Comilla University

Department of Accounting and Information Systems

Faculty of Business Studies

Bachelor of Business Administration

BBA 1st Year 2nd Semester

COURSE OUTLINE

Course Instructor: Dr. Md. Nazrul Islam
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Comilla University, Cumilla.

Course Title	Advanced Business Mathematics	Course Code	123
Course Type	General Education	ISCED Code	0541-123
Course Hour	3.0 Hr./Week	Credit Value	3.0
Course Status	Theory	Total Marks	100

Rationale of the Course: Business ownership requires skill people in creating a product or talent at providing a service. Understanding business mathematical logic is necessary for profitable operations and accurate record keeping. If math is not your strength, partner with someone who can take over that role of minimization product cost, competitive price determines and maximize profit measure.

Course Objectives: This course objective is equipping the students of accounting with mathematical tools used in the analysis of business and accounting problems; develop an understanding of theory and practices of mathematical approach to decision making; stimulate interest of students of accounting and business regarding implications of mathematics; give elementary ideas of calculus; and train how to use calculus to solve business problems.

Course Learning Outcomes (CLOs):

On successfully completion of this course, students will be able to:

1. Demonstrate the fundamental mathematical approaches necessary for employing data in the solution of business challenges and the formation of managerial judgments.
2. Demonstrate the fundamental mathematical concepts and principles that underpin economics and business.
3. Evaluate on how managers may put mathematics to use in fields like multiple business operations.
4. Recognize examples of common business mathematics applications that encountered in the workplace and propose comprehensive solution.

Teaching Methodology:

- Lecture will be the main method of teaching. Use of visual aids, like OHP and Multimedia, will aid the lecture presentations.
- The techniques of experiential learning like classroom exercises, role play and group discussions will be used to increase participation.
- Assignments and case studies will help the students to solve real-life problems and develop insights into applied corporate approaches.

Week	Topics	Corresponding CLOs	Bloom's Level
01	Cartesian Co-ordinate System- Distance between two given Points – Identification of Figures using distance Formula – Locus of given Points.	CLO1, CLO2	L1, L2
02	Business application. Rectangular coordinate system– Distance between two points– Gradient– Equations of straight lines– Slope and intercept from two points– Parallel & perpendicular lines, Equation & graphical representation of circle, Parabola & hyperbola.	CLO3, CLO4	L3, L4, L5, L6
03	Different Forms of Equations – Parallel and Perpendicular form of Equations – Point of Intersection of Lines – Interpretation of Slope.	CLO1, CLO2	L1, L2
04	Different Business Problems and Marginal Concept Analysis.	CLO3, CLO4	L3, L4, L5, L6
05	Concepts, Determination of Perimeter and Area of Plane two Dimensional Figures. Properties of Different Figures. Determination of Different Parts of a Circle & Circular Disc. Surface Area and Volume of Solids. Use of Mensuration Concept in Business Problems.	CLO1, CLO2, CLO3	L1, L2, L3, L4
06	Introduction, Properties of Determinants. Operations on Determinants. Expansions of Determinants. Sarrus Diagram and Crammers Rule and Use in Business. Introduction to Vectors, Types of Vectors, Properties, Scalar and Vector Product of vectors.	CLO2, CLO3, CLO4	L2, L3, L4, L5, L6
07	Introduction, Types of Matrices, Operation on Matrices. Solution of Simultaneous Linear Equations. Leon-tiff Input- Output Model Analysis.	CLO1, CLO2	L1, L2
08	Application to Business Problems.	CLO3, CLO4	L3, L4, L5, L6
09	Introduction, Types of Functions, Operation on Functions. Determination and Derivation of Different Business Function. Definition of Limit. Determination of Limit of Different types of Functions- Determination of Continuity of Different Functions.	CLO2, CLO3	L2, L3, L4
10	Introduction, Order and Degree of Differential Equations.	CLO1	L1
11	Solution of Differential Equations of First Order and First Degree. Verification of the Solutions of Differential Equations – Differential Equations of the Second Order with Constant Coefficients –	CLO2, CLO3	L2, L3, L4
12	Application of Differential Equation in the Problems of Business and Economics. Determination of Maxima and Minima of Different Functions using Differentiation Rules. Business Problem Solution. Conditions of Maxima and Minima. Test for Maxima and Minima. Point of Inflexion.	CLO3, CLO4	L3, L4, L5, L6
13	Introduction, Different Rules of Integration, Indefinite and Definite Integral. Calculation of Area of Irregular Curves and Figures- Analysis of Total Concept by Integration.	CLO3, CLO4	L3, L4, L5, L6
14	Functions of several Variables, Partial Derivatives, Second-order Partial Derivatives, Higher order Partial Derivatives, Implicit Partial Derivatives, Extreme for Multivariate Functions, Constraint Optimization and Lagrange Multipliers-Production and Inventory Models-Business Application.	CLO2, CLO3	L2, L3, L4

Text Books:

1. Sanchetti D.C. and V.K. Kapoor: Business Mathematics.
2. Zameeruddin, Khanna, Bhandari: Business Mathematics.
3. Bowen Earl K: Mathematics with Applications in Management & Econ.

Reference Books:

1. Ann. J. Hughes: Applied Mathematics for Business, Economics, and Social Sciences.
2. Zima Brown: Mathematics for Finance.
3. Richard Anderson & Cecil L. Smith: Calculus for Business.
4. John Hegarty: Calculus for the Management and Social Science.
5. Betlinger & Crowy: Calculus for Business, Life Sciences and Social Sciences.
6. Ronald J. Harshbarger and James J. Reynolds: Mathematical Applications for the Management, Life, and Social Sciences (Brooks/Cole Ceenage Learning).

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs):

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
CLO1	2	3	1	-	-	-	-	3	-
CLO2	3	2	3	-	-	-	-	3	-
CLO3	2	1	-	-	-	-	-	3	-
CLO4	3	-	-	-	-	-	2	3	-

Mapping of Course Learning Outcomes (CLOs) with the Teaching-Learning & Assessment Strategy:

CLOs	Teaching-Learning Strategy	Assessment Strategy
CLO1	Lecturing and Discussion	Quiz and Assignment
CLO2	Lecturing and Discussion	Mid-Semester and Summative
CLO3	Lecturing and Discussion	Mid-Semester and Summative
CLO4	Student Activity and Group Discussion	Presentation and Summative Exam.

Evaluation System

Criteria	Percentage (%) of Marks
Class Attendance and Participation	5%
Mid-Term Examination (Two)	20%
Assignment, Quiz, etc.	5%
Term Paper and Presentation (Individual/Group)	10%
Semester Final Examination	60 %
Total	100%

Grading System

80% and above	A+	(A Plus)	4.00
75% to Less than 80%	A	(A Regular)	3.75
70% to Less than 75%	A-	(A Minus)	3.50
65% to Less than 70%	B+	(B Plus)	3.25
60% to Less than 65%	B	(B Regular)	3.00
55% to Less than 60%	B-	(B Minus)	2.75
50% to Less than 55%	C+	(C Plus)	2.50
45% to Less than 50%	C	(C Regular)	2.25
40% to Less than 45%	D	-	2.00
Less than 40%	F	-	0.00