

## DATA ANALYTICS (R15)

### **Unit I**

#### **Introduction to Analytics and R programming (NOS 2101)**

Introduction to R, RStudio (GUI): R Windows Environment, introduction to various data types, Numeric, Character, date, data frame, array, matrix etc., Reading Datasets, Working with different file types .txt,.csv etc. Outliers, Combining Datasets, R Functions and loops. Summary Statistics - Summarizing data with R, Probability, Expected, Random, Bivariate Random variables, Probability distribution. Central Limit Theorem etc.

### **Unit II**

#### **SQL using R & Correlation and Regression Analysis (NOS 2101)**

Introduction to NoSQL, Connecting R to NoSQL databases. Excel and R integration with R connector. Regression Analysis, Assumptions of OLS Regression, Regression Modelling. Correlation, ANOVA, Forecasting, Heteroscedasticity, Autocorrelation, Introduction to Multiple Regression etc.

### **Unit III**

#### **Understand the Verticals - Engineering, Financial and others (NOS 2101)**

Understanding systems viz. Engineering Design, Manufacturing, Smart Utilities, Production lines, Automotive, Technology etc. Understanding Business problems related to various businesses

### **Unit IV**

#### **Manage your work to meet requirements (NOS 9001)**

Understanding Learning objectives, Introduction to work & meeting requirements, Time Management, Work management & prioritization, Quality & Standards Adherence

### **Unit V**

#### **Work effectively with Colleagues (NOS 9002)**

Introduction to work effectively, Team Work, Professionalism, Effective Communication skills, etc. NOS \* National Occupational Standards

### **Text Books:**

1. Student's Handbook for Associate Analytics.
2. Introduction to Scientific Programming and Simulation Using R, Owen Jones, Robert Maillardet and Andrew Robinson, Second Edition, CRC Press, 2014
3. A First Course in Statistical Programming with R, Braun W. J., Murdoch D. J.. — Cambridge University Press, 2007
4. Data Manipulation with R, Jaynal Abedin and Kishor Kumar Das, Second Edition, Packt publishing, BIRMINGHAM – MUMBAI.
5. Beginning R The Statistical Programming language- Mark Gardener, John Wiley & Sons, Inc, 2012