



**REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**ACCOUNTANCY**

**KNQF LEVEL 6**

**(CYCLE 3)**

**PROGRAM CODE: 0411 551A**



TVET CDACC  
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NAIROBI

## QUANTITATIVE TECHNIQUES

**UNIT CODE: 0411 551 12A**

**TVET CDACC UNIT CODE: BUS/CU/AC/CR/05/6/MA**

**Duration of Unit:** 140 hours

### **Relationship to Occupational Standards**

This unit addresses the unit of competency: Conduct Quantitative Techniques

### **Unit Description**

This unit specifies the competencies required to conduct quantitative techniques. It involves carrying out quantitative techniques, applying correlation and regression analysis, formulating linear programming models, carrying out operational matrices, applying time series, analysing project networks, applying calculus, formulating inventory control models, determining probability and probabilistic distribution and testing hypothesis.

### **Summary of Learning Outcomes**

<b>S/NO</b>	<b>ELEMENTS</b>	<b>DURATION (HOURS)</b>
1	Carry out quantitative techniques	<b>14</b>
2	Apply correlation and regression	<b>14</b>
3	Formulate linear programming models	<b>14</b>
4	Carry out operational matrices	<b>14</b>
5	Apply time series	<b>14</b>
6	Analyse project networks	<b>14</b>
7	Apply calculus	<b>14</b>
8	Formulate inventory control models	<b>14</b>
9	Determine probability and probabilistic distribution	<b>14</b>
10	Testing hypothesis	<b>14</b>
		<b>TOTAL 140 HOURS</b>

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Carry out quantitative techniques	1.1 Meaning of terms 1.2 Development of quantitative techniques 1.3 Role of quantitative techniques in business and industry 1.4 Types of quantitative techniques 1.5 Areas where quantitative techniques are applicable	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
2. Apply correlation and regression	2.1 Meaning of terms 2.2 Differences and similarities between correlation and regression analysis 2.3 Methods of calculating correlation 2.4 Interpretation of correlation coefficient 2.5 Methods of calculating regression 2.6 application of regression analysis	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
3. Formulate linear programming models	3.1 Meaning of terms 3.2 Assumptions of linear programming models 3.3 Formulation of linear programming model 3.4 Solving linear programming problems 3.5 Application of linear programming	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

4. Carry out operational matrices	4.1 Meaning of terms 4.2 Types of matrices 4.3 Determinants of order of a matrix (2*2 and 3*3) 4.4 Inverse of a matrix 4.5 Application of matrices	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
5 Apply time series	5.1 Meaning of terms 5.2 Objectives of time series analysis 5.3 Components of time series analysis 5.4 Application of time series	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
6 Analyse project networks	6.1 Meaning of terms 6.2 Rules applicable when drawing networks 6.3 Construction of project network 6.4 Critical path and project duration 6.5 Application of network analysis	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
7 Apply calculus	7.1 Meaning of terms 7.2 Differentiation of simple functions 7.3 Integration of simple functions 7.4 Application of calculus	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

8 Formulate inventory control models	8.1 Meaning of terms 8.2 Setting Inventory control levels 8.3 Minimization of cost of inventories 8.4 Inventory control models 8.5 Total inventory costs are determined	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
9 Determine probability and probabilistic distribution	9.1 Meaning of terms 9.2 Basic concepts of probability 9.3 Laws of probability 9.4 Probability distribution 9.5 Application of probability distribution functions	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
10 Test hypothesis	10.1 Meaning of terms 10.2 Types of hypothesis 10.3 Type 1 and 2 errors 10.4 Critical and acceptance regions 10.5 Z-test and T-test 10.6 Emerging issues	<ul style="list-style-type: none"> <li>• Practical assessment</li> <li>• Project</li> <li>• Portfolio of evidence</li> <li>• Third party reports</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

#### **Suggested Delivery Methods**

- Demonstration
- Practical work by trainee
- Fieldwork and benchmarking

- Group discussions

#### List of Recommended Resources for 30 trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
1.	Charts	• Flip Charts	5	1:6
<b>B</b>	<b>Learning Facilities &amp; Infrastructure</b>			
2.	Lecture/Theory Room	(9* 8 sq. metres)	1	1:30
3.	Internet Connection	WI-FI, Dial-Up, Cable, Fixed- wireless,	1	1:30
<b>C</b>	<b>Consumable Materials</b>			
4.	Markers	whiteboard markers and permanent markers	5	1:6
5.	Stationery	Printing Papers, Foolscaps	5 reams	1:6
6.	Files / folders		30	1:1
7.	Flash disks		5	1:6
<b>D</b>	<b>Tools And Equipment</b>			
8.	Computers/Laptops	Any model	30	1:1
9.	Projector	LED.LCD, Laser	1	1:30
10.	Whiteboard	Glass, melamine, porcelain	1	1:30
11.	Staplers		2	1:15
12.	Paper punch		2	1:15
13.	Metallic cabinet		1	1:30
14.	Scanner		2	1:15

15.	Printer		1	1:30
16.	Print toners		2	1:15
17.	Shredding machine		1	1:30