CRITERIA 1.2.1

Assessment Year 2017-18

LESSON PLAN-DATA ANALYTICS

Certified Course in R and Machine learning
JIMS

Learning Outcome of the course would be:
1. Develop understanding of the basic and advanced R programming.
2. Strengthen the ability to frame and formulate functions in R.
3. Deepen the ability to interpret with the help of various live examples.

Duration: 40 Hours
Mode: Hands on, Instructor Led
Minimum Number of Participants: 40

Course Content

Module	Topics	Number of Hours
1	**Exploring R:** ❖ Introduction to R language ❖ How it works ❖ Working with Rscript ❖ Saving work in R	2
2	**Implementing Expression:** ❖ Grouped Expressions in R ❖ Regular Expressions ❖ Decision Making ❖ Loops ❖ Date and Time options in R	4
3	**Essential Data Structure in R:** ❖ Vectors ❖ Matrix ❖ Arrays ❖ Lists ❖ Data Frames ❖ Functions	4
4	**Implementing Strings in R:** ❖ Character Strings in R ❖ Empty strings ❖ Strings and R objects ❖ String Manipulations	4

5	**Visualizing and analyzing Data in R:** ❖ Tabulation ❖ Graphical methods ❖ Graphical Analysis		4
6	**Descriptive Statistics using R** ❖ Central Tendency -Mean and Weighted Mean and Geometric Mean, Median, Mode, Percentiles and Quartiles ❖ Dispersion - Variance, Standard Deviation and Range, Interquartile Range and Coefficient of Variation ❖ Numerical Measures: Z-Scores, Chebyshev's Theorem, Empirical Rule and Detecting Outliers ❖ Exploratory Data Analysis – Five – Number Summary, Box Plot ❖ Measures of Association: Covariance and Correlation Coefficient		4
7	**Linear Regression using R** ❖ Linear Regression Analysis ❖ Formulation of Regression Model ❖ Bivariate Regression ❖ Statistics Associated with Bivariate Regression Analysis ❖ Conducting Bivariate Regression Analysis ❖ Multiple Regressions ❖ Conducting Multiple Regression		4
8	**Logistic Regression using R** ❖ Logistic Function ❖ Single Predictor Model ❖ Determine Logistic Cut off ❖ Estimated Equation for Logistic Regression		4
9	**Naïve Bayes Classification** ❖ Naïve Bayes Introduction ❖ Probabilistic Basics and Probabilistic Classification ❖ Characteristics of Naïve Bayes ❖ Real Time Case study using Naïve Bayes ❖ Advantage and Shortcoming of Naïve Bayes		4
10	**Live Project**		4