COURSE HANDOUT

BUSINESS MATHEMATICS AND STATISTICS (BFSMJ-201)

BBA–BFSI 2ND SEMESTER

ACADEMIC YEAR (2024-25)

Ms. Neha Malhotra

Assistant Professor

School of Applied Sciences

School of Management

Model Institute of Engineering & Technology (Autonomous)

KotBhalwal, 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	Examine the concept of business math and statistics and its importance in quick decision making.
CO2	Apply Mean, Median and Mode as the measures of central tendency.
CO3	Articulate the measures of dispersion and its applicability in research.
CO4	Explore correlation and regression and its applicability in decision making
CO5	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)

Text Book

S. No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Business Mathematics: International Edition	Charles D. Miller, Stanley A. Salzman, Gary Clendenen	Pearson	11th (2008)
2.	Business statistics: A First Course	David M. Levine	Pearson Education	7th (2017)

Reference Books

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Business Statistics: Communicating with Numbers	Sanjiv Jaggia and Alison Kelly	McGraw Hill	3rd (2021)

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

29	Fitting of linear trend line using principle of least square	Book 2, Chapter 12

ADDITIONAL WEB RESOURCES

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.htmlThis site contains video lectures on **Matrices**.

GRADING AND ASSESSMENT

- **Sessional Test**: 15 marks
- **Assignment**: 15 marks
- **Attendance**: 10 marks
- **Final Examination**: 100 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)
  Thuraday (12:55 PM - 1:45 PM)

- **Contact Information**
  neha.ash@mietjammu.in