REPUBLIC OF KENYA

COMPETENCY-BASED MODULAR CURRICULUM

FOR

ACCOUNTANCY

KNQF LEVEL 6

(CYCLE 3)

PROGRAM CODE: 0411 551A

TVET CDACC
P.O. BOX 15745-00100
NAIROBI

BUSINESS MATHEMATICS AND STATISTICS

UNIT CODE: 0411 551 08A

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

Duration of Unit: 140 hours

Relationship to Occupational Standards

This unit addresses the unit of competency: Carry Out Business Mathematics Statistics

Unit Description

This unit specifies the competencies required to carry out business mathematics and statistics. It involves carrying out statistical equations, carrying out statistical matrices, preparing commercial mathematics, performing elementary statistics, carrying out descriptive statistics, applying set theory, applying basic probability theory and determining index numbers.

Summary of Learning Outcomes

S/NO	ELEMENTS	DURATION (HOURS)
1	Carry out statistic equations	**18**
2	Carry out statistical matrices	**18**
3	Prepare commercial mathematics	**18**
4	Perform elementary statistics	**17**
5	Carry out descriptive statistics	**17**
6	Apply set theory	**17**
7	Apply basic probability theory	**17**
8	Determine index numbers	**18**
		TOTAL 140 HOURS

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Carry out statistical equations	1.1 Linear equations; solving and graphs 1.2 Quadratic equations; solving and graphs 1.3 Differentiation 1.4 Simultaneous equations; solving 1.5 Break-even analysis 1.6 Total revenue, total cost and profit equations; application of errors	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing
2. Carry out statistical matrices	1.1 Introduction: order, types 1.2 Addition, subtraction and multiplication 1.3 Determinants of 2x2 matrices 1.4 Inverses of 2x2 matrices 1.5 Application of matrices to business problems	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing
3. Prepare Commercial mathematics	3.1 Buying and selling; discounts, profit and loss, margins and mark-ups 3.2 Commissions and salaries; piece and hourly rates, gross and net pay, PAYE 3.3 Bills calculations; water and electricity 3.4 Simple and compound interest 3.5 Depreciation and appreciation of assets 3.6 Hire purchase	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing

	3.7 Foreign currency exchange transactions	
4. Perform Elementary statistics	4.1 Introduction: definitions and branches of statistics 4.2 Methods of data collection: primary and secondary data 4.3 Sampling techniques 4.4 Presentation of data: 4.4.1 Tables 4.4.2 Diagrams: bar charts and pie charts 4.4.3 Graphs: basic time series graphs, Z-charts, Lorenz curves and semi log graphs 4.4.4 Frequency distribution tables 4.4.5 Histogram and frequency polygons 4.4.6 Cumulative frequency curve (ogive) and its application	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing
5. Carry out Descriptive statistics	5.1 Measures of central tendency: 5.1.1 Mean: arithmetic mean, weighted arithmetic mean, geometric mean 5.1.2 and harmonic mean 5.1.3 Mode 5.1.4 Median 5.2 Measures of dispersion: range, quartile, deciles, percentiles,	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing

	mean deviation, standard deviation and coefficient of variation 5.3 Measures of skewness and kurtosis excluding computation of the coefficients	
6. Apply Set theory	6.1 Introduction to set theory 6.2 Types of sets: universal, empty/null, subsets, finite and infinite 6.3 Operation of sets: unions, intersections, complements and set difference 6.4 Venn diagrams	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing
7. Apply Basic probability theory	7.1 Introduction to probability: definitions, events, outcomes, sample space 7.2 Types of events: simple, compound, independent, mutually exclusive, 7.3 mutually inclusive, dependent events 7.4 Rules of probability: additive and multiplicative rules 7.5 Bayes' Theorem 7.6 Elementary probability trees	• Written tests • Observation • Oral questions • Third party report • Interviewing • Project and report writing
8. Determine Index numbers	8.1 Construction of index numbers 8.2 Purpose of index numbers 8.3 Simple index numbers; fixed base method and chain base method 8.4 Consumer Price Index (CPI) 8.5 Weighted index numbers;	• Written tests • Observation • Oral questions • Third party report

	Laspeyre's, Paasche's, Fisher's ideal and 8.6 Marshall- Edgeworth's methods (both price and quantity index numbers) • Limitations of index numbers • Emerging issues and trends	• Interviewing • Project and report writing

Suggested Delivery Methods

- Demonstration
- Practical work by trainee
- Fieldwork and benchmarking
- Group discussions

List of Recommended Resources for 25 trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Charts	• Flip Charts	5	1:6
B	**Learning Facilities & Infrastructure**			
2.	Lecture/Theory Room	(9* 8 sq. metres)	1	1:30
3.	Internet Connection	WI-FI, Dial-Up, Cable, Fixed-wireless,	1	1:30
C	**Consumable Materials**			
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
D	**Tools And Equipment**			
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

Reference

Saleemi, N.A. (2008). Business calculations and statistics simplified (Revised ed.). N.A. Saleemi Publishers