Course Outline

Statistical Techniques	Different types of data, Data summerization, Frequency table, Frequency Distributions,Histogram, Measures of central tendency and dispersion, Skewnesss and kurtosis, Basic Probability, Conditional Probability, Normal Distribution, Sampling methods, Point and Interval estimation, Central Limit Theorem, Nul and alternative hypothessis, Level of significance, P value, Types of errors, Hypothesis Testing
Predictive Analytics: Linear and Multilinear Regression	Simple and Multiple Linear Regression, R2 and Adj R2, ANOVA, Interpretation of coefficients, Dummy Variables, Residual Analysis, Outliers, Logistic Regression, Assumptions, Logistic Function, Chi-Square, Hosmer Lemeshow test, Kolmogorov-Smirnov statistic and chart, Classification Table, Interpreting Coefficients, Dependent Variable Prediction
Predictive Analytics: Forecasting (Time Series)	Principles of Forecasting, Time Series, Causal models, Types of Forecasting Methods and their characteristics, Moving Average, Exponential Smoothing, Trend, Seasonality, Cyclicity, Holt Winter's forecasting method.
Data Mining Techniques: Market Basket Analysis	Basic concepts, Frequent Itemset Mining Methods, Apriori, FPGrowth, Pattern Evaluation Methods: Lift, Chi –Square,
Data Mining Techniques: Classification	Classification, Decision Tree Induction, Bayes Methods, Rule-Based Classification, Model Evaluation and Selection, Ensemble Approaches
Data Mining Techniques: Clustering	Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Evaluation of Clustering, Kmeans Method.
Excel Proficiency	Formatting of Excel Sheets, Use of Excel Formula Function , Advanced Modeling Techniques, Data Filter and Sort , Charts and Graphs, Table formula and Scenario building, lookups, pivot tables
Application of concepts using R and SAS	Reading and writing data in R, Vectors, Frames and Subsets, Code Writing and R code Debugger, Managing and Manipulating Data in SAS, Creating Charts in SAS, Simple Linear Regression in SAS, Multiple Linear Regression in SAS, Data Mining in SAS
Orientation on Big Data and Hadoop	Awareness of Big Data and Hadoop, Why is it relevant? The four V's, Is Big Data = Hadoop?, Big Data and Cloud Computing, Generators of Big Data, Applications of Big Data
Web Analytics and Mobile BI	Exposure to Web and Mobile Analytics with focus on: Text Analytics, Sentiment Analytics, Click Analytics, Google Analytics,

Case Studies	Difference between Web and Mobile Analytics Population census, Marketing, Banking, Retail, Industrial and Telecom domain case studies- Cleaning data, Mining patterns, Making models, Model selection and validation.
Base SAS	• Overview, SAS statements, Comments, Data types, Data steps & Proc steps • Importing and exporting data, Data transformation and manipulation, • Formats and Informats, • Advanced data manipulation, Conversion of variables, • SAS Macro, SAS SQL, Basic SAS procedures, • Statistical analysis in SAS – Regression, Time series, Clustering and Market Basket Analysis.
Tableau – (Data Visualization tool)	• Extracting data into Tableau, • Data Preparation, Dimensions, • Transformation of variables, • Creating Views, • Working with charts, • Exporting visualizations,
Text Analytics (Application)	• Difference between Structured & Unstructured Data, • Typical use cases of Text Analytics, Sentiment analysis, • Scrapping some data from the web, • Working with a static dump of Movie review data, • Cleaning the data, Handling the NA's and Stop words, • Using the sentiment package in r, • Error handling, • Classify sentiments, Classify polarity, • Using gplot for visualization, • Building the word cloud
SQL	Introduction to Databases • Terminologies - Records, Fields, Tables • Introduction to database normalisation • Primary Key • How data is accessed Introduction to SQL • SQL Syntax • SQL data Types • SQL Operators • Table creation in SQL : Create, Insert, Drop , delete and updating Introduction to SQL - Table access & Manipulation • Select with Where Clause (In between, logical operators, wild cards, order, group by) • SQL constraints • Concepts of Join - Inner, Outer Case study