



Business Mathematics and Statistics
Business Mathematics and Statistics

[Core Course]

Semester: I	Credits: 3	Subject Code: AC12001	Lectures: 48
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Course Outcomes:

At the end of this course, the learner will be able to:

- Relate the basic concepts in Finance and Business Mathematics like Interest, shares and dividends etc. and interpret data intelligently through numerical means
- See applications of Mathematical concepts like derivatives in Business
- Enhance the decision making capacity regarding modern day concerns pertaining to investments, interests, purchasing, comparison of various schemes, time value of money, loans, installment plans etc.
- Implement elementary statistical methods like condensation and representation of data and diagrams such as histograms, ogive curves for analysis of data
- Calculate various types of averages and variation

Unit 1: Commercial Arithmetic	18
<ul style="list-style-type: none">• Shares and Dividend<ul style="list-style-type: none">○ Concept of share, Stock exchange○ Face Value, Market value, Dividend○ Equity shares, Preferential shares, Bonus shares• Commission & Brokerage• Interest<ul style="list-style-type: none">○ Simple interest○ Compound interest (Nominal and effective rate of interest)○ Equated monthly installments (EMI) by reducing balance and Flat interest system	

Unit 2: Statistics	18
<ul style="list-style-type: none">• Definition of Statistics, Scope of Statistics in Economics, Management Sciences<ul style="list-style-type: none">○ Social Sciences and Industry, Concept of Population and Sample, Methods of Sampling (SRSWR, SRSWOR)○ Data Condensation and Representation:○ Raw data, Attributes, Variables○ Classification, Frequency Distribution, Cumulative Frequency Distributions, Histogram and Ogive Curves• Measures of Central Tendency<ul style="list-style-type: none">○ Mean, Median and Mode of grouped and ungrouped data• Index Numbers<ul style="list-style-type: none">○ Concept of Index Number, Price Index Number, Price Relatives	

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<ul style="list-style-type: none">○ Construction of Price Index Number: Weighted Index Number, Laspeyre's, Paasche's and Fisher's Method● Time Series<ul style="list-style-type: none">○ Concept of Time Series, Business Cycle and Applications	
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Unit 3: Derivative of Functions	12
<ul style="list-style-type: none">● Set, Cartesian Product, Relation, Function<ul style="list-style-type: none">○ Constant, Identity, linear, step, Increasing, Decreasing, Algebraic, exponential and logarithmic functions● Derivative of a function, Algebra of derivatives, Business Applications	

#12 contact hours for Assignments, Visits, Research, Field Studies, etc.

Recommended Basic Reading:

- Rayarikar, A. V. and Dixit, P. G. *Business Mathematic*. Nirali Prakashan: June; 2019.
- Bari. *Business Mathematics*. New Literature Publishing Company: New Delhi.

Recommended Reference Books:

- V. K. Kapoor, *Business Mathematics*. Sultan Chand and Sons: New Delhi; 1991.
- Bari, S.A. *Practical Business Mathematics*. New Literature Publishing: New Delhi
- Gupta, S.P. *Statistical Methods*. Sultan Chand and Sons: New Delhi; 2011.
- Gupta, S.C. *Fundamentals of Statistics*. Himalaya Publishing House: Mumbai; 2004.
- Agrawal, B.L. *Basic Statistics*. New Age International Publishers: New Delhi; 2006.
- Kapoor, V.K. *Operations Research Techniques for Management*. Sultan Chand and Sons: New Delhi; 2011.

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Semester: II	Credits: 3	Subject Code: AC22001	Lectures: 48
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Course Outcomes:

At the end of this course, the learner will be able to:

- Relate basic knowledge of Mathematical and Statistical concepts like counting principles to Business
- Calculate various measures of dispersion like standard deviation, coefficient of variation and relate them to real life situations
- Carry out inter-disciplinary projects by using Mathematical concepts like Correlation between two variables and regression for prediction
- Interpret data related to attributes intelligently through numerical means and see its applications
- Solve the real life problems like transportation problems using Mathematical methods and techniques such as substitution, elimination, simplification, approximation, maximization and minimization etc.

Unit 1: Probability

12

- Permutations and Combinations
 - Fundamental Principles of Counting
 - Factorial Notation
 - Elementary problems on Permutations and Combinations
- Probability
 - Random Experiment and Finite Sample Space
 - Events, Types of Events. Mathematical Definition of Probability of An event
 - Combination of Events (through the Operations 'Or', ' And', 'Not') Probability of these events

Unit 2: Statistics

24

- Measures of Dispersion
 - Absolute and Relative Measures of Dispersion, Range, Coefficient of Range
 - Variance , Standard Deviation (SD)
 - Combined Mean and Combined S.D. for two Groups
 - Coefficient of Variation
- Correlation and Regression: (for Ungrouped Data only):
 - Correlation, Types of Correlation, Scatter Diagram
 - Karl Pearson's Coefficient of Correlation for Ungrouped Data
 - Spearman's Rank Correlation Coefficient

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- Regression, Lines of Regression for Ungrouped Data, Estimations using Lines of Regression, Regression Coefficients and their Properties
- Theory of Attributes
 - Attributes, Classes and Class Frequencies
 - Consistency of Data
 - Association of Attributes, Yule's Coefficient of Association

Unit 3: Transportation Problem (T.P) **12**

- Statement and meaning of T.P.
- Methods of finding initial basic feasible solution by North West Corner Rule, Matrix Minimum Method and Vogel's approximation method
- Problems on T.P (concept of degeneracy is not expected)

#12 contact hours for Assignments, Visits, Research, Field Studies, etc.

Recommended Basic Reading:

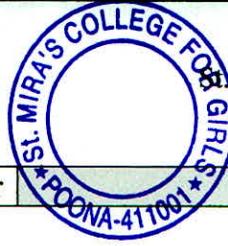
- Rayarikar, A. V. and Dixit, P. G. *Business Mathematics*. Nirali Prakashan: Pune; 2019.
- Bari. *Business Mathematics*. New Literature Publishing Company:

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- V. K. Kapoor, *Business Mathematics*. Sultan Chand and Sons: New Delhi; 1991.
- Bari, S.A. *Practical Business Mathematics*. New Literature Publishing: New Delhi
- Gupta, S.P. *Statistical Methods*. Sultan Chand and Sons: New Delhi; 2011.
- Gupta, S.C. *Fundamentals of Statistics*. Himalaya Publishing House: Mumbai; 2004.
- Agrawal, B.L. *Basic Statistics*. New Age International Publishers: New Delhi; 2006.
- Kapoor, V.K. *Operations Research Techniques for Management*. Sultan Chand and Sons: New Delhi; 2011.

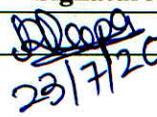
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Faculty	Mrs. Amrita Basu		
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Subject Expert (Outside SPPU)	Dr. Avinash. A. Patil		
VC Nominee	Dr. Anil Khairnar		
Industry Expert	Mr. Prakash Bade		

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Mira's College for Girls, Pune
FYBCOM 2020-2023

Alumni	Ms. Srushti Moundekar	
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