Clean dust extraction bags where applicable		
WA1002	Check the dust extraction system for working condition		
WA1003	Comply with attendance and time keeping standards as determined by the company		
WA1004	Take necessary actions and measures and to reduce wastage		
WA1005	Produce minimum waste levels as determined by the company within set tolerances		
WA1006	Apply all safety routines and procedures when working with compressed air		
	Supporting Evidence	Date	Signature
SE1001	Completed job card signed by the supervisor to confirm work completed		
WM-01-WE11	Ensure quality of the machined product by identifying machine faults		
	Scope Work Experience	Date	Signature
WA1101	Identify and immediately report any machine defects		
WA1102	Ensure the machine is operated within design specifications		
WA1103	Identify any wrongly fitted attachment and replace		
WA1104	Identify and correct incorrect machine settings		
WA1105	Identify and correct any incorrect speed setting in terms of the rotation of the blade		
WA1106	Conduct calibration routines within the authority of the operator and report any deviations to the supervisor		
	Supporting Evidence	Date	Signature
SE1101	Job card from the supervisor		
WM-01-WE12	Ensure quality of the machined product by identifying raw material faults and handling and storing it correctly		
	Scope Work Experience	Date	Signature

WA1201	Inspect, identify and report all timber defects such as cracks, knots, twists, insects, wet rot and dry rot		
WA1202	Identify the incorrect moisture content of the raw material causing defects such as swelling of boards		
WA1203	Select material correctly according to type as specified on the job card		
WA1204	Handle timber and recuts as delicately as possible avoiding bumping and damaging the edges/chips using trolleys to cart it		
WA1205	Store timber correctly in an area free from moisture		
WA1206	Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear		
	Supporting Evidence	Date	Signature
SE1201	Job card from the supervisor		
WM-01-WE13	Ensure quality of the machined product by identifying process faults		
	Scope Work Experience	Date	Signature
WA1301	Accurately determine the type of material to set the correct working speed of the machine		
WA1302	Accurately determine the type of material to apply the correct feeding of timber to the machine		
WA1303	Ensure the wood is correctly clamped to the jig to avoid damage to machine, unsafe working condition, or not producing the designed product		
	Supporting Evidence	Date	Signature
SE1301	Job card from the supervisor		
WM-01-WE14	Conduct continuous quality inspection of the machined product throughout the machining operation		
	Scope Work Experience	Date	Signature
WA1401	Conduct a quality inspection checking for consistency, accuracy, defects of the product		
WA1402	Conduct a final quality inspection of the machined		

	product before hand over to next process		
WA1403	Record all defects		
	Supporting Evidence	Date	Signature
SE1401	Quality checklist		
WM-01-WE15	Perform maintenance activities to ensure a well maintain machine and workshop		
	Scope Work Experience	Date	Signature
WA1501	Lubricate, clean and service the machine at required intervals as part of routine maintenance activities		
WA1502	Identify and immediately report any machine or machine part or attachment defects		
WA1503	Service the machine at required intervals by replacing belts and applying calibration routines		
WA1504	Check the sharpness of blades, replace cutting tools and inspect v-belts at required intervals		
	Supporting Evidence	Date	Signature
SE1501	Completed machine maintenance checklist signed by the supervisor to confirm work completed		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		
3	Reporting structures		
4	Company standard operating and safety procedures and quality standards		
5	Workshop layout and designated areas		

6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature

682201001-00-WM-02, Furniture Assembling Operations, NQF Level 2, Credits 24

WM-02-WE01	Read and interpret work instructions and product specifications for furniture assembling operations		
	Scope Work Experience	Date	Signature
WA0101	Interpret the job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations		
WA0102	Identify furniture types, styles and designs from the job card		
WA0103	Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications		
	Supporting Evidence	Date	Signature
SE0101	Signed job card		
WM-02-WE02	Prepare a workstation for furniture assembly operations		
	Scope Work Experience	Date	Signature
WA0201	Obtain all required timber and conduct quality checks to ensure the timber quality conforms to specifications		
WA0202	Obtain all required consumables and accessories specified in the job card and conduct a quality check		
WA0203	Prepare workbenches and equipment to be used		
WA0204	Select and apply personal protective clothing and equipment (PPE and PPC) for the specific machine (such as gloves, dust masks, respirators, etc.)		

	Supporting Evidence	Date	Signature
SE0201	Time sheet/ job card		
WM-02-WE03	Obtain and prepare tools required to produce joints (tools including jig saws, hand routers, drills, doweling jigs, hand saws, sliding bevels, marking gauge and mortise gauge)		
	Scope Work Experience	Date	Signature
WA0301	Compile and send tool list request to the store room or relevant person		
WA0302	Identify tools from the store room and sign them out as per the company policies		
WA0303	Confirm that the tools obtained are relevant to the job and joints to be produced		
WA0304	Set up the tool/ machine correctly		
WA0305	Adjust the cutting tools to meet specifications		
WA0306	Receive and inspect the tools to ensure it meet the specifications and are in good working order and select and fit attachments accurately		
WA0307	Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction Safely handle, care for and store tools correctly without damaging them		
	Supporting Evidence	Date	Signature
SE0301	Tool request completed and sign by the store room attendant		
WM-02-WE04	Produce minimum of 50 of each of the following joints include dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove as per cutting list and drawings		
	Scope Work Experience	Date	Signature
WA0401	Mark-out joints as per drawings		
WA0402	Use correct tools and/or correct machine to cut joints		
WA0403	Use vises to secure workpiece to avoid injuries to self		

	and damage to furniture component		
WA0404	Handle cutting tools correctly and safely		
WA0405	Replace bits and cutters where necessary		
WA0406	Produce quality joints in compliance with specifications and tolerances in the time allocated		
	Supporting Evidence	Date	Signature
SE0401	Time sheet/ job card and photos		
WM-02-WE05	Fit and dry assemble at least 50 of each of the following joints: dove tail, mortise and tenon, half lap, housing joints, double mortise, dowel joints, biscuit joints, tongue and groove and inspect for a snug fit		
	Scope Work Experience	Date	Signature
WA0501	Fit the male and female components of the joint and check if a snug fit is obtained		
WA0502	Make a final cleanout of the joints that are too tight		
WA0503	Observe the shoulder to shoulder size according to the product specifications		
WA0504	Check if joints correspond with the specification on the drawing		
	Supporting Evidence	Date	Signature
SE0501	Time sheet/ job card and photos		
WM-02-WE06	Produce 50 different profiles, chamfers, radiuses, rebates, dowelling necessary for the job		
	Scope Work Experience	Date	Signature
WA0601	Prepare a hand router by selecting and attaching the required bits		
WA0602	Confirm the radiuses and profile with the relevant person		
WA0603	Produce profile, chamfer, radiuses, rebates according to specification		

WA0604	Use dowelling jig to produce dowel holes		
WA0605	Check if all profiles and work produced meet requirements		
WA0606	Identify machine faults such as blunt blade, wrong sanding grit, wrong nozzle, pressure that is too high or low, balance of air extraction		
	Supporting Evidence	Date	Signature
SE0601	Time sheet/ job card and photos		
WM-02-WE07	Conduct a dry assembly by fitting all components according to specification of a minimum of 100 furniture products		
	Scope Work Experience	Date	Signature
WA0701	Perform dry assemble to check if the product components fit		
WA0702	Check if the product meets specifications as specified in the drawing		
WA0703	Check product for squareness and stability		
WA0704	Report any deviations to the relevant person		
	Supporting Evidence	Date	Signature
SE0701	Time sheet/ job card and photos		
WM-02-WE08	Perform final assembling of minimum 100 furniture products using clamps, glue, screws and nails		
	Scope Work Experience	Date	Signature
WA0801	Perform final assembly of the product using glue, nails screws and clamps		
WA0802	Use tape measure to check if the product is square		
WA0803	Remove excess glue from the joints		
WA0804	Countersink all screws		
WA0805	Punch all nails to ensure they are not protruding to the surface		

	Supporting Evidence	Date	Signature
SE0801	Time sheet/ job card and photos		
WM-02-WE09	Perform sanding and smooth the surface and sharp edges of a minimum of 100 furniture products		
	Scope Work Experience	Date	Signature
WA0901	Select and use the correct sand paper		
WA0902	Sand all surfaces and ensure that it is ready to accept finishing material		
WA0903	Remove all sharp edges by sanding them off		
WA0904	Apply stopping on the surface to rectify faults where necessary		
	Supporting Evidence	Date	Signature
SE0901	Time sheet/ job card and photos		
WM-02-WE10	Apply safety measures and equipment		
	Scope Work Experience	Date	Signature
WA1001	Maintain safe working environment to comply with safety standards		
WA1002	Apply ear and eye protection, dust masks, overall and no loose clothes		
WA1003	Attend regular safety meetings according to the requirements of the workplace		
WA1004	Report inadequate lighting in the assembly shop		
WA1005	Participate in a simulated fire emergency evacuation procedure		
	Supporting Evidence	Date	Signature
SE1001	Time sheet/ job card and photos		
WM-02-WE11	Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations		

	Scope Work Experience	Date	Signature
WA1101	Record and report assembly production information and prepare assembly documentation		
WA1102	Clean dust extraction bags where applicable		
WA1103	Check the dust extraction system for working condition		
WA1104	Comply with attendance and time keeping standards as determined by the company		
WA1105	Take necessary actions and measures and to reduce wastage		
WA1106	Produce minimum waste levels as determined by the company within set tolerances		
WA1107	Apply all safety routines and procedures when working with compressed air		
	Supporting Evidence	Date	Signature
SE1101	Time sheet/ job card and photos		
WM-02-WE12	Ensure quality of the assembled product by identifying machine faults		
	Scope Work Experience	Date	Signature
WA1201	Identify and immediately report any power tool defects		
WA1202	Ensure the power tool is operated within design specifications		
WA1203	Identify any wrongly fitted attachment and replace		
WA1204	Identify and correct incorrect power tool settings		
WA1205	Conduct calibration routines within the authority of the operator and report any deviations to the supervisor		
	Supporting Evidence	Date	Signature
SE1201	Time sheet/ job card and photos		
WM-02-WE13	Ensure quality of the assembled product by identifying raw material faults		

	Scope Work Experience	Date	Signature
WA1301	Inspect, identify and report all component defects such as cracks, knots, twists, insects, wet rot and dry rot		
WA1302	Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches		
WA1303	Select components correctly according to type as specified on the job card		
WA1304	Handle furniture product components with utmost care to prevent damaging or chipping the edges		
WA1305	Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear		
	Supporting Evidence	Date	Signature
SE1301	Time sheet/ job card and photos		
WM-02-WE14	Ensure quality of the assembled product by identifying process faults		
	Scope Work Experience	Date	Signature
WA1401	Observe the direction of the grains of the wood while drilling or producing a joint to ensure the pattern of the grain is correct		
WA1402	Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to settings such as speed and cleaning to prevent scratching		
WA1403	Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product		
WA1404	Store and label components and assembled furniture according to specifications and size		
WA1405	Ensure the wood is correctly clamped in the vice to avoid damage to machine, unsafe working condition, or not producing the designed product		
	Supporting Evidence	Date	Signature

SE1401	Time sheet/ job card and photos		
WM-02-WE15	Conduct continuous quality inspection of the assembled product throughout the assembling operation		
	Scope Work Experience	Date	Signature
WA1501	Check samples at set intervals (spot checks) for correctness and consistency of cut components		
WA1502	Conduct a quality inspection checking for consistency, accuracy, defects of the product		
WA1503	Conduct a final quality inspection of the machined product before hand over to next process		
WA1504	Record all defects		
	Supporting Evidence	Date	Signature
SE1501	Quality checklist		
WM-02-WE16	Perform maintenance activities to ensure a well maintain machine and workshop		
	Scope Work Experience	Date	Signature
WA1601	Lubricate, clean and service the machine at required intervals as part of routine maintenance activities		
WA1602	Identify and immediately report any machine or machine part or attachment defects		
	Supporting Evidence	Date	Signature
SE1601	Completed machine maintenance checklist		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		

3	Reporting structures		
4	Company standard operating and safety procedures and quality standards		
5	Workshop layout and other designated areas		
6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature

682201001-00-WM-03, Furniture Finishing Operations, NQF Level 2, Credits 25

WM-03-WE01	Read and interpret work instruction and product specifications for furniture finishing operations		
	Scope Work Experience	Date	Signature
WA0101	Interpret the job card, cutting list, production flow/routing chart and identify all job requirements and specifications including machines and operations for the finishing of furniture		
WA0102	Identify furniture types, styles and designs from the job card		
WA0103	Identify all finishing and chemical applications indicated on the job card		
WA0104	Read and interpret basic engineering drawings and identify all aspects relevant to the work specifications		
	Supporting Evidence	Date	Signature
SE0101	Time sheet/ job card and photos		
WM-03-WE02	Prepare a furniture finishing workstation by obtaining all necessary tools, equipment and removing all foreign objects from the workstation		
	Scope Work Experience	Date	Signature

WA0201	Obtain all required material such as sanding papers		
WA0202	Prepare workbenches and equipment to be used		
WA0203	Obtain all PPE required such as gloves, dust masks, respirators, etc.		
WA0204	Remove all foreign objects from the workbench		
WA0205	Obtain and set a stop watch		
WA0206	Ensure the spray room/booth is dust free and the extraction system is in working order		
	Supporting Evidence	Date	Signature
SE0201	Time sheet/ job card and photos		
WM-03-WE03	Prepare a minimum of 100 products or components for initial/ base coat		
	Scope Work Experience	Date	Signature
WA0301	Identify and rectify faults on the surface of the work piece		
WA0302	Apply stopping where required selecting a matching colour		
WA0303	Perform hand sanding using the correct sand paper grit to achieve the required surface in preparation for the base coat application		
WA0304	Remove dust from the work piece		
WA0305	Cover handles, hinges and areas with masking tape where necessary		
WA0306	Label all covered areas to ensure correct colour/chemical is applied		
	Supporting Evidence	Date	Signature
SE0301	Time sheet/ job card and photos		
WM-03-WE04	Identify, select and prepare finishing chemicals such as lacquers, varnishes, tinted lacquers, paints, varnishes, stains, sealers and primers		

	Scope Work Experience	Date	Signature
WA0401	Confirm with the specification sheet the type of finish to be used		
WA0402	Obtain relevant finishing chemicals		
WA0403	Ensure that the finishing chemicals is within its shelf life		
WA0404	Prepare the required amount of finishing chemicals to avoid waste		
WA0405	Read and understand the relevant material safety data sheet (MSDS)		
WA0406	Mix chemicals and add catalyst where required		
WA0407	Perform viscosity checks to determine readiness for spraying		
	Supporting Evidence	Date	Signature
SE0401	Time sheet/ job card and photos		
WM-03-WE05	Identify, select and adjust spraying equipment for furniture finishing operations		
	Scope Work Experience	Date	Signature
WA0501	Assemble the spray gun and rinse with relevant solvent ensuring the gun is properly clean and free from oil and water		
WA0502	Connect the spray gun to an air pipe and airline and allow flow of air to the spraying equipment		
WA0503	Check and adjust compressed air to the required pressure bar		
WA0504	Adjust the spray gun according to required pressure, fluid, pattern and size of the work piece		
WA0505	Run a sample to ensure specifications are met and adjust settings if necessary		
	Supporting Evidence	Date	Signature
SE0501	Time sheet/ job card and photos		

WM-03-WE06	Perform spraying application using conventional spray guns or pumps for a minimum of 100 products		
	Scope Work Experience	Date	Signature
WA0601	Use turn tables for spraying in the spray booth/room		
WA0602	Start the extraction booth and fan		
WA0603	Place work piece in such a way that excess spray flows through freely		
WA0604	Handle the gun correctly and perpendicular to the surface		
WA0605	Ensure the movement of the gun is straight avoiding twisting of the hand and over lapping strokes ensuring even coverage of the workpiece		
	Supporting Evidence	Date	Signature
SE0601	Time sheet/ job card and photos		
WM-03-WE07	Prepare workpieces for the next coat by denibbing and/or sanding between coats for a minimum of 100 products/ components using correct grit sandpaper		
	Scope Work Experience	Date	Signature
WA0701	Obtain correct grit sanding paper for denibbing		
WA0702	Sand product without removing the initial coat		
WA0703	Clean the workpiece and ensure that the surface is dry and ready to accept the final coat		
	Supporting Evidence	Date	Signature
SE0701	Time sheet/ job card and photos		
WM-03-WE08	Perform all operations by adhering to safety and housekeeping rules consistently and continuously		
	Scope Work Experience	Date	Signature
WA0801	Maintain safe working environment by compling with safety standards and using PPE such as ear and eye protection, dust masks, overall and no loose clothes		

WA0802	Ensure lifting equipment is used for moving heavy products material		
WA0803	Dispose of waste according to regulation and company policy		
WA0804	Work area is kept clean at all times		
WA0805	All chemicals are stored safely in fireproof storage according to safety requirements		
WA0806	Label all material in the storage facility		
WA0807	Attend regular safety meetings according to the requirements of the workplace		
WA0808	Report inadequate lighting in the finishing department		
WA0809	Participate in a simulated fire emergency evacuation procedure		
	Supporting Evidence	Date	Signature
SE0801	Time sheet/ job card and photos		
WM-03-WE09	Conduct general housekeeping activities to ensure the work area is clean and neat and complying with safety regulations		
	Scope Work Experience	Date	Signature
WA0901	Record and report furniture finishing production information and prepare assembly documentation		
WA0902	Clean dust extraction bags where applicable		
WA0903	Check the dust extraction system for working condition		
WA0904	Comply with attendance and time keeping standards as determined by the company		
WA0905	Take necessary actions and measures and to reduce wastage		
WA0906	Produce minimum waste levels as determined by the company within set tolerances		
WA0907	Apply all safety routines and procedures when working with compressed air		

WA0908	Store and label components and assembled furniture according to specifications and size		
	Supporting Evidence	Date	Signature
SE0901	Time sheet/ job card and photos		
WM-03-WE10	Ensure quality of the finished furniture product by identifying machine faults		
	Scope Work Experience	Date	Signature
WA1001	Inspect the finished product visually and by feel to ensure compliance with product specifications		
WA1002	Check the finished product against specification		
WA1003	Identify and immediately report any power tool defects		
WA1004	Ensure the power tool is operated within design specifications		
WA1005	Identify any wrongly fitted attachment and replace		
WA1006	Identify and correct incorrect power tool settings		
WA1007	Identify machine faults such as wrong nozzle, pressure that is too high or low or incorrect balance of air extraction		
WA1008	Identify product faults such as incorrect shape, warped joints, incorrect size and scratches		
WA1009	Identify process faults such as blade marks, paint/coating contaminated with water, over spraying, running, mixing of wrong paints/chemicals, wrong viscosity, wrong reaction or inconsistencies in the cut product		
	Supporting Evidence	Date	Signature
SE1001	Time sheet/ job card and photos		
WM-03-WE11	Ensure quality of the finished furniture product by identifying raw material faults		
	Scope Work Experience	Date	Signature
WA1101	Inspect the finished product visually and by feel to ensure compliance with product specifications and		

	identify and report all component defects such as cracks, knots, twists, insects, wet rot and dry rot		
WA1102	Identify component faults such as squareness of the component, incorrect size, knots causing rejects, smoothness and scratches		
	Supporting Evidence	Date	Signature
SE1101	Time sheet/ job card and photos		
WM-03-WE12	Ensure quality of the finished furniture product by identifying process and product faults		
	Scope Work Experience	Date	Signature
WA1201	Inspect the finished product visually and by feel to ensure compliance with product specifications		
WA1202	Check the finished product against specification		
WA1203	Perform quality or style changes such as changing form solid wood to board or from soft wood to hard wood paying attention to tool settings such as speed and cleaning to prevent scratching		
WA1204	Identify process faults such as blade marks, timber moisture content, burn marks, paint contaminated with water, over spraying, running, mixing of wrong paints, wrong viscosity, wrong reaction or inconsistencies in the cut product		
WA1205	Ensure the wood is correctly clamped in the vice to avoid damage to machine, unsafe working condition, or not producing the designed product		
WA1206	Select components correctly according to type as specified on the job card		
WA1207	Handle furniture product components with utmost care to prevent damaging or chipping the edges		
WA1208	Avoid any misinterpretation of job cards by clarifying information which could be vague or unclear		
	Supporting Evidence	Date	Signature
SE1201	Time sheet/ job card and photos		
WM-03-WE13	Conduct continuous quality inspection of the finished		

	furniture product throughout the assembling operation		
	Scope Work Experience	Date	Signature
WA1301	Check samples at set intervals (spot checks) for correctness and consistency of cut components		
WA1302	Conduct a quality inspection checking for consistency, accuracy, defects of the product		
WA1303	Conduct a final quality inspection of the machined product before hand over to next process		
WA1304	Record all defects		
	Supporting Evidence	Date	Signature
SE1301	Quality checklist		
WM-03-WE14	Perform minor maintenance activities to ensure a well maintain machine		
	Scope Work Experience	Date	Signature
WA1401	Lubricate, clean and service the machine at required intervals as part of routine maintenance activities		
WA1402	Identify and immediately report any machine or machine part or attachment defects		
	Supporting Evidence	Date	Signature
SE1401	Completed machine maintenance checklist		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		
3	Reporting structures		
4	Company standard operating and safety procedures and		

	quality standards		
5	Workshop layout and designated areas		
6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature

682201001-00-WM-04, Crafted Furniture Machining Operations, NQF Level 4, Credits 70

WM-04-WE01	Read, interpret and produce basic engineering drawings		
	Scope Work Experience	Date	Signature
WA0101	Produce engineering drawings for a chair, stool, table, box, cabinet, book shelve		
WA0102	Identify all components to be cut and processed in the machining department and compile a cutting list		
WA0103	Identify the manufacturing processes from the drawing and compile routing sheets		
WA0104	Identify and correctly calculate the raw material needed for the product		
	Supporting Evidence	Date	Signature
SE0101	Completed drawings		
SE0102	Completed routing sheet		
SE0103	Completed cutting list		
SE0104	Completed raw material list		
WM-04-WE02	Prepare for operations in the machining department		
	Scope Work Experience	Date	Signature

WA0201	Receive cutting list and other production information and check for accuracy and sufficiency and report any incorrect information		
WA0202	Receive all necessary materials and equipment for the task and confirm that all components are according to sizes, numbers and quality as per cutting list		
WA0203	Prepare the working area for the task ensuring it is clean and free from dust and oil or any foreign material which can contaminate the work piece		
WA0204	Production information is checked for accuracy and sufficiency and any incorrect information is reported to the relevant person		
WA0205	All necessary materials and equipment for the job are identified and accessed, and any non-availability is reported to the relevant person		
WA0206	The quality and quantity of materials is checked and remedial action taken if there is non-conformity		
WA0207	Accurately establish the compatibility of materials with the boring machine to be used and take correct remedial action to address non-conformity		
WA0208	Jigs, templates and other necessary dimension control aids are available, correct and fit for the purpose		
	Supporting Evidence	Date	Signature
SE0201	Prepared work area		
WM-04-WE03	Design, construct and test jigs and templates for back legs of a chair, tempered legs of a server and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the jig or template (Masonite, MDF; Perspex; plywood; appropriate new materials or off cuts)		
	Scope Work Experience	Date	Signature
WA0301	Read and interpret the requirements and sample for the jigs and templates according to production, quality and organisational requirements		
WA0302	Jigs and templates made, provide for secure and safe attachment, accurate calibrators and sizing for their		

	production purpose		
WA0303	Inspect jigs and templates to confirm specification accuracy and accurate sample match		
WA0304	Correctly label jigs and templates are and place in the designated location		
WA0305	Documentation is completed accurately and according to organisational requirements		
	Supporting Evidence	Date	Signature
SE0301	Photos of completed jigs		
SE0302	Completed job card confirming completion of work		
WM-04-WE04	Repair jigs and templates		
	Scope Work Experience	Date	Signature
WA0401	Inspect jigs and templates for damage to maintain accuracy and quality of the operations and identify damage or faults		
WA0402	Plan the repair operation to minimise production downtime		
WA0403	Repair the jig or template confirming accurate sample match		
	Supporting Evidence	Date	Signature
SE0401	Photos of repaired jigs and templates (before and after)		
SE0402	Completed job card confirming completion of work		
WM-04-WE05	Modify jigs and templates		
	Scope Work Experience	Date	Signature
WA0501	Determine the feasibility of the intended modification		
WA0502	Identify the modification requirement and confirm with the relevant person		
WA0503	Plan the modification process to minimise production downtime		

WA0504	Conduct the modification accurately to specification and inspect the jig or template to confirm an accurate sample match is obtained		
WA0505	Perform the modification safely and within the optimum time scales		
WA0506	Correctly mark modified jigs and templates for identification and return to their correct location		
	Supporting Evidence	Date	Signature
SE0501	Photos of modified jigs and templates (before and after)		
SE0502	Completed job card confirming completion of work		
WM-04-WE06	Produce bored timber and board product components and products operating a multi-borer at 90 degrees and 45 degrees drilling and different angles		
	Scope Work Experience	Date	Signature
WA0601	Set out, measure and mark material for boring applying the correct dimensions and calculations		
WA0602	Inspect and set up the machine for boring by inserting cutters, adjusting clamps and stoppers ensuring left side drills corresponds with the right hand side components		
WA0603	Identify correct dowel sizes		
WA0604	Set the correct pressure of the machine and run a test piece and correct all deviations		
WA0605	Drill materials at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations		
WA0606	Inspect the bored components to confirm quality and meeting product specifications		
WA0607	Identify and report substandard raw material and components		
WA0608	Label or group components on pallets for dispatch to the next operation		

	Supporting Evidence	Date	Signature
SE0601	Photos of bored timber and bored board products or components		
SE0602	Completed job card confirming accurate completion of work		
WM-04-WE07	Operate the edge bander to produce machine banded product for a period of 2 weeks working with solid edging, impact and veneer edging		
	Scope Work Experience	Date	Signature
WA0701	Set out, measure and mark material for edging applying the correct dimensions and calculations		
WA0702	Inspect and set up the machine for edging by adjusting cutters, rollers, pressure and height of the machine cutting unit		
WA0703	Ensure that temperature of the glue is according to edging and machine specification		
WA0704	Run and inspect a test piece to confirm correct settings		
WA0705	Edge band materials at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations		
WA0706	Inspect the edge banded components to confirm quality and meeting product specifications		
WA0707	Identify and report substandard raw material and components		
WA0708	Label or group components on pallets for dispatch to the next operation		
	Supporting Evidence	Date	Signature
SE0701	Photos of edge banded timber and bored board products or components		
SE0702	Completed job card confirming accurate completion of work		
WM-04-WE08	Produce profiled timber and board product components and products by operating a spindle,		

	moulder and overhead router to produce components with different profiles, moulds, rebates, grooves, chamfers, radiuses, and bullnoses for a period of 3 weeks		
	Scope Work Experience	Date	Signature
WA0801	Set out, measure and mark material for profiling applying the correct dimensions and calculations		
WA0802	Inspect and set up the machine for profiling operations		
WA0803	Adjust the spindle feeder to correct height		
WA0804	Select the correct feeding speed and direction		
WA0805	Adjust cutting tools to correct angles, width and length and depth		
WA0806	Run and inspect a test piece to confirm correct settings		
WA0807	Operate the spindle, moulder and overhead router to produce components with different profiles, moulds, rebates, grooves, chamfers, radiuses, and bullnoses at feed speeds suited to materials and machine applying guards and relevant safety procedures and requirements throughout the operations		
WA0808	Inspect the profiled components to confirm quality and meeting product specifications		
WA0809	Identify and report substandard raw material and components		
WA0810	Label or group components on pallets for dispatch to the next operation		
	Supporting Evidence	Date	Signature
SE0801	Photos of profiled timber board products or components		
SE0802	Completed job card confirming accurate completion of work		
WM-04-WE09	Produce turned timber components and products by operating a lathe and copy lathe to produce 100 turned components		

	Scope Work Experience	Date	Signature
WA0901	Set out, measure and mark material for profiling applying the correct dimensions and calculations		
WA0902	Inspect and set up the machine for wood turning operations		
WA0903	Adjust the lathe and copy lathe to required adjustments		
WA0904	Fit components securely to the machines		
WA0905	Select and fit the correct chisels		
WA0906	Secure the templates and jigs to the machine		
WA0907	Operate a lathe and copy lathe to produce 100 turned components using the lathe and copy lathe		
WA0908	Inspect the profiled components to confirm quality and meeting product specifications		
WA0909	Identify and report substandard raw material and components		
WA0910	Label or group components on pallets for dispatch to the next operation		
	Supporting Evidence	Date	Signature
SE0901	Photos of turned timber products or components		
SE0902	Completed job card confirming accurate completion of work		
WM-04-WE10	Produce jointed timber producing different sizes and angles of Mortise-and-Tenon joints by operating the Mortise-and-Tenon machine for a period of 2 weeks in the machining department		
	Scope Work Experience	Date	Signature
WA1001	Set out, measure and mark timber and composite board for profiling applying the correct dimensions and calculations		
WA1002	Inspect and set up the machine for cutting joints		
WA1003	Set-up correct shoulder sizes and adjust cutting tools		

	to correct angles, width and length and depth		
WA1004	Set the correct pressure of the machine		
WA1005	Run and inspect a test piece to confirm correct settings		
WA1006	Start, stop and control the Mortise-and-Tenon producing different sizes and angles of Mortise-and-Tenon joints		
WA1007	Cut joints according specification (joints include but not limited to: double end mortise, mitered butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint)		
WA1008	Inspect the jointed components to confirm quality and meeting product specifications		
WA1009	Identify and report substandard raw material and components		
WA1010	Label or group components on pallets for dispatch to the next operation		
	Supporting Evidence	Date	Signature
SE1001	Photos of jointed timber products or components		
SE1002	Completed job card confirming accurate completion of work		
WM-04-WE11	Conclude operations according to workplace requirements		
	Scope Work Experience	Date	Signature
WA1101	Unused materials are returned to appropriate storage		
WA1102	Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated		
WA1103	Perform the process according to health and safety requirements within the allocated time		
WA1104	Record and submit all production information and processes		
WA1105	Faulty and/or defective equipment is tagged and		

	reported in accordance with workplace practices		
WA1106	Waste and scrap materials are dealt with following workplace procedures in compliance with environmental requirements		
	Supporting Evidence	Date	Signature
SE1101	Completed job card confirming accurate completion of work		
WM-04-WE12	Perform routine cleaning and minor maintenance in the workshop to maintain the good working order of the machines, tooling, equipment and safe working conditions		
	Scope Work Experience	Date	Signature
WA1201	Inspect, clean and conduct minor maintenance tasks on machines (such as lubrication, belt tension, etc.) to maintain serviceability of the machines		
WA1202	Inspect, clean and conduct minor maintenance tasks on tooling and equipment such as sharpening to maintain the good working order		
WA1203	Faulty and/or defective equipment is tagged and reported in accordance with workplace practices		
WA1204	Clean the working environment and inspect for compliance with safety requirements		
	Supporting Evidence	Date	Signature
SE1201	Completed checklists and reports		
WM-04-WE13	Apply safety procedures and equipment when operating machines, working with chemicals, handling wood, board and components for the duration of the work experience		
	Scope Work Experience	Date	Signature
WA1301	Operate machines ensuring work practices minimise the risk of injury and damage to machinery, equipment and safety of self and others		
WA1302	Inspect the workshop, machines, tools and equipment to determine whether these aspects comply with occupational health and safety requirements		

WA1303	Identify, record and report conditions that present a threat to safety, health and the environment		
WA1304	Promptly identify appropriate corrective actions and consult the appropriate parties about these actions		
WA1305	Trace and report ongoing safety concerns in work area ensuring corrective actions are taken		
WA1306	Complete health, safety and environment reports using the required format		
WA1307	Identify, select and apply personal protective clothing and equipment appropriate to the task		
WA1308	Participate in a fire evacuation drill		
	Supporting Evidence	Date	Signature
SE1301	Completed checklists and reports		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		
3	Reporting structures		
4	Company standard operating and safety procedures and quality standards		
5	Workshop layout and designated areas		
6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature

WM-05-WE01	Read, interpret and produce basic engineering drawings		
	Scope Work Experience	Date	Signature
WA0101	Produce engineering drawings for a chair, stool, table, box, cabinet, book shelve		
WA0102	Identify all components to be assembled and processed in the assembling department and compile a checklist		
WA0103	Identify the manufacturing processes from the drawing and compile routing sheets		
WA0104	Identify and correctly calculate the raw material (finishings, etc.) needed for the product		
	Supporting Evidence	Date	Signature
SE0101	Completed drawings		
SE0102	Completed routing sheet		
SE0103	Completed checklist		
SE0104	Completed raw material list		
WM-05-WE02	Prepare for operations in the assembling department		
	Scope Work Experience	Date	Signature
WA0201	Receive work instructions and product specifications and other production information and check for accuracy and sufficiency and report any incorrect information		
WA0202	Select and obtain all necessary materials and equipment for the task and confirm that all components are according to sizes, numbers and quality as per cutting list		
WA0203	Prepare the working area for the task ensuring it is clean and free from dust and oil or any foreign material which can contaminate the workpiece		
WA0204	Production information is checked for accuracy and sufficiency and any incorrect information is reported to		

	the relevant person		
WA0205	All necessary materials and equipment for the job are identified and accessed, and any non-availability is reported to the relevant person		
WA0206	The quality and quantity of materials is checked and remedial action taken if there is non-conformity		
WA0207	Accurately establish the compatibility of materials with the boring machine to be used and take correct remedial action to address non-conformity		
WA0208	Inspect jigs, templates and other necessary dimension control aids ensuring they are available, correct and fit for the purpose		
	Supporting Evidence	Date	Signature
SE0201	Prepared work area		
WM-05-WE03	Design, construct and test templates, moulds and formers for curved, laminated drawers and raised and curved doors and a curved armrest for one off use, multiple use; short term use; and long term use using a suitable material for the purpose of the templates, moulds and formers		
	Scope Work Experience	Date	Signature
WA0301	Read and interpret the requirements and sample for the templates, moulds and formers according to production, quality and organisational requirements		
WA0302	Templates, moulds and formers made, provide for secure and safe attachment, accurate calibrators and sizing for their production purpose		
WA0303	Inspect templates, moulds and formers to confirm specification accuracy and accurate sample match		
WA0304	Correctly label templates, moulds and formers are and place in the designated location		
WA0305	Documentation is completed accurately and according to organisational requirements		
	Supporting Evidence	Date	Signature
SE0301	Photos of completed jigs		

SE0302	Completed job card confirming completion of work		
WM-05-WE04	Repair templates, moulds and formers		
	Scope Work Experience	Date	Signature
WA0401	Inspect templates, moulds and formers for damage to maintain accuracy and quality of the operations and identify damage or faults		
WA0402	Plan the repair operation to minimise production downtime		
WA0403	Repair the templates, moulds and formers confirming accurate sample match		
	Supporting Evidence	Date	Signature
SE0401	Photos of repaired jigs and templates (before and after)		
SE0402	Completed job card confirming completion of work		
WM-05-WE05	Modify templates, moulds and formers		
	Scope Work Experience	Date	Signature
WA0501	Determine the feasibility of the intended modification		
WA0502	Identify the modification requirement and confirm with the relevant person		
WA0503	Plan the modification process to minimise production downtime		
WA0504	Conduct the modification accurately to specification and inspect the templates, moulds and formers to confirm an accurate sample match is obtained		
WA0505	Perform the modification safely and within the optimum time scales		
WA0506	Correctly mark modified templates, moulds and formers for identification and return to their correct location		
	Supporting Evidence	Date	Signature
SE0501	Photos of modified jigs and templates (before and after)		

SE0502	Completed job card confirming completion of work		
WM-05-WE06	Plan, cut and joint veneers		
	Scope Work Experience	Date	Signature
WA0601	Read and interpret work instruction, product requirements and drawings for the manufacturing of veneers and select appropriate type of cut, matching of materials and jointing type and method for the task		
WA0602	Identify, select and use tools and equipment for cutting, sawing and sanding of veneers		
WA0603	Identify, select and measure materials for veneers and perform matching to achieve aesthetic and light refraction requirements		
WA0604	Inspect veneers and confirm accuracy of measuring, matching of grain direction and light refraction and cutting tasks		
WA0605	Identify, select and prepare adhesives for the jointing procedure		
WA0606	Identify jointing and veneer problems and faults and reject and replace and report to the relevant person		
WA0607	Handle, move and store workpiece in a manner which does not cause damage		
WA0608	Unused materials are returned to appropriate storage		
WA0609	Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated		
	Supporting Evidence	Date	Signature
SE0601	Copy of signed job card		
SE0602	Photos of completed inlays		
SE0603	Production records		
WM-05-WE07	Lay veneers and hand fit inlays		
	Scope Work Experience	Date	Signature
WA0701	Read and correctly interpret specifications for the		

	laying of veneers and hand fitting of inlays to identify the type and quality of veneers; grain matching; colour matching; moisture content, etc.		
WA0702	Identify, select and use tools and equipment for inlay and adhesive application and inspect to confirm correct condition for safe and effective production		
WA0703	Identify, select and inspect material surfaces and to confirm quality, to ensure it is free of defects; dust; chippings and ready to receive veneer or inlay		
WA0704	Check and confirm the inlay design and type with specification		
WA0705	Sequence of inlay settings are determined		
WA0706	Identify, correctly mix and apply adhesives in the inlaying process according to the manufacturer specifications (MSDS)		
WA0707	Apply the inlay using selected pressing and inlay techniques ensuring the lateral and vertical fit conforms to specification requirements		
WA0708	Inspect the workpiece to identify faults, ensuring the surface is from excess adhesives and exposed surfaces are straight and even		
WA0709	Unused materials are returned to appropriate storage		
WA0710	Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated		
WA0711	Perform the process according to health and safety requirements within the allocated time		
WA0712	Record and submit all production information and processes		
	Supporting Evidence	Date	Signature
SE0701	Copy of signed job card		
SE0702	Photos of completed inlays		
SE0703	Production records		
WM-05-WE08	Assemble and complete crafted furniture		

	Scope Work Experience	Date	Signature
WA0801	Read and correctly interpret specifications for the manufacturing of crafted furniture to identify the type and quality of the various features of the workpiece such as veneers, inlays, moulded features, laminated features, curved drawers and doors, curved and raised panel doors, etc.		
WA0802	Check and confirm the workpiece design and type with specification		
WA0803	Identify, select and use tools and equipment for the manufacturing of the respective features and inspect to confirm correct condition for safe and effective operation		
WA0804	Identify, select and inspect material surfaces and to confirm quality, to ensure it is free of defects; dust; chippings and ready for the manufacturing process		
WA0805	Identify and select accessories, fittings and finishings as per specifications		
WA0806	Identify, correctly mix and apply adhesives in the inlaying process according to the manufacturer specifications (MSDS)		
WA0807	Apply the inlay according to the sequence using selected pressing and inlay techniques ensuring the lateral and vertical fit conforms to specification requirements		
WA0808	Produce drawer components using various machines and hand held machines for 50 drawers of different shapes and sizes including curved and laminated drawers and fit drawer bottom and front pieces and runners ensuring a smooth sliding action		
WA0809	Produce 25 curved and raised panel doors and fit to carcasses ensuring the doors fit square and true		
WA0810	Cut and prepare joints according specification including but not limited to: double end mortise, mitred butt joints, butt joints, tongue and groove, rail and style, dado joint, rabbet joint) ensuring a snug and stable fit		
WA0811	Produce mouldings according to specification (mouldings includes chamfers, radiuses, bullnoses)		
WA0812	Cut, shape and mould components according to		

	specification (shapes include but not limited to: square, arch, concave, convex, L-shape, U-shape)		
WA0813	Inspect the work piece to identify faults, ensuring the surface is from excess adhesives and exposed surfaces are straight and even		
WA0814	Unused materials are returned to appropriate storage		
WA0815	Apply time and self-management to achieve the operation in compliance with safety requirements and within the time allocated		
WA0816	Perform the process according to health and safety requirements within the allocated time		
WA0817	Record and submit all production information and processes		
	Supporting Evidence	Date	Signature
SE0801	Time sheet/ job card, photos and log book completed and signed by the supervisor		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		
3	Reporting structures		
4	Company standard operating and safety procedures and quality standards		
5	Workshop layout and designated areas		
6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature

682201001-00-WM-06, Prototype and Crafted Furniture making and Furniture repairing Processes, NQF Level 4, Credits 85

WM-06-WE01	Develop and construct technical drawings indicating all components in correct quantities, shapes and sizes of the furniture product whilst evaluating the design for feasibility and practicality for 10 products		
	Scope Work Experience	Date	Signature
WA0101	Develop and produce computer aided technical drawings using a CAD application or manual tools and equipment		
WA0102	Conceptualise and visualise the final work piece in three dimensions: length, width and depth		
WA0103	Asses the feasibility for manufacturing and alert designer to any deviations from design		
WA0104	Estimate material requirements for production and estimate the amounts, types, or costs of needed materials		
WA0105	Determine the cost specifications of the product		
	Supporting Evidence	Date	Signature
SE0101	Technical drawings		
WM-06-WE02	Identify suitable construction methods (i.e. jointing solutions) to standardise components and to simplify or optimise production and compile production documentation for 5 products		
	Scope Work Experience	Date	Signature
WA0201	Determine product specifications and materials, work methods, and machine setup requirements, according to oral or written instructions, drawings, or work orders		
WA0202	Review blueprints or other instructions to determine operational methods or sequences		
WA0203	Produce furniture construction specifications according to a furniture design		

WA0204	Establish the specifications of articles to be constructed or repaired or plan the methods or operations for shaping or assembling parts, based on blueprints, drawings, diagrams, or oral or written instructions		
WA0205	Draw up and produce cutting lists for furniture products		
WA0206	Produce specifications for curved, laminated, profile or formed products		
WA0207	Produce furniture finishing specifications		
WA0208	Produce a job card, cutting list, production flow/routing chart		
	Supporting Evidence	Date	Signature
SE0201	Work instructions, job card, cutting list, production flow/routing chart		
SE0202	Furniture finishing specifications		
WM-06-WE03	Determine and inspect suitable timber, fittings and finishings according to design or product specifications for 5 products		
	Scope Work Experience	Date	Signature
WA0301	Compare physical characteristics of materials or products to specifications or standards		
WA0302	Select appropriate finishing ingredients such as paint, stain, lacquer, shellac, or varnish, depending on factors such as wood hardness and surface type.		
WA0303	Recommend woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles.		
	Supporting Evidence	Date	Signature
SE0301	Product specifications		
WM-06-WE04	Prepare and set-up machines of which basic 5 machines unsupervised and on his own and a complete range of woodwork machines supervised for period of 20 days in the machining and assembling department for operation and production of machined and profiled components for once-off or bulk production ensuring optimum workflow		

	Scope Work Experience	Date	Signature
WA0401	Set up and program a range of woodworking machines, such as band saw, table saw, planing saw, sanding machine drill presses, lathes, shapers, routers, sanders, planers, or wood-nailing machines		
WA0402	Select knives, saws, blades, cutter heads, cams, bits, or belts, according to work piece, machine functions, or product specifications.		
WA0403	Install and adjust blades, cutter heads, boring-bits, or sanding-belts, using hand tools and rules/manufacturer specifications		
WA0404	Adjust machine tables or cutting devices and set controls on machines to produce specified cuts or operations		
WA0405	Set and adjust various kinds of woodworking machines for operation by others		
	Supporting Evidence	Date	Signature
SE0401	Machines and line setup		
WM-06-WE05	Do a mock-up development to assess the design, technical drawing and raw material for compatibility and recommend adaptations and modifications to solve potential technical, resources, budgetary, time, materials and equipment problems for 5 basic products		
	Scope Work Experience	Date	Signature
WA0501	Do a dry assembling to check that the construction is correct, can stand without glue, look for rigidity of the wood carcass (test run) and pieces are correct size, that it fit, squareness, angles		
WA0502	Interact with the designer, production manager and suppliers during the prototype making process		
	Supporting Evidence	Date	Signature
SE0501	Dry assembly assessment information and documentation		
WM-06-WE06	Manufacture (machine and assemble) prototype components according to the final design and finish and prepare the prototype for display to and approval from the client or designer for 5 products		
	Scope Work Experience	Date	Signature

WA0601	Select and draw raw material from wood store or yard or consumables from hardware store according to the requirements of the product		
WA0602	Identify compatibility/incompatibility of materials, adhesives, fittings and fasteners for the application		
WA0603	Select and use appropriate materials, equipment and processes for the item being constructed		
WA0604	Select and apply appropriate joinery, construction and finishing techniques		
WA0605	Machine furniture prototype components		
WA0606	Joint and assemble furniture prototype components		
WA0607	Attach parts or subassemblies to form completed units, using glue, dowels, panel pins, screws, or clamps		
WA0608	Trim joints and fit parts and subassemblies to form complete units using glue and clamps, and reinforcing joints using nails, screws or other fasteners		
WA0609	Decorate furniture and fixtures by inlaying wood, applying veneer and carving designs according to the specifications		
WA0610	Demonstrate how the design of the prototype components will influence the working lifetime of the item		
WA0611	Ensure that the prototype satisfies the original or varied specification		
WA0612	Finish prototype		
	Supporting Evidence	Date	Signature
SE0601	Prototype manufacturing documentation		
WM-06-WE07	Produce or assemble components of furniture articles, such as store fixtures, office equipment, cabinets, or crafted furniture for 5 products		
	Scope Work Experience	Date	Signature
WA0701	Select and draw raw material from wood store or yard or consumables from hardware store according to the requirements of the product		

WA0702	Identify compatibility/incompatibility of materials, adhesives, fittings and fasteners for the application		
WA0703	Select and use appropriate materials, equipment and processes for the item being constructed		
WA0704	Select and apply appropriate joinery, construction and finishing techniques		
WA0705	Machine furniture components		
WA0706	Joint and assemble furniture components		
WA0707	Attach parts or subassemblies to form completed units, using glue, dowels, panel pins, screws, or clamps		
WA0708	Trim joints and fit parts and subassemblies to form complete units using glue and clamps, and reinforcing joints using nails, screws or other fasteners		
WA0709	Decorate furniture and fixtures by inlaying wood, applying veneer and carving designs according to the specifications		
	Supporting Evidence	Date	Signature
SE0701	Production documentation		
WM-06-WE08	Modify, restyle or repair various wooden furniture, cabinets, fixtures, panelling, or other pieces		
	Scope Work Experience	Date	Signature
WA0801	Examine furniture to determine the extent of damage or deterioration, and to decide on the best method for repair or restoration.		
WA0802	Remove old finishes and damaged or deteriorated parts, using hand tools, stripping tools, sandpaper, steel wool, abrasives, solvents, or dip baths.		
WA0803	Fill and smooth cracks or depressions, remove marks and imperfections, and repair broken parts, using plastic or wood putty, glue, nails, or screws.		
WA0804	Produce replacement parts by recommending woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles and matching types of wood, colour, grain, texture		

WA0805	Repairs to damaged furniture, repairs to damaged furnisher finishings, restoring finishes		
WA0806	Match materials for colour, grain, or texture, giving attention to knots or other features of the wood.		
WA0807	Carry out assembly repairs to damaged furniture		
WA0808	Examine furniture to determine the extent of damage or deterioration, and to decide on the best method for repair or alteration		
WA0809	Repairs to damaged furniture, repairs to damaged furnisher finishings, restoring finishes		
WA0810	Remove old finishes and damaged or deteriorated parts, using hand tools, stripping tools, sandpaper, steel wool, abrasives, solvents, or dip baths.		
	Supporting Evidence	Date	Signature
SE0801	Production documentation		
WM-06-WE09	Finish surfaces of wooden articles or furniture (spray-on applications of 5 products)		
	Scope Work Experience	Date	Signature
WA0901	Recommend woods, colours, finishes, and furniture styles, using knowledge of wood products, fashions, and styles.		
WA0902	Select appropriate finishing ingredients such as paint, stain, lacquer, shellac, or varnish, depending on factors such as wood hardness and surface type.		
WA0903	Trim, sand, or scrape surfaces or joints to prepare articles for finishing.		
WA0904	Smooth, shape, and touch up surfaces to prepare them for finishing, using sandpaper, pumice stones, steel wool, chisels, sanders, or grinders.		
WA0905	Mix finishing ingredients to obtain desired colours or shades.		
WA0906	Brush, spray, or hand-rub finishing ingredients, such as paint, oil, stain, or wax, onto and into wood grain and apply lacquer or other sealers.		

WA0907	Paint metal surfaces electrostatically, or by using a spray gun or other painting equipment.		
WA0908	Distress surfaces with woodworking tools or abrasives before staining to create an antique appearance, or rub surfaces to bring out highlights and shadings. (Roughens the surface â€“ open the grain with a wire brush)		
	Supporting Evidence	Date	Signature
SE0901	Production documentation		
WM-06-WE10	Inspect quality, monitor productivity and comply with requirements (1 week)		
	Scope Work Experience	Date	Signature
WA1001	Complete timesheets and other production information at the end of the job to reflect and determine productivity		
WA1002	Inspect components and finished furniture products by observing structure, squareness, the finish, the way it is constructed, how it was fit, feel and look, smooth and all rounded of, sturdiness and craftsmanship to ensure quality		
WA1003	Inspect furniture products for meeting specifications		
WA1004	Tend to bottlenecks		
WA1005	Optimize company production by planning and finding quicker and better ways and measuring against the maximum output of the company		
	Supporting Evidence	Date	Signature
SE1001	Production records		
SE1002	Attendance registers		
WM-06-WE11	Monitor safety, health, quality and productivity in the furniture machining, assembling or finishing departments (40 hours)		
	Scope Work Experience	Date	Signature
WA1101	Verify dimensions and check the quality or fit of furniture pieces to ensure adherence to specifications		
WA1102	Compare physical characteristics of materials or products		

	to specifications or standards		
WA1103	Inspect tolerances and allowances for accuracy		
WA1104	Avoid backtracking, work flow interruptions or wastage		
WA1105	Use workplace technology related to the coordination, including communication equipment, time and management aids and other measuring devices		
WA1106	Communicate ideas and information to enable confirmation of work requirements and specifications and the reporting of work outcomes and problems		
WA1107	Ensure the application of safety and environmental procedures		
WA1108	Inspect the workshop for hazards and report and mitigate risks		
	Supporting Evidence	Date	Signature
SE1101	Safety, health and environmental records		
SE1102	Incident and accident reports		
SE1103	Attendance registers		
WM-06-WE12	Oversee the activities of a team of operators in the furniture machining, assembling or finishing departments (side assistance) (10 days)		
	Scope Work Experience	Date	Signature
WA1201	Identify a team of operators		
WA1202	Conduct and record a daily briefing meeting		
WA1203	Delegate tasks to different team members		
WA1204	Coach, guide and advice team members on different processes, machines, tools and other resources required.		
WA1205	Record meeting		
WA1206	Lead the team in the workplace		
WA1207	Organise all materials, equipment and tools for the team members and operations		

WA1208	Record all processes and report to relevant person		
WA1209	Attend to conflicts in the work area and report accordingly		
	Supporting Evidence	Date	Signature
SE1201	Production records		
SE1202	Briefing session notes/minutes		
SE1203	Coaching session attendance registers		

	Contextualised Workplace Knowledge	Date	Signature
1	Company products		
2	Various departments and workflow		
3	Reporting structures		
4	Company standard operating and safety procedures and quality standards		
5	Workshop layout and designated areas		
6	Personal protective clothing and equipment		

	Additional Assignments to be Assessed Externally	Date	Signature