



# MANGALMAI INSTITUTE OF MANAGEMENT & TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to AKTU, Lucknow)

Knowledge Park-II, Greater Noida (U.P.)

## Lesson Plan

### Business Statistics & Analytics

**Program:** MBA

**Semester :** I

**Course Code :** KMBN 104

**Course Name:** Business Statistics & Analytics

#### **Course Objectives:**

1. Understand the different basic concept / fundamentals of business statistics.
2. Understand the importance of measures of Descriptive statistics which includes measures of central tendency, Measures of Dispersion, Time Series Analysis, Index Number, Correlation and Regression analysis and their implication on Business performance.
3. Understand the concept of Probability and its usage in various business applications.
4. Understand the Hypothesis Testing concepts and use inferential statistics- t, F, Z Test and Chi Square Test
5. Understand the practical application of Descriptive and Inferential Statistics concepts and their uses for Business Analytics.

**Session Duration:** 60 minutes

**Participants:** MBA 1 Sem. Students

#### **Entry level knowledge and skills of students**

1. Basics of mathematics

#### **Equipment required in Classroom/ Laboratory/ Workshop**

- i. Whiteboard and Smart board.
- ii. Projector.

#### **Assessment Schemes**

S. No.	Criteria	Marks (150)
1	<b>AKTU End Term Examination</b>	<b>100</b>
2	<b>Internal Evaluation Scheme</b>	<b>50</b>
<b>2(a)</b>	<b>Class Tests</b>	<b>30</b>
2(a)(i)	Class Test-I	15
2(a)(ii)	Class Test-II	15
<b>2(b)</b>	<b>Teacher Assessment (Continuous Evaluation)</b>	<b>20</b>
2(b)(i)	Attendance	5
2(b)(ii)	Case Study/Topic Based Presentation	5
2(b)(iii)	*GD	10
	*MCQ Based Assignment	2



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**Course Outcomes**(starting with action-oriented observable and measurable verb)

CO 1 Gaining Knowledge of basic concept / fundamentals of business statistics.

CO2. To compute various measures of central tendency, Measures of Dispersion, Time Series Analysis, Index Number, Correlation and Regression analysis and their implication on Business performance.

CO3. Evaluating basic concepts of probability and perform probability theoretical distributions.

CO4. To apply Hypothesis Testing concepts and able to apply inferential statistics- t, F, Z Test and Chi Square Test.

CO5. To perform practical application by taking managerial decision and evaluating the Concept of Business Analytics.

SL. No.	Topics	Sub Topics	Date of implementation	Pedagogy	CO-Covered	Faculty Sign	HoD's Remark with Date
<b>Unit - 1</b>							
1.	Descriptive Statistics	Meaning, Scope, types,		Lecture	1		
2.		Functions and limitations of statistics		Lecture	1		
3.	Measures of Central tendency	Mean		Problem solving	2		
4.		Mode		Problem solving	2		
5.		Median		Problem solving	2		
6.		Quartiles		Problem solving	2		
7.	Measures of Dispersion	Range, Inter quartile range, Mean deviation		Problem solving	2		
8.		Standard deviation, Variance Coefficient of Variation		Problem solving	2		
9.		Skewness		Problem solving	2		
10.		Kurtosis.		Problem solving	2		
<b>Unit 2</b>							
11.	Time series analysis	Concept, Additive and Multiplicative models, Components of time series,		Lecture	2		



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12.	Trend analysis	Least Square method - Linear and Non- Linear equations		Problem Solving	2		
13.	Trend analysis	Applications in business decision-making		Problem Solving	2		
14.	Index Numbers	Meaning , Types of index numbers, uses of index numbers		Lecture	2		
15.	Method of construction of index numbers	Construction of Price, Quantity		Problem Solving	2		
16.	Volume indices	Fixed base		Problem Solving	2		
17.		Chain base methods		Problem Solving	2		
18.	Time series	Components of time series		Lecture			
<b>Unit – 3</b>							
19.	Correlation	Introduction, Meaning, types of correlation		Lecture			
20.	Correlation Analysis	Rank Method		Problem Solving	2		
21.	Correlation Analysis	Karl Pearson's Coefficient of Correlation		Problem Solving	2		
22.	Correlation Analysis	Properties of Correlation		Lecture	2		
23.	Regression	Intro, definitions, types of regression		Lecture	2		
24.	Regression Analysis	Fitting of a Regression Line and Interpretation of Results		Problem Solving	2		
25.	Regression Analysis	Coefficient and relationship		Problem Solving	2		
<b>Unit – 4</b>							
26.	Probability Theory	Introduction , Meaning, Terminology		Lecture	3		
27.	Probability Law and theorem	Addition and Multiplication Law		Lecture	3		
28.		Baye's Theorem		Lecture	3		
29.	Theoretical Distribution	Numerical		Lecture	3		
30.	Theoretical Distribution	Numerical		Problem Solving	3		



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31.	Theoretical Distribution	Concept and application of Binomial		Lecture	3		
32.	Theoretical Distribution	Poisson Distribution		Lecture	3		
33.	Theoretical Distribution	Normal distribution		Lecture	3		
<b>Unit – 5</b>							
34.	Hypothesis	Null and Alternative Hypotheses; Type I and Type II errors		Lecture			
35.	Hypothesis Testing	Large Sample test		Lecture	4		
36.	Hypothesis Testing	Small Sample Test-T test		Lecture	4		
37.	Hypothesis Testing	F test, Z test		Lecture	4		
38.	Hypothesis Testing	Chi Square Test		Lecture	4		
39.	<i>Concept of Business Analytics</i>	Meaning types and application of Business Analytics		Lecture	5		
40.	Analysis	Descriptive analytics and Predictive analytics		Lecture	5		
<b>Revision</b>							
41.	<b>Unit 1</b>	Discussion		Improved Lecture	CO1		
42.	<b>Unit 1 &amp; Unit 2</b>	Discussion		Improved Lecture	CO1 &2		
43.	<b>Unit 2</b>	Discussion		Improved Lecture	CO2		
44.	<b>Unit 2 &amp; Unit 3</b>	Discussion		Improved Lecture	CO2		
45.	<b>Unit 3</b>	Discussion		Improved Lecture	CO2		
46.	<b>Unit 4</b>	Discussion		Improved Lecture	CO3		
47.	<b>Unit 4</b>	Discussion		Improved Lecture	CO3		
48.	<b>Unit 5</b>	Discussion		Improved Lecture	CO4		



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## Text Books:

1. G C Beri – Business Statistics, 3rd ed, TATA McGrawHill.
2. Chandrasekaran & Umavarvathi-Statistics for Managers, 1st edition, PHI Learning
3. Davis , Pecar – Business Statistics using Excel, Oxford
4. Ken Black – Business Statistics, 5th ed., Wiley India
5. Levin and Rubin – statistics for Management, 7th ed., Pearson

## Reference Books:

1. Lind, Marchal, Wathen – Staistical techniques in business and economics, 13th ed, McGrawHill
2. Newbold, Carlson, Thorne – Statistics for Business and Economics, 6th ed., Pearson
3. S. C.Gupta – Fundamentals of Statistics, Himalaya Publishing
4. Walpole – Probability and Statistics for Scientists and Engineers, 8th ed., Pearson

## Journals:

1. <https://www.tandfonline.com/toc/ubes20/current>
2. <https://www.ijert.org/research/role-of-statistics-on-business-research-IJERTV2IS100524.pdf>
- 3.

## Electronic Database:

1. <https://d3bxy9euw4e147.cloudfront.net/oscms-prod/media/documents/IntroductoryBusinessStatistics-OP.pdf>
2. <https://www.ascdegreecollege.ac.in/wp-content/uploads/2020/12/Business-Statistics-by-Gupta.pdf>
3. <https://ug.its.edu.in/sites/default/files/Business%20Statistics.pdf>
4. <https://www.ddegjust.ac.in/studymaterial/mcom/mc-106.pdf>
5. <http://www.mim.ac.mw/books/Business%20mathematics%20and%20statistics,%206th%20ed.pdf>
6. [https://faculty.ksu.edu.sa/sites/default/files/business-statistics-for-contemporary-decision-making-by-ken-black\\_0.pdf](https://faculty.ksu.edu.sa/sites/default/files/business-statistics-for-contemporary-decision-making-by-ken-black_0.pdf)