Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

Interior Model Making

INDMM402

Make Interior Design Model

Competence

RQF Level: 4

Learning Hours 50

Credits: 5

Sector: Construction and Building Services

Trade: Interior Design

Module Type: Specific module

Curriculum: CBSIND401-TVET Certificate IV In Interior Design

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Issue Date: June 2023

<table>
<tr><td>Purpose statement</td><td colspan="6">This module describes skills, knowledge and attitudes required to create physical, scaled-down representations of interior spaces, designs, or Interior design concepts. Interior model making serves multiple purposes that including visualization and conceptualization of a tangible and visual representation of a design concept which help designers, clients, and stakeholders to better understand and visualize the spatial layout, proportions, and aesthetics of the interior design before it is constructed.</td></tr>
<tr><td>Learning assumed to be in place</td><td colspan="6">Interior space assessment, CAD Software</td></tr>
<tr><td rowspan="6">Delivery modality</td><td colspan="2">Training delivery</td><td>100%</td><td colspan="2">Assessment</td><td>Total 100%</td></tr>
<tr><td colspan="2">Theoretical content</td><td>30%</td><td rowspan="4">Formative assessment</td><td>30%</td><td rowspan="4">50%</td></tr>
<tr><td colspan="2">Practical work:</td><td rowspan="3">70%</td><td rowspan="3">70%</td></tr>
<tr><td>• Group work and presentation</td><td>30%</td></tr>
<tr><td>• Individual work</td><td>40%</td></tr>
<tr><td colspan="3"></td><td colspan="2">Summative Assessment</td><td>50%</td></tr>
</table>

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare materials, tools and equipment	1.1. Model drawings are properly reviewed according to design specifications.
	1.2. Model-making materials are appropriately identified according to the design requirements.
	1.3. Model making tools and equipment are properly identified according to their types and uses.
	1.4. The scale is correctly determined according to the design requirements.
2. Prepare the base	2.1. Drawing measurements are accurately taken in accordance with the design specifications.
	2.2. Markings are properly performed according to shop drawings.
	2.3. Drawing on base of model is accurately transferred in accordance to the design specifications.

3. Apply cutting techniques	3.1. Measurements of model components are accurately taken in accordance with the shop drawings.
	3.2. Cutting tools and equipment are correctly selected according to the types of materials.
	3.3. Cutting techniques are appropriately applied according to the design specifications.
4. Apply assembling techniques	4.1. Assembling techniques are appropriately selected in accordance to the properties of model component materials and design brief.
	4.2. Model components are correctly assembled as per design structure.
	4.3. Finishes and labels are accurately applied on final product in line with the design specifications.

Intended Knowledge, Skills and Attitude

Knowledge	Skills	Attitude
✓ Identify design specifications of model drawings ✓ Identify joints and joining techniques ✓ Identify model making tools, materials and equipment required ✓ Recognize geometric shapes ✓ Identify finishing techniques	✓ Read and interpret design drawings ✓ Apply Joining techniques ✓ Take accurate measurements ✓ Use cutting and assembling techniques of model making ✓ Apply model making finishes	✓ Use material efficiently and effectively ✓ Pay attention to model-making details ✓ Comply with safety measures ✓ Use creativity and innovation during the process of model making ✓ Store model making tools and materials ✓ Maintain cleanliness during model-making

Course content

Learning outcomes	At the end of the module the learner will be able to: 1. Prepare materials, tools and equipment 2. Prepare the base 3. Apply cutting techniques 4. Apply assembling techniques
Learning outcome 1: Prepare materials, tools and equipment	**Learning hours: 10**

Indicative content

- **Design Specifications**

✓ Dimensions

✓ Symbols

✓ Scale

✓ Design layout

✓ Design Brief

- **Reviewing model drawings**

  ✓ Site Plan

  ✓ Floor Plan

  ✓ Sections

  ✓ Elevations

  ✓ Roof Plan

  ✓ 3D Drawings

- **Model making materials**

  ✓ Cardboard

- ✓ Basswood
- ✓ Plywood
- ✓ plastics
- ✓ foam board
- ✓ Transparent materials
- ✓ Metal
- ✓ glues
- ✓ Adhesives
- ✓ Kappa board

- **Types of model making tools**
  - ✓ Cutting tools
    - Cutter
    - Razor blade
    - Scissors
    - Saws
    - Cutting mat
  - ✓ Measuring tools
    - Ruler
    - Measuring tape
    - T-square
    - Protractor
  - ✓ Drafting tools
    - Pencils
    - Pens
    - Marker
  - ✓ Holding tools
    - Clamps
    - Pins
    - Masking tape

- Fasteners

✓ Modelling and carving tools

- Copping saw
- Chisel

✓ Marking tools

- Pens
- Pencils

- **Model making equipment**

✓ Laser cutting and engraving machine

✓ jig saw

✓ staple gun

✓ glue gun

✓ hot wire cutter

✓ Solid board

✓ Mitre saw

- **Model making scale**

✓ Enlarged scale

✓ Reduced scale

✓ Full scale

Resources required for the learning outcome	
Equipment	▪ Laser cutting and engraving machine ▪ jig saw ▪ staple gun ▪ glue gun ▪ hot wire cutter

	▪ Solid board ▪ Mitre saw ▪ Computer ▪ Projector
Materials	▪ Flipchart ▪ Cardboard ▪ Basswood ▪ Plywood ▪ plastics ▪ foam board ▪ Transparent materials ▪ Metal ▪ glues ▪ Adhesives ▪ Kappa board
Tools	▪ Cutter ▪ Razor blade ▪ Scissors ▪ Saws ▪ Cutting mat ▪ Ruler ▪ Measuring tape ▪ T-square ▪ Protractor ▪ Pencils ▪ Pens ▪ Marker ▪ Clamps ▪ Pins

	▪ Masking tape ▪ Fasteners ▪ Copping saw ▪ Chisel
Facilitation techniques	▪ The teacher provides students an interior design drawing and asks them to review the given drawing individually. ▪ The students select material, tools and equipment needed to make a model.
Formative assessment methods /(CAT)	▪ Written assessment ▪ Performance assessment

Learning outcome 2: Prepare the base	**Learning hours: 5**
Indicative content	
• **Scaling of drawing measurements** • **Marking the model base** • **Drawing on model base**	
Resources required for the learning outcome	
Equipment	▪ Printer ▪ Scanner ▪ Computer
Materials	▪ Papers ▪ Cardboard ▪ Basswood ▪ Plywood ▪ Foam board ▪ MDF

Tools	▪ Pens ▪ Pencils ▪ Cutter ▪ Razor blade ▪ Scissors ▪ Saws ▪ Cutting mat ▪ Ruler ▪ Measuring tape ▪ T-square ▪ Protractor
Facilitation techniques	▪ The teacher provides the drawing plan to the students and asks them to transfer the drawing to the model base using the given scale. ▪ Each student presents the model base to the whole class for feedbacks
Formative assessment methods /(CAT)	▪ Oral Presentation ▪ Performance assessment ▪ Product based assessment

Learning outcome 3: Apply cutting techniques	**Learning hours:15**
Indicative content	
• **Measuring model components** • **Cutting techniques** ✓ Straight Cutting ✓ Curving ✓ Perforating ✓ Notching ✓ Scribing	

Resources required for the learning outcome	
Equipment	▪ Jig saw ▪ Laser cutting and engraving machine ▪ hot wire cutter ▪ Solid board ▪ Mitre saw
Materials	▪ Timber ▪ PVC ▪ MDF ▪ Foam ▪ Aluminum ▪ Compressed wood ▪ Papers ▪ Cardboard ▪ Basswood ▪ Plywood ▪ Foam board
Tools	▪ Pens ▪ Tape measure ▪ Ruler ▪ spirit level ▪ Cutter ▪ Razor blade ▪ Scissors ▪ Saws ▪ Cutting mat ▪ Measuring tape ▪ T-square

	▪ Protractor ▪ Sanding paper
Facilitation techniques	• The teacher asks the students to prepare components for model making in reference to the given drawing from learning outcome 1. • The teacher randomly selects few students to present their components by explaining the cutting techniques used.
Formative assessment methods /(CAT)	▪ Oral representation ▪ Performance assessment

Learning outcome 4: Apply assembling techniques	**Learning hours: 20**
Indicative content	
• **Assembling techniques** ✓ Riveting ✓ Nailing ✓ Gluing ✓ Welding ✓ Sewing ✓ screwing ✓ Bolting • **Types of model finishes** ✓ Paint ✓ Varnish ✓ Printed paper ✓ Saw dust ✓ PVC Transparent sheets ✓ Glass ✓ Cork tile ✓ Sanding sealer ✓ Artificial elements/accessories	
Resources required for the learning outcome	

Equipment	▪ Compressor ▪ Paint sprayer ▪ Computer ▪ Printer ▪ Jig Saw ▪ Laser cutting and engraving machine
Materials	▪ Wood ▪ MDF ▪ Plywood ▪ Chipboard ▪ Laminated sheet ▪ Cardboard ▪ PVC ▪ Aluminum ▪ Papers ▪ Cardboard ▪ Basswood ▪ Plywood ▪ Foam board
Tools	▪ Clamps ▪ Copping saw ▪ Jack planer ▪ Angle grinder ▪ Ruler ▪ Cutter ▪ Razor blade ▪ Scissors ▪ Saws ▪ T-square

	▪ Protractor ▪ Sanding paper
Facilitation techniques	• The teacher asks students to assemble model components and apply appropriate finishes as per given drawing. • Students present their final models by explaining the model making process used and the design specifications which include; the functionality of the space, materials, types of finishes, scale and measurements.
Formative assessment methods /(CAT)	▪ Performance assessment ▪ Oral Presentation ▪ Product based assessment

Integrated/Summative assessment

Integrated situation

Kigali Interior design ltd won a tender of redesigning the reception of the Ethnographic Museum located in the Southern Province of Rwanda in Huye district, this company is looking for an interior designer who can produce a 3D Model of the reception room (4m X 8m X 2.8m height), using cardboard on a scale of 1/20. This reception room has a drop ceiling finished with gypsum and the walls are painted with imigongo patterns while the floor is made out of ceramic tiles. This task should be accomplished in 4 days and use a scale of 1/20.

Additional information;

Items to include inside the reception area;

1. Reception desk - 200 cm x 80 cm x 130 cm
2. Reception chair – 50 cm x
3. Shelves – 180 cm x 120 cm x 40 cm
4. Cabinet – 120cm x 120 cm x 40 cm
5. Reception Sofa/couch – 180 cm x 90 cm x 85 cm
6. Coffee table – 120cm x 60 cm x 45 cm
7. 2 End tables – 50cm x 40cm x 45cm
8. Carpet – 200cm x 150cm
9. Reception TV
10. Chandelier and wall lights

All drawings (Floorplan, elevations and sections), materials and tools are provided by the company.

Resources	
Tools	▪ Steel ruler ▪ Cutter ▪ Razor blade ▪ Scissors ▪ T-square ▪ Protractor ▪ Sanding paper ▪ Paint brushes ▪ Ruler ▪ Cutting mat
Equipment	▪ Compressor ▪ Paint sprayer ▪ Computer ▪ Printer ▪ Solid board ▪ Mitre saw
Materials/ Consumables	▪ Cardboard ▪ MDF ▪ Papers ▪ Plywood ▪ Wood strips ▪ Foam board ▪ Fabrics ▪ Paint ▪ Adhesives & Glue ▪ Masking tape ▪ Saw dust ▪ Glasses ▪ Artificial elements ▪ Transparent plastic sheet

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
1. Prepare materials, tools and equipment	1.1. Model-making materials are appropriately identified according to the design requirements.	Model making materials are selected			8
		Cardboard			
		Papers			
		Wood strips			
		Foam board			
		Fabrics			
		Paint			
		Adhesives & Glue			
		Masking tape			
	1.2. Model making tools and equipment are properly identified according to their types and uses.	Model material tools are selected			16
		Steel ruler			
		Cutter			
		Razor blade			
		Scissors			
		T-square			
		Protractor			
		Sanding paper			
		Paint brushes			
		Ruler			
		Model making equipment are selected			
		Compressor			
		Paint sprayer			
		Computer			
		Printer			
		Solid board			
		Mitre saw			

	1.3. The scale is correctly determined according to the design requirements.	The scale is used correctly			
2. Prepare the base	2.1. Drawing measurements are accurately taken in accordance with the design specifications	Drawing measurements are accurately taken			8
		-Room			
		-Furniture			
		-Ceiling			
		-Doors & Windows			
	2.3. Drawing on base of model is accurately transferred in accordance to the design specifications.	Drawing is accurately transferred on base of model			10
		Floorplan			
		Furniture			
3. Apply cutting techniques	3.3. Measurements of model components are accurately taken in accordance with the shop drawings.	Model components are accurately measured			8
		Wall components			
		Ceiling components			
		Furniture components			
		Floor components			
	3.4. Cutting tools and equipment are correctly selected according to the types of materials.	Cutting tools are selected			10
		-Steel ruler			
		-Cutter			
		-Razor blade			
		-Scissors			
		-T-square			
		-Protractor			
		-Sanding paper			
		-Paint brushes			
		-Ruler			
		-Cutting mat			
	3.5. Cutting techniques are appropriately applied	Cutting techniques are appropriately used			8

	according to the design specifications.	Straight Cutting			
		Curving			
4. Apply assembling techniques	4.3. Assembling techniques are appropriately selected in accordance to the properties of model component materials and design brief.	Assembling techniques are appropriately applied			8
		Gluing			
		Sewing			
	4.4. Model components are correctly assembled as per design structure.	Assembling of model components is properly performed			12
		Stability			
		Joints			
		Craftmanship			
	4.5. Finishes and labels are accurately applied on final product in line with the design specifications.	Finishes and labels are accurately applied			12
		Paints			
		Patterns			
		Texture			
		Carpet			
		Lightings			
		Accessories			
Total marks					100
Percentage Weightage					100%
Minimum Passing line % (Aggregate):					70%

References

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2. *Lipson, H., & Kurman, M. (2013). Fabricated: The New World of 3D Printing. Wiley.*

3. *Materials used to make architectural models*. (2021, August 11). Architectural models. Retrieved May 25, 2023, from https://www.blueprintmodels.com/materials-used-architectural-models

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5. *The Top 10 Must-have Tools for Architectural Model building*. (n.d.). Plan n Design. Retrieved May 25, 2023, from https://www.planndesign.com/product_buying_guide/2493-top-10-must-have-tools-architectural-model-building