INTERNATIONAL MANAGEMENT INSTITUTE, BHUBANESWAR
Post Graduate Diploma in Management (PGDM)
IS603: Data Science Using R (Elective)
PGDM 2017-2019
Class duration: 60 minutes

Instructor: Dr. Santanu Das   **Credit: 1.5 (15 sessions)**
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Course Objective: Of late, R has become very popular software to undertake basic as well as advanced data analysis. Being feely available, it is used even by the corporate. The basic objective of this course is to expose the students to the R environment, so that they can use it in future to make business decisions.

Learning Outcomes: At the end of this course, students will develop a basic understanding about how R works and learn basic commands. This course will enable them to undertake independent research in their areas of interest as well as applying in their corporate life.
  LO1: Introduction and basic understanding of the R environment
  LO2: Recap of data analytical tools and their applications
  LO3: Applying the software to undertake analysis and interpretation.

Pedagogy: The pedagogy will involve using a given dataset on the R Studio for analysis. All the sessions will be held in this software.

Evaluation Criteria:
End Term Examination:	30%
Assignment:	20%
Project:	30%
Quiz:	20%

Session Plan:

Session No.	Topics	Learning Outcome	Readings
1-3	Getting Started with R • Comments, indents • Opening a dataset • Simple mathematical operations • Creating matrices • Subset data and declaring new variables	LO1	Class exercise and handouts
4-6	Data Preprocessing and cleaning • Missing data handling • Removing rows and columns	LO1, LO2	Class exercise and handouts

	• Data transformation (Min-Max, Z, Decimal scaling)		
7-9	Plotting Graphs • Level graphs • Multiple graph • Histogram and kernels • qq plots • gg plots • Scatter plots	LO1, LO2, LO3	Class exercise and handouts
10-12	Regression Techniques • Univariate • Multivariate	LO1, LO2, LO3	Class exercise and handouts
13-15	Handling panel Data and time series data • Using ACF, PACF and EACF plots • Fetching data from websites • Converting price series to returns series • Fixed effect and random effect models- Hausman test	LO2, LO3	Class exercise and handouts