



Kot Bhalwal, Jammu

Model Institute of Engineering
& Technology (Autonomous)
Course Handout

COURSE HANDOUT

BUSINESS MATHEMATICS AND STATISTICS (BFSMJ-201)

BBA (BFSI) – 2ND SEMESTER

ACADEMIC YEAR (2023-24)

Dr. Ria Gupta

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Department of Applied Sciences and Humanities



School of Management

Model Institute of Engineering & Technology (Autonomous)

Kot Bhalwal, Jammu - 181122

www.mietjmu.in



| Course Code | Course Name | Course Type | Cd | L | T | P | Marks | | |
|-------------|-------------------------------------|-------------|----|---|---|---|-----------|------------|-------|
| | | | | | | | Sessional | Final Exam | Total |
| BFSMJ-201 | Business mathematics and statistics | Core | 4 | 4 | | | 40 | 60 | 100 |

COURSE OUTCOMES

| At the end of the course the student will be able to: | |
|---|---|
| CO1 | To help students understand the concept of business mathematics and statistics and its importance in quick decision making. |
| CO2 | To apply the concept of Mean, Median and Mode which are measures of central tendency. |
| CO3 | To enable students, understand the Measures of dispersion and its applicability in research. |
| CO4 | To equip students with the knowledge of correlation and regression and its applicability in decision making. |
| CO5 | To make students understand how to compute Time series and Index numbers and understand their uses. |

Unit-I

Definition of a matrix. Types of matrices; Algebra of matrices. Calculation of values of determinants up to third order; Ad joint of a matrix; Finding inverse of a matrix through adjoint; Applications of matrices to solution of simple business and economic problems.

(10 Hours)

Unit-II

Simple and compound interest Rates of interest–nominal, effective and continuous–their interrelationships; Compounding and discounting of a sum using different types of rates.

(9 Hours)

Unit-III

Measures of Central Tendency including arithmetic mean, geometric mean, and harmonic mean: properties and applications; mode and median. Partition values - quartiles, deciles, and percentiles. Measures of Variation: absolute and relative. Range, quartile deviation and mean deviation; Variance and Standard deviation: calculation and properties.

(10 Hours)

Unit- IV

Simple Linear Correlation Analysis: Meaning, and measurement. Karl Pearson's co-efficient and Spearman's rank correlation, Simple Linear Regression Analysis: Regression equations and estimation. Relationship between correlation and regression coefficients.

(10 Hours)

Unit-V

Meaning and uses of index numbers; Construction of index numbers: Aggregative and average of relatives – simple and weighted, Tests of adequacy of index numbers, Construction of consumer price indices. Components of time series; additive and multiplicative models; Trend analysis: Finding trend by moving average method and Fitting of linear trend line using principle of least squares.

(9 Hours)

Textbooks

| S.No | Name of the Books | Name of the Author | Publisher Name | Edition (Pub.Yr.) |
|------|--|----------------------------------|---------------------------|------------------------|
| 1 | Mathematics for Business and Social Sciences Perspective | Mizrahi and John Sullivan | Wiley and Sons. | 4 th (2012) |
| 2. | Business statistics | C.M. Chikkodi, & Satya Prasad. B | Himalaya publishing house | 2 nd (2014) |



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Reference Books

| S.No | Name of the Books | Name of the Author | Publisher Name | Edition (Pub.Yr.) |
|------|---------------------|--------------------------------------|-------------------|-------------------------|
| 1 | Business Statistics | Aggarwal, S., & Bhardwaj, S Merchant | Kalyani Publisher | 18 th (2018) |

| COURSE PLAN | | |
|--|---|-------------------|
| Unit-I Matrices | | |
| S.No | Topics | Recommended Books |
| 1 | Matrices and its types | Book 1, Ch.1 |
| 2 | Algebra of Matrices | Book 1, Ch.1 |
| 3 | Calculation of values of determinants up to third order | Book 2, Ch.1 |
| 4 | Transpose and Cofactors | Book 2, Ch.2 |
| 5 | Adjoint of a Matrix | Book 2, Ch.2 |
| 6 | Inverse of a Matrix | Book 2, Ch.2 |
| 7 | Application of Matrix | Book 2, Ch.2 |
| Unit-II Basic Mathematics of Finance | | |
| 8 | Simple and compound interest | Book 1, Ch.2 |
| 9 | Nominal Rate of interest | Book 1, Ch.2 |
| 10 | Effective Rate of interest | Book 1, Ch.1 |
| 11 | Continuous Rate of interest | Book 2, Ch.2 |
| 12 | Compounding and discounting of sum using nominal rate of interest | Book 2, Ch.2 |
| 13 | Compounding and discounting of sum using effective rate of interest | Book 2, Ch.2 |
| 14 | Compounding and discounting of sum using continuous rate of interest | Book 2, Ch.2 |
| Unit-III Uni Variate Analysis | | |
| 15 | Measures of Central tendency: Arithmetic mean Geometric mean, Harmonic mean, Mode, Median | Book 2, Ch.2 |
| 16 | Quartiles, deciles, and percentiles | Book 2, Ch.2 |
| 17 | Range, quartile deviation | Book 2, Ch.2 |
| 18 | Variance and Standard deviation | Book 2, Ch.2 |
| Unit-IV Bi Variate Analysis | | |
| 17 | Simple Linear Correlation Analysis | Book 2, Ch.3 |
| 18 | Karl Pearson's co-efficient | Book 1, Ch.4 |
| 19 | Spearman's rank correlation | Book 1, Ch.4 |
| 20 | Simple Linear Regression Analysis | Book 2, Ch.3 |
| 21 | Relationship between Correlation and Regression Coefficients | Book 1, Ch.3 |
| Unit-V Time-based Data: Index Numbers and Time-Series Analysis | | |
| 22 | Index numbers – meaning and uses | Book 1, Ch.9 |
| 23 | Construction of index numbers | Book 1, Ch.9 |
| 24 | Aggregative and average of relatives – simple and weighted | Book 1, Ch.9 |
| 25 | Tests of adequacy of index numbers | Book 1, Ch.9 |
| 26 | Construction of consumer price indices | Book 1, Ch.9 |
| 27 | Components of time series | Book 1, Ch.8 |
| 28 | Trend Analysis | Book 1, Ch.8 |
| 29 | Fitting of linear trend line using principle of least square | Book 1, Ch.8 |





ADDITIONAL WEB RESOURCES

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|----|--|
| 1. | NPTEL LINK: https://youtu.be/69oJWHkOOK This site contains video lectures on Central tendency and Dispersion intro. |
| 2. | https://youtu.be/ITX10eS_cuU/ This site contains video lectures on Correlation and Regression. |
| 3. | https://archive.nptel.ac.in/courses/112/107/112107260/ This site contains video lectures on Basic Mathematics of Finance. |
| 4. | https://archive.nptel.ac.in/courses/111/104/111104098/ This site contains video lectures on various topics of simple linear regression analysis. |
| 5. | https://www.digimat.in/nptel/courses/video/111108157/L57.html This site contains video lectures on Matrices. |

GRADING AND ASSESSMENT

- **Sessional Test:** 20 marks
- **Assignment:** 10 marks
- **Attendance:** 10 marks
- **Final Examination:** 60 marks

COURSE POLICIES

- **Attendance:** Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Academic Integrity:** MIET's academic integrity policies apply. Plagiarism will not be tolerated.
- **Late Submissions:** Assignments and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**
Tuesday (12:55 PM - 1:45 PM)
Wednesday (12:55 PM - 1:45 PM)
- **Contact Information**
ria.ash@mietjammu.in