GUJARAT TECHNOLOGICAL UNIVERSITY

INTEGRATED MASTER OF BUSINESS ADMINISTRATION

Year –First (Semester –1) (W.E.F. Academic Year 2017-18)

Subject Name: BUSINESS MATHEMATICS (BM)

Subject Code: 2517103

1. Course Objective:

The aim of this subject is to expose students to the application of mathematics in a business context and help them understand the need for mathematical models as tools of increasing the efficacy of decision making process

2. Course Duration: The course duration is of **45 sessions of 60 minutes** each.

3. Course Contents:

Module No.	Modules with its Contents/Chapters	No. of Sessions	Marks (out of 70)
I	**Matrices & Determinants:** Definition of a matrix; types of matrices; Algebra of matrices, Properties of determinants; calculations of values of determinants up to third order; Ad-joint of a matrix, inverse matrix, elementary row and column operations; solution of a system of linear equations having unique solution and involving not more than three variables, Cramer's Rule for determinants.	15	21
II	**Mathematics of Finance:** Simple Interest, Compound Interest, Annuity, Sinking fund, Annuity due, Perpetuity, Effective rate of Interest, Loan Amortization table. **Sequence and Series:** Arithmetic Progression (AP), Geometric Progression (GP) and Harmonic Progression (HP)	10	14
III	**Profit And Loss:** Trade discount, Cash discount, Problems involving cost price, Selling Price and Profit & Loss,		

	Problems on Commission and brokerage. **Ratio**: Ratio- Definition, Continued Ratio & Inverse Ratio **Proportion:** Continued Proportion, Direct Proportion, Inverse Proportion: Variation, Inverse Variation, Joint Variation **Percentage** - Meaning and Computations of Percentages.	12	21
IV	**Functions & Limit:** Definition of a function, Domain, co-domain, range of a function. Types of functions- one-one function, Many-one function, Even and odd functions (only definitions), definition of Limit of a function, concept of Limit, Methods of Evaluating Limit of a Function by factorization & rationalization, Continuity of a function	8	14
V	**Practical** Students may have to work on any topic of their choice and try to identify the implications of above mentioned mathematical concepts in the industry of their choice		Internal evaluation (30 marks of CEC)

4. Teaching Methods:

The course will use the following pedagogical tools:
(a) Lectures and Discussions
(2) Assignments and Presentations
(3) Practical use of software

5. Evaluation:

The evaluation of participants will be on continuous basis comprising of the following Elements:

A	Continuous Evaluation Component comprising of assignments, project, class participations, etc. (List of activities)	(Internal Assessment- 50 Marks)
B	Mid-Semester examination	(Internal Assessment-30 Marks)
C	End –Semester Examination	(External Assessment-70 Marks)

6. Text / Reference Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
1	D. C. Sancheti, V. K. Kapoor	Business Mathematics	Sultan Chand & Sons	Latest Edition
2	J. K. Singh	Business Mathematics	Himalaya Publishing House	Third edition 2015
3	Ajay Goel, Alka Goel,	Mathematics & Statistics	Taxmann Allied Services	Fourth Edition 2007
4	Dr. Amarnath Dikshit, Dr. Jinendra Kumar Jain	Business Mathematics	Himalaya Publishing House	2011

7. Session Plan: (45 sessions of 60 minutes)

Session Nos.	Topics to be covered
1-5	Definition of a matrix; types of matrices; Algebra of matrices, Properties of determinants; calculations of values of determinants up to third order
6-11	Ad-joint of a matrix, inverse matrix, elementary row and column operations;
12-15	solution of a system of linear equations having unique solution and involving not more than three variables, Cramer's Rule for determinants
16-19	Mathematics of Finance: Simple Interest, Compound Interest, Effective rate of Interest, Annuity, Sinking fund, Annuity due, Perpetuity, Loan amortization table
20-25	Arithmetic Progression (AP), Geometric Progression (GP) and Harmonic Progression (HP)
26-28	Profit and Loss: Terms and Formula: Trade discount, Cash discount, Problems involving cost price, Selling Price, Trade discount and Cash Discount and Problems on Commission and brokerage.
29-32	Ratio- Definition, Continued Ratio & Inverse Ratio
33-35	Continued Proportion, Direct Proportion, Inverse Proportion: Variation, Inverse Variation, Joint Variation
36-37	Meaning and Computations of Percentages
38-41	Definition of a function, Domain, co- domain, range of a function. Types of functions- one-one function, Many-one function, Even and odd functions (only definitions),
42-45	definition of Limit of a function, concept of Limit, Methods of Evaluating Limit of a Function by factorization & rationalization, Continuity of a function