

## BUSINESS ANALYTICS

<b>Subject Code</b>	<b>: 14MBA14</b>	<b>IA Marks</b>	<b>: 50</b>
<b>No. of Lecture Hours / Week</b>	<b>: 04</b>	<b>Exam Hours</b>	<b>: 03</b>
<b>Total Number of Lecture Hours</b>	<b>: 56</b>	<b>Exam Marks</b>	<b>: 100</b>
<b>Practical Component</b>	<b>: 01 Hour / Week</b>		

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### **Objectives :**

- To introduce analytics as a tool for business decision making
- To learn multivariate statistical methods to explain or predict the measured values
- To familiarize the use of project management evaluation techniques
- To orient the students with research tools

### **Module I**

**8 Hours**

**Descriptive Statistics:** Measures of central tendency - Problems on measures of dispersion – Karl Pearson correlation, Spearman's Rank correlation, simple and multiple regression (problems on simple regression only)

### **Module II**

**6 Hours**

**Probability Distribution:** Concept and definition - Rules of probability – Random variables – Concept of probability distribution – Theoretical probability distributions: Binomial, Poisson, Normal and Exponential – Baye's theorem (No derivation) (Problems only on Binomial, Poisson and Normal)

### **Module III**

**8 Hours**

**Decision Theory:** Introduction – Steps of decision-making process – types of decision-making environments – Decision-making under uncertainty – Decision-making under Risk – Decision tree analysis (only theory).

**Design of Experiments:** Introduction – Simple comparative experiments – Single factor experiments – Introduction to factorial designs

### **Module IV (only theory)**

**6 Hours**

**Cluster Analysis:** Introduction – Visualization techniques – Principal components – Multidimensional scaling – Hierarchical clustering – Optimization techniques

**Factor Analysis:** Introduction – Exploratory factor analysis – Confirmatory factor analysis

**Discriminant Analysis:** Introduction -- Linear discriminant analysis

**Module V**

**5 Hours**

**Foundations of Analytics:** Introduction -- Evolution -- Scope -- Data for Analytics -- Decision models -- Descriptive, Predictive, Prescriptive -- Introduction to data warehousing -- Dashboards and reporting -- Master data management (only theory)

**Module VI**

**15 Hours**

**Linear Programming:** structure, advantages, disadvantages, formulation of LPP, solution using graphical method. Transportation problem: Basic feasible solution using NWCM, LCM and VAM, optimisation using MODI method.

**Assignment Model:** Hungarian method -- Multiple solution problems -- Maximization case -- Unbalanced -- Restricted.

**Module VII**

**8 Hours**

**Project Management:** Introduction -- Basic difference between PERT & CPM -- Network components and precedence relationships -- Critical path analysis -- Project scheduling -- Project time-cost trade off -- Resource allocation

**Instruction:** Equal weightage is given for both theory and problems in the ratio of 60:40

**Practical Component:**

- Students are expected to have a basic excel classes
- Students should be able to categorize the data and find out the basic statistical values

**RECOMMENDED BOOKS:**

- Business Analytics – Methods, Models and Decisions, James R. Evans, 1st edition, Prentice Hall, 2013, ISBN – 978-0-13-295061-9
- Operations Research – Theory & Applications, J K Sharma, 5th edition, Macmillan publishers, 2013, ISBN 978-9350-59336-3
- Business Analytics – an application focus, Purba Halady Rao, PHI Learning, 2013, ISBN 978-81-203-4819-6
- Quantitative Methods, N D Vohra, 4th Edition, Tata McGraw Hill, 2010, ISBN 978-0-07-014673-0
- Fundamentals of Statistics, S.C Gupta, 6th edition, Himalaya Publishing House, 2007, ISBN 978-81-8318-755-8

#### REFERENCE BOOKS:

- Analyzing Multivariate Data, James Lattin, Douglas Carroll and Paul Green, Thomson Learning, 2003, ISBN 0-534-34974-9.
- Business Intelligence: A Managerial Approach, E. Turban, R. Sharda, J. Aronson, and D. King, Pearson Prentice Hall, 2008, ISBN-13: 978-0-13-234761-7.
- Quantitative Methods for Business, Anderson, Sweeney and Williams, Thomson, 2005, ISBN 981-240-641-7

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