COURSE TITLE	**MATHEMATICS FOR BUSINESS**
COURSE CODE	**04BB0106**
COURSE CREDITS	**4**

Course Outcomes: After completion of this course, student will be able to:

1. Calculate simple and compound interest on investments
2. Understand repayments of loan using EMIs
3. Understand the concept of Determinant and solve problem using determinant
4. Structure and solve problems using matrices
5. Understand and establish relationship between variables using functions to determine equilibrium
6. Determine minimum and maximum (optimum) value of cost and profit

Pre-requisite of course:• To improve logic and reasoning ability, problem structuring and analytical skills • To enable students to gain understanding of mathematical applications in business • To understand calculation and applications of Interest, annuity and loan amortization • To understand the applications of matrices and functions in business • To understand the use of derivatives in business

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
			50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**MATHEMATICS OF FINANCE** Introduction, Simple Interest and Compound Interest – Concept and problem solution, Future Value (FV) - Annuity: Amount of ordinary annuity, Amount of annuity due, Present Value (PV) - ordinary annuity and annuity due, Loan Amortization and Equated Monthly Installments (EMIs) - Reducing balance and flat rate of interest Use of MS Excel	13
2	**FUNCTIONS** Introduction, Constants, Variables, Types of functions – Linear function and Polynomial functions, Functions in Business: Cost function, Revenue function and Profit function, construction of cost functions, Profit function and Break-Even Point (BEP)	12

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Contents : Unit	Topics	Contact Hours
3	**DIFFERENTIATION AND APPLICATIONS OF DERIVATIVE** Limit of a function, important results, differentiation of algebraic functions – formulae (no derivation), Derivative of function of one variable, derivative of sum, difference, product and quotient of two functions (no derivation), chain rule, Differentiation of implicit function, price elasticity of demand, Second order derivative, Application of derivatives – Marginal cost, Marginal revenue, Marginal Profit, Maxima and Minima	14
4	**DETERMINANTS** Determinant of second order and of third order, Minor of an element Expansion of determinant, Properties of determinant, Use of determinants in solving simultaneous linear equations – Cramer's Rule for two and three linear equations Use of MS Excel to calculate determinant	9
5	**MATRICES AND APPLICATIONS** Introduction, Definition, Types of matrices, Algebra of matrices (Addition and Subtraction), Additive Inverse of a matrix, Structure problems in matrix form, Multiplication of matrices (Max 3X3), Minor, cofactor, adjoint and Inverse of Matrix, Solution of system of linear equations using inverse of coefficient matrix (Max 3)	12
Total Hours		**60**

Textbook :

1 Business Mathematics, D C Sancheti and V K Kapoor, Sultan Chand and Sons, 2014

References:

1 2. Business Mathematics , 2. Business Mathematics , Zamarudeen and Qazi, Vikas Publishing, 2009

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1 Theory

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