

KL 2: Business Quantitative Analysis (BQA)

100
MARKS

COMPETENCIES TO ASSESS

- TECHNICAL
- BUSINESS

PREDOMINANTLY BASIC

EXPECTED PROFICIENCY

SYLLABUS STRUCTURE

This course comprises the following modules with the relative learning weightage:

Module		Weight
A	Business Mathematics	50%
B	Business Statistics	50%

COURSE DESCRIPTION

This course provides fundamentals of quantitative analysis under two broad categories, Business Mathematics and Business Statistics. The course is designed to enable students with reasonable quantitative aptitude in grasping the contents of other courses under the Cost and Management Accounting professional program. In the first part of the course, students will be oriented to the use of logarithms, exponential functions, calculus, and trigonometric formulas in addition to the basic concepts of mathematics. Subsequently, this course covers descriptive statistics, probability concepts, probability distribution, hypotheses testing, regression and correlation, Index numbers and Forecasting-Time series. The amalgamation of these quantitative issues with information technology is made in this course.

COURSE OBJECTIVES

The main objective of this course is to enable learners to use the knowledge of mathematics and statistics in the decision-making process. It is expected that a successful learner of the course will be able to express business problems in mathematical terms, solve the problem and be able to interpret the results. In the process, they will also be able to identify sources, types, and use of data. This course will provide a foundation for the quantitative skills, logical reasoning and critical thinking ability that are highly expected from an aspiring professional accountant.

COURSE LEARNING OUTCOMES

On successful completion of this course, the student will be able to:

1. understand the basic mathematical theories and their application using MS Excel spreadsheet;
2. use set theory, exponential and logarithmic functions in solving critical business problems;
3. understand the use of trigonometry and calculus in solving industrial issues;
4. comprehend the use of mathematics in financial management;
5. conduct scenario analysis using probability theory;
6. develop basic forecasting and optimization models; and
7. draw conclusion about population characteristics based on sample data via hypothesis testing.

DETAIL CONTENTS

MODULE A	Business Mathematics
PART A1 Basic mathematics	This part covers introduction; mathematical operations and brackets; different types of numbers; rounding, fractions, percentage and ratios; constants, variables and functions; exponential numbers; formulae; solving equations; manipulating inequalities; mathematical operations in excel; accuracy and approximation; etc.
PART A2 Set theory	This part covers introduction; definition of sets and elements; methods of expressing sets; types of sets; Venn diagrams; operations of sets; number of elements of a finite set; application of set theory to solve business problems and calculation of probability; etc.
PART A3 Exponential and logarithmic functions	This part covers exponential functions: exponent; positive integral exponent; zero, negative integral exponent; rules of exponent; fractional exponent; Logarithmic functions: logarithm; formulae of logarithms; natural logarithm and common logarithm; the scientific form of numbers; use of a calculator; etc.
PART A4 Permutations and Combinations	This part covers introduction and fundamental principles of counting: multiplication rule; addition rule; permutations: properties of permutations; circular permutation; permutations with restrictions; combination: properties of combinations; etc.
PART A5 Mathematics of finance	This part covers interest and its computation; power of compound growth; present and future values: single payment, annuity; cost-benefit analysis: discounted cash flow, NPV, IRR; etc.
End of Module A	

MODULE B
Business Statistics
PART B1

Descriptive statistics

This part covers organize ungrouped data into a frequency distribution; construct different types of graphs using statistical software; arrange ungrouped data into an array, and determine the mean, median, mode, percentiles, and quartiles; measure of dispersions; coefficient of variation; skewness and kurtosis; etc.

PART B2

Regression and correlation

This part covers linear regression analysis; determination of correlation coefficient; the least-squares criterion; etc.

PART B3

Basic Probability

This part covers concept of probability; rules of probability; conditional probability; solve problems using different rules; etc.

PART B4

Probability distribution

This part covers random variables; probability distributions (binomial and normal); use binomial and normal distribution to calculate probabilities; etc.

PART B5

Hypothesis Testing

This part covers introduction to hypothesis testing; state null and alternative hypothesis; tests of statistical hypotheses; etc.

PART B6

Index numbers

This part covers basic terminology; combining series of index numbers; composite index numbers; weighted index numbers; retail price index for Bangladesh; etc.

PART B7

Forecasting time series

This part covers components of time series; finding the trend; finding seasonal variations; forecasting; limitation of forecasting models; etc.

End of Module B
RECOMMENDED BOOKS AND LEARNING MATERIALS
Primary Textbook

ICMAB Learning Manual for Business Quantitative Analysis.

Recommended Textbooks

1. Sancheti, D. C., & Kapoor, V. K. (2019). *Business mathematics*, Eleventh Edition, Sultan Chand & Sons.
2. Gupta, S. P., & Gupta M. P. (2019). *Business statistics*, Nineteenth Edition, Sultan Chand & Sons.

Reference Books/Other Learning Materials

1. Agarwal, D. R. (2007). *Business Mathematics*, First Edition, Vrinda Publications (P) Ltd.
2. Zameeruddin, Q., Khanna, V. K., & Bhambri, S. K. (2009). *Business Mathematics*, Second Edition, Vikas Publishing House Private Limited.
3. Levin, R. I., Siddiqui, M. H., Rubin, D. S., & Rastogi, S. (2017). *Statistics for Management*, Eighth Edition, Pearson Education.
4. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2019). *Essentials of Statistics for Business and Economics*, Ninth Edition, Cengage Learning.