

APPLY PRINCIPLES OF QUANTITATIVE TECHNIQUES

UNIT CODE: BUS/OS/AC/CC/03/6

UNIT DESCRIPTION

This unit specifies the competencies required to apply principles of 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, testing hypothesis.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function .	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</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	3.1 Assumptions are identified 3.2 linear equations are formulated as per data 3.3 Linear programming methods are selected 3.4 Linear equations are analyzed as per data 3.5 Linear results are interpreted as per data.
4. Carry out Operational Matrices	4.1 Matrix order is determined 4.2 Matrix operations are preformed 4.3 Inverse of the matrix is determined 4.4 Simultaneous equation are formulated 4.5 The unknown variables are determined
5. Apply time series	5.1 Components of time series are identified 5.2 Time series methods are selected 5.3 Various time series models are decomposed

6. Analyse project Networks	6.1 Project networks are analyzed 6.2 Network rules are determined 6.3 Network analysis is constructed 6.4 Project critical path and duration are determined
7. Apply Calculus	7.1. Business functions are identified 7.2. Business functions are differentiated 7.3. Business functions are integrated 7.4. Business functions are interpreted
8. Formulate Inventory control models	8.1. Inventory control models assumptions are identified 8.2. Inventory control model is selected 8.3. Stock levels are determined 8.4. Total inventory costs are determined
9. Determine Probability and probabilistic distribution	9.1 Probability events are classified 9.2 Probability laws are applied 9.3 Probability distribution functions are determined
10. Carry out hypothesis Testing	10.1 Hypothesis tests are identified 10.2 Hypothesis errors are determined 10.3 Critical and acceptance regions are determined 10.4 Z-test and T-tests are carried out

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
<ul style="list-style-type: none"> Matrix operations includes but not limited: 	<ul style="list-style-type: none"> additions, subtractions, division multiplication
<ul style="list-style-type: none"> Total inventory costs includes but not limited: 	<ul style="list-style-type: none"> Purchase Ordering Holding

--	--

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.

11 Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Demonstrated the ability to carry out quantitative techniques 1.2 Applied Correlation and regression 1.3 Formulated linear programming models 1.4 Demonstrated the ability to carry out operational matrices 1.5 Applied time series 1.6 Analyzed project Networks 1.7 Demonstrated the ability to apply Calculus 1.8 Formulated Inventory control models 1.9 Determined Probability and probabilistic distribution 1.10 Demonstrated the ability to test hypothesis
12 Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 2.1 Frequency distribution tables

13 Methods of Assessment	Competency may be accessed through: 3.1 Written tests 3.2 Oral questioning 3.3 Third party reports 3.4 Observation
14 Context of Assessment	Competency may be assessed: 4.1 On the job 4.2 Off the job 4.3 In work placement (attachment) Off the job assessment must be undertaken in a closely simulated workplace environment
15 Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

easytvvet.com