



Republic of Rwanda  
Ministry of Education



RTB | RWANDA  
TVET BOARD

## COST ESTIMATION

GENCE401

Estimate the Cost

## Competence

RQF Level: 4

Learning Hours

40

Credits: 4

Sector: MANUFACTURING AND MINING

Trade: Manufacturing Technology

Module Type: General

Curriculum: MAMMAT4001-TVET Certificate IV in Manufacturing Technology

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Issue Date: July 2023

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<b>Purpose statement</b>	This module describes employable and practicable skills, knowledge and right attitudes required by the learner in order to examine work, determine required resources, Calculate the cost estimation. The content provided in this course are package reserved for a learner pursuing TVET certificate IV in Manufacturing Technology. Graduates at this level will have knowledge and skills for estimating the cost for a given work and community involvement and further learning.					
<b>Learning assumed to be in place</b>	<ul style="list-style-type: none"> <li>● <b>Solid works design</b></li> <li>● <b>Machine maintenance</b></li> <li>● <b>Lather machine operation</b></li> <li>● <b>SMAW on aluminium, steel and cast –iron</b></li> <li>● <b>Oxy- acetylene gas welding on aluminium, stainless steel and cast iron</b></li> <li>● <b>Spot welding</b></li> <li>● <b>Manufactured parts/components assembling</b></li> <li>● <b>Forging operation</b></li> <li>● <b>Mould pattern making</b></li> </ul>					
<b>Delivery modality</b>	<b>Training delivery</b>		<b>100%</b>	<b>Assessment</b>		<b>Total 100%</b>
	<b>Theoretical content</b>		<b>70%</b>	<b>Formative assessment</b>		<b>30%</b>
	<b>Practical work:</b>		<b>30%</b>			<b>50%</b>
	● <b>Group project and presentation</b>	<b>10%</b>				
	● <b>Individual project /Work</b>	<b>20%</b>	<b>Summative Assessment</b>		<b>50%</b>	

**Elements of Competency and Performance Criteria**

<b>Element of competence</b>	<b>Performance criteria</b>
<b>1. Examine work</b>	1.1. The site visit is properly conducted according to the work.
	1.2. Workload or complexity of the work is properly analysed according to the survey findings.







	1.3. Work schedule is accurately planned according to the work complexity.
<b>2. Determine required resources</b>	2.1. Tools and equipment are properly identified according work requirements
	2.2. Material specifications are Properly elaborated according to the need
	2.3. Quantities of materials are Properly determined according to the drawing
	2.4. Human resources are properly determined according to the required skills
<b>3. Calculate the cost estimation</b>	3.1. Price survey of materials is Properly conducted according to the quality of materials
	3.2. Costs of each item are accurately determined according to the price survey done.
	3.3. Benefit and charges are precisely calculated according to the cost consideration
	3.4. Bill of quantities template is correctly elaborated according to the work requirements

**Course content**

<b>Learning outcomes:</b>	<p><b>At the end of the module the learner will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Examine work</li> <li>2. Determine required resources</li> <li>3. Calculate cost estimation</li> </ol>
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<b>Learning outcome 1: Examine work</b>	<b>Learning hours: 10</b>
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**Indicative content**

<ul style="list-style-type: none"> <li>● <b>Introduction to the Cost Estimation</b></li> <li>✓ Definition of the Key Terms <ul style="list-style-type: none"> <li> Cost</li> <li> Cost estimation</li> <li> Specification</li> <li> BOM</li> <li> Tax</li> <li> BOQ</li> </ul> </li> </ul>
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<ul style="list-style-type: none"> <li>✓ Objective of cost estimation</li> <li>● <b>Localisation of the workplace</b> <ul style="list-style-type: none"> <li>✓ In the workshop</li> <li>✓ At site</li> </ul> </li> <li>● <b>Analysing of the workload of the work</b> <ul style="list-style-type: none"> <li>✓ Site Visit</li> <li>✓ Shape of work</li> </ul> </li> <li>● <b>Determination of work timeline</b> <ul style="list-style-type: none"> <li>✓ Considering the time of each task</li> <li>✓ Total time</li> </ul> </li> </ul>
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**Resources required for the learning outcome**

<b>Equipment</b>	Computer
<b>Materials</b>	Papers, notebook, Pen, pencil.
<b>Tools</b>	ruler, Calculator, Tape measure
<b>Facilitation techniques</b>	<ul style="list-style-type: none"> <li>● Brainstorming</li> <li>● Group discussion</li> </ul>
<b>Formative assessment methods</b>	<ul style="list-style-type: none"> <li>● Written assessment</li> </ul>

<b>Learning outcome 2: Determine required resources</b>	<b>Learning hours: 15</b>
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<b>Indicative content</b>
<ul style="list-style-type: none"> <li>● <b>Identifying tools and Equipment</b> <ul style="list-style-type: none"> <li>✓ Identification of Tools <ul style="list-style-type: none"> <li>✚ Specification of tools</li> </ul> </li> </ul> </li> </ul>

- ✚ Availability of tools
- ✚ Cost of tools
- ✓ Identification of equipment
  - ✚ Description of equipment
  - ✚ Availability of equipment
  - ✚ Consumption of equipment
  - ✚ Cost of equipment

- **Elaborating bill of material**

- ✓ Material specifications
  - ✚ Material name and codes
  - ✚ Material composition
  - ✚ Material property
  - ✚ Surface finish
  - ✚ Dimensions
  - ✚ Environmental and safety considerations

- ✓ Elements of bill of material

- **Determining Human Resources**

- ✓ Qualification level
- ✓ Number of workers
- ✓ Time spent on task

**Resources required for the Learning outcome**

<b>Equipment</b>	Computer
<b>Materials</b>	Papers, notebook, Pen, pencil.
<b>Tools</b>	ruler, Calculator, Tape measure
<b>Facilitation techniques</b>	<ul style="list-style-type: none"> <li>● Problem solving</li> <li>● Trainer guided</li> <li>● Group discussion</li> </ul>

	<ul style="list-style-type: none"> <li>● Brainstorming</li> </ul>
<b>Formative assessment methods</b>	<ul style="list-style-type: none"> <li>● Written assessment</li> </ul>

<b>Learning outcome 3: Calculate cost estimation</b>	<b>Learning hours: 15</b>
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**Indicative content**

- **Conducting price survey**
  - ✓ Window shopping
  - ✓ Request for Quotation/proforma invoice
- **Determining costs**
  - ✓ Direct costs
    - ✚ Material
    - ✚ Labour
  - ✓ Overhead costs
    - ✚ Utility cost
    - ✚ Management cost
    - ✚ Other expenses
- **Calculating benefits and charges**
  - ✓ Benefit
    - ✚ Gross Profit
    - ✚ Net profit
  - ✓ Charges
    - ✚ Taxes
    - ✚ District fees
    - ✚ Other charges
- **Elaborating Bill of Quantity**
  - ✓ Element of Bill of quantity
  - ✓ Filling Bill of Quantity template

## Resources required for the Learning outcome

<b>Equipment</b>	Computer
<b>Materials</b>	Papers, notebook, Pen, pencil.
<b>Tools</b>	ruler, Calculator, Tape measure
<b>Facilitation techniques</b>	Trainer guidance, Group discussion, Problem solving
<b>Formative assessment methods</b>	Written assessment

## References

Sarah.J.Maas. (2013). Good Small Business Guide. In E. Enninf, *Good Small Business Guide*. London: Greener books.

Sweeting, J. (1997). Project Cost Estimation. In Charty, *PROJECT COST ESTIMATING* . Warckshire CV21 3HQ,UK: Charty.