



**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR ACCOUNTANCY TECHNICIAN**

**KNQF LEVEL 6  
CYCLE 3**

**ISCED CODE: 0411 551A**



**TVET CDACC  
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## CONDUCT QUANTITATIVE TECHNIQUES

**UNIT CODE: 0411 551 12A**

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

### 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, analyzing project networks, applying calculus, formulating inventory control models, determining probability and probabilistic distribution and testing hypothesis.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b> These describe the <b>key outcomes</b> which make up <b>workplace function</b> .	<b>PERFORMANCE CRITERIA</b> These are <b>assessable</b> statements which specify the required level of performance for each of the elements. <i><b>Bold and italicized terms are elaborated in the range.</b></i>
1. Carry out quantitative techniques	1.1 Purpose of quantitative techniques are identified as per organizational requirement 1.2 Types of quantitative techniques are determined as per organizational requirements 1.3 Quantitative techniques are established as per organizational requirement
2. Apply correlation and regression	2.1 Independent and dependent variables are identified based on the data provided. 2.2 Linear regression and correlation equations are formulated based on the data provided. 2.3 Linear regression and correlation equations are analyzed as data provided 2.4 Constants are interpreted as per equations.

3. Formulate linear programming models	<p>3.1 Assumptions are identified as per data</p> <p>3.2 Linear equations are formulated as per data</p> <p>3.3 Linear programming methods are selected as per data</p> <p>3.4 Linear equations are analyzed as per data</p> <p>3.5 Linear results are interpreted as per data.</p>
4. Carry out operational matrices	<p>4.1 Matrix order is determined as per order of operations</p> <p>4.2 <b>Matrix operations</b> are preformed as per order of operations.</p> <p>4.3 Inverse of the matrix is determined as per order of operations.</p> <p>4.4 Simultaneous equation is formulated as per data function</p> <p>4.5 The unknown variables are determined as per data</p>
5. Apply time series	<p>5.1 Components of time series are identified as per the data.</p> <p>5.2 Time series methods are selected as per organizational objectives.</p> <p>5.3 Various time series models are decomposed as per the policy guidelines.</p>
6. Analyse project networks	<p>6.1 Project networks are analysed as per network rules</p> <p>6.2 Network rules are determined as per network rules</p> <p>6.3 Network analysis is constructed as per network rules</p> <p>6.4 Project critical path and duration are determined as per network rules</p>
7. Apply calculus	<p>7.1. Business functions are identified as per organizational objectives.</p> <p>7.2. Business functions are differentiated as per</p>

	<p>organizational objectives.</p> <p>7.3. Business functions are integrated as per organizational objectives.</p> <p>7.4. Business functions are interpreted as per organizational objectives.</p>
8. Formulate inventory control models	<p>8.1. Inventory control models assumptions are identified as per organizational guidelines.</p> <p>8.2. Inventory control model is selected as per organizational objectives.</p> <p>8.3. Stock levels are determined as per organizational objectives.</p> <p>8.4. <b>Total inventory costs</b> are determined as per organizational objectives.</p>
9. Determine probability and probabilistic distribution	<p>9.1 Probability events are classified as probability rules</p> <p>9.2 Probability laws are applied as per probability rules.</p> <p>9.3 Probability distribution functions are determined as per probability rules.</p>
10. Carry out hypothesis testing	<p>10.1 Hypothesis tests are identified as per organizational objectives.</p> <p>10.2 Hypothesis errors are determined as per organizational objectives.</p> <p>10.3 Critical and acceptance regions are determined as per the data</p> <p>10.4 Z-test and T-tests are carried out as per the data.</p>

## RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Matrix operations may include but not limited:	<ul style="list-style-type: none"> <li>• additions,</li> <li>• subtractions,</li> <li>• division</li> <li>• multiplication</li> </ul>
2. Total inventory costs may include but not limited:	<ul style="list-style-type: none"> <li>• Purchase</li> <li>• Ordering</li> <li>• Holding</li> </ul>

## REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge of:

- Mathematics
- Economics
- Numeracy
- Statistics

## SKILLS

The individual needs to demonstrate the following skills:

- Critical thinking
- Communication skills
- Analytical.
- Report writing.
- Problem solving

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

<p>1 Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Demonstrated the ability to carry out quantitative techniques as per organization objectives.</li> <li>1.2 Applied Correlation and regression as per organization objectives.</li> <li>1.3 Formulated linear programming models as per organization objectives.</li> <li>1.4 Demonstrated the ability to carry out operational matrices as per the order of operations.</li> <li>1.5 Applied time series as per organization objective.</li> <li>1.6 Analyzed project Networks as per network rules.</li> <li>1.7 Demonstrated the ability to apply Calculus as per organization objectives.</li> <li>1.8 Formulated Inventory control models as per organization objectives.</li> <li>1.9 Determined Probability and probabilistic distribution as per probability rules.</li> <li>1.10 Demonstrated the ability to test hypothesis as per organization objectives.</li> </ul>
<p>2 Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Access to relevant workplace where assessment can take place</li> <li>2.2 Appropriately simulated environment where assessment can take place</li> <li>2.3 Materials relevant to the proposed activity or tasks</li> </ul>
<p>3 Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Practical</li> <li>3.2 Projects</li> <li>3.3 Poe evaluation</li> <li>3.4 Third party reports</li> </ul>

		3.5 Written tests
4	Context of Assessment	4.1 The competency may be assessed in a workplace or a simulated workplace
5	Guidance information for assessment	5.1 Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.