MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act,1956

COURSE CONTENT

BUSINESS ANALYTICS								
III SEMESTER								
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIE**	**SEE**	**Total**
24MB0017	**CORE**	4	-	-	4	40	60	100
Contact Classes:60	**Tutorial Classes:** Nil	**Practical Classes:** Nil				**Total Classes:** 60		
Prerequisite: Basic knowledge of statistics, quantitative techniques, and computer applications.								

COURSE OVERVIEW:

This course provides a comprehensive understanding of Data Analytics and its applications in business decision-making. It introduces fundamental concepts of data, visualization techniques, and statistical methods for summarizing and exploring data. The course covers descriptive and probability-based analytical tools for data modeling and interpretation. It emphasizes predictive analytics techniques such as correlation, regression, and ANOVA for forecasting and decision support. Students will also learn data mining methods including classification, clustering, and association analysis. The course further introduces simulation techniques and risk analysis to support strategic and managerial decision-making.

COURSE OBJECTIVES:

- To orient on the importance of ever-increasing volume, variety and velocity of data in organization and application of data analytical tools for decision making.
- To explain the different descriptive statistical measures.
- To impart knowledge on the aspects of predictive analytics.
- To provide understanding of the scope of data mining, regression trees, logistical regression.
- To elaborate on various applications of simulation in business.

COURSE OUTCOMES: After completion of the course, students should be able to

1. Explain core principles of data analytics, analytical approaches, big data, visualization tools and statistical techniques.
2. Explore statistical approaches for population-sample analysis, covering descriptive statistics, probability distributions and data modeling
3. Apply statistical methods - correlation, regression, Spearman's rank and ANOVA for inference
4. Analyze data mining techniques, clustering, association rules, classification and prediction methods for effective data exploration - reduction.

5. Examine simulation models namely Monte Carlo and decision trees for risk assessment in decision-making

Unit – I: Introduction to Data Analytics: Introduction to Data, Importance of Analytics, Data for Business Analytics, Big Data, Business Analytics in Practice. Data Visualization, Data Visualization Tools, Data Queries, Statistical Methods for Summarizing Data, Exploring Data using Pivot Tables.

Unit – II: Descriptive Statistical Measures: Population and Samples, Measures of location, Measures of Dispersion, Measures of Variability, Measures of Association. Probability Distribution and Data Modeling, Discrete Probability Distribution, Continuous Probability Distribution, Random Sampling from Probability Distribution, Data Modeling and Distribution fitting.

Unit – III: Predictive Analytics: Karl Pearson Correlation Technique, Multiple Correlation, Spearman's Rank Correlation, Simple and Multiple Regression, Regression by the Method of Least Squares, Building Good Regression Models. Regression with Categorical Independent Variables, Linear Discriminant Analysis, One-Way and Two-Way ANOVA.

Unit – IV: Data Mining: Scope of Data Mining, Data Exploration and Reduction, Unsupervised Learning, Cluster Analysis, Association Rules, Supervised Learning, Partition Data, Classification Accuracy, Prediction Accuracy, K-Nearest Neighbors, Classification and Regression Trees, Logistics Regression.

Unit – V: Simulation: Random Number Generation, Monte Carlo Simulation, What If Analysis, Verification and Validation, Advantages and Disadvantages of Simulation, Risk Analysis, Decision Tree Analysis. Latest amendments in data analytics.

TEXT BOOKS:

1. James Evans, Business Analytics, 2e, Pearson, 2019.
2. Camm, Cochran, Fry, Ohlmann, Anderson, Sweeney, Williams Essential of Business Analytics, Cengage Learning.
3. Thomas Eri, WajidKhattack& Paul Buhler: Big Data Fundamentals, Concepts, drivers and Techniques by Prentice Hall of India, New Delhi, 2015
4. Akil Maheswari: Big Data, Upskill ahead by Tata McGraw Hill, New Delhi, 2016 Seema Acharya &Subhashini Chellappan: Big Data and Analytics, Wiley Publications, New Delhi, 2015.

REFERENCE BOOKS:

- Applied Multivariate Statistical Analysis, Richard A. Johnson & Dean W. Wichern, Pearson Education.
- Practical Statistics for Data Scientists, Peter Bruce & Andrew Bruce, O'Reilly Media, 2e, 2020.

- Introduction to Data Mining, Pang-Ning Tan, Michael Steinbach & Vipin Kumar, Pearson, 2e, 2018.
- Business Intelligence and Analytics, David Loshin, Morgan Kaufmann, 2012.
- Machine Learning for Absolute Beginners, Oliver Theobald, Scatterplot Press, 2017.
- Data Analytics Made Accessible, Anil Maheshwari, CreateSpace Independent Publishing, 2015.

ELECTRONIC RESOURCES:

1. https://nptel.ac.in/courses/110106064 — NPTEL: Business Analytics
2. https://nptel.ac.in/courses/106106179 — NPTEL: Data Mining
3. https://swayam.gov.in/ — SWAYAM Online Courses (Analytics & Statistics)
4. https://www.kaggle.com/learn — Kaggle Data Analytics Courses
5. https://www.analyticsvidhya.com/ — Analytics Vidhya (Indian Analytics Community)
6. https://towardsdatascience.com/ — Data Science Articles

MATERIALS ONLINE:

1. Course template
2. Tutorial question bank
3. Tech talk and Concept Video topics
4. Open-ended experiments
5. Definitions and terminology
6. Assignments
7. Model question paper – I
8. Model question paper – II
9. Lecture notes
10. PowerPoint presentation
11. Drishya Siksha Sangrah (DSS) Videos