



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

## COURSE CONTENT

### DATA ANALYTICS

#### III Semester: OE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
BPSE30	Elective	L	T	P	C	CIA	SEE	Total
		3	-	-	3	40	6	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		
Prerequisite: -								

#### I. COURSE OVERVIEW:

This course covers the fundamentals of data analysis, such as data gathering or data mining. this course covers concepts of data analysis, regression analysis, organization structures, forecasting techniques and decision analysis. The data analytics tools help in the data mining processes from loading to transformation, aggregation, automated parameter, and process optimization.

#### II. COURSE OBJECTIVES:

##### The students will try to learn:

- I. The role of business analytics within an organization.
- II. The relationships between the underlying business processes of an organization.
- III. To gain an understanding of how managers use business analytics to formulate

#### III COURSE OUTCOMES:

After successful completion of the course, students will be able to:

- CO1 Analyze data using statistical and business analytics technology
- CO2 Solve business problems and to support managerial decision making
- CO3 Choose business decision Strategies with the without outcome probabilities
- CO4 Perform statistical analysis on variety of data
- CO5 Experiment Data using Business Analytics Technology

#### **IV. COURSE CONTENT:**

##### **MODULE – I: BUSINESS ANALYTICS (10)**

Business analytics: Overview of Business analytics, Scope of Business analytics, Business Analytics Process, Relationship of Business Analytics Process and organization, competitive advantages of Business Analytics. Statistical Tools: Statistical Notation, Descriptive Statistical methods, Review of probability distribution and data modeling, sampling and estimation methods overview.

##### **MODULE – II: REGRESSION ANALYSIS (09)**

Trendiness and Regression Analysis: Modeling Relationships and Trends in Data, simple Linear Regression. Important Resources, Business Analytics Personnel, Data and models for Business analytics, problem solving, Visualizing and Exploring Data, Business Analytics Technology.

##### **MODULE – III: ORGANIZATION STRUCTURES (10)**

Organization Structures of Business analytics, Team management, Management Issues, Designing Information Policy, Outsourcing, Ensuring Data Quality, measuring contribution of Business analytics, Managing Changes.

Descriptive Analytics, predictive analytics, predicative Modeling, Predictive analytics analysis, Data Mining, Data Mining Methodologies, Prescriptive analytics and its step in the business analytics Process, Prescriptive Modeling, nonlinear Optimization.

##### **MODULE – IV: FORECASTING TECHNIQUES (10)**

Forecasting Techniques: Qualitative and Judgmental Forecasting, Statistical Forecasting Models, Forecasting Models for Stationary Time Series, Forecasting Models for Time Series with a Linear Trend, Forecasting Time Series with Seasonality, Regression Forecasting with Casual Variables, Selecting Appropriate Forecasting Models. Monte Carlo Simulation and Risk Analysis: Monte Carle Simulation Using Analytic Solver Platform, New- Product Development Model, Newsvendor Model, Overbooking Model, Cash Budget Model

##### **MODULE – V: DECISION ANALYSIS (09)**

Decision Analysis: Formulating Decision Problems, Decision Strategies with the without Outcome Probabilities, Decision Trees, The Value of Information, Utility and Decision Making. Recent Trends in: Embedded and collaborative business intelligence, Visual data recovery, Data Storytelling and Data journalism.

#### **V. TEXTBOOKS:**

1. James Evans, “Business Analytics”, Persons Education.

#### **VI. REFERENCE BOOKS:**

1. Marc J. Schniederjans, Dara G. Schniederjans, Christopher M. Starkey, “Business Analytics Principles, Concepts, and Applications”, Pearson FT Press.

#### **VII. ELECTRONICS RESOURCES:**

1. <http://nptel.ac.in/courses/110107092/>

## **VIII. MATERIALS ONLINE**

1. Course template
2. Tutorial question bank
3. Assignments
4. Definition and terminology
5. Tech Talk Topics
6. Model question paper-I
7. Model question paper-II
8. Lecture notes
9. Power point presentations