

TCET/FRM/IP-02/09					Revision: A		
Bridge Course Plan							
Semester: VI					Course: IT		
Subject: Data Science and Visualization using R				2 Lectures / Week		Class: TE IT B	
Sr. No.	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1.	Module 1	L 1.1	<ul style="list-style-type: none">HistoryDownloading and Installing RGetting Help on a functionViewing DocumentationGeneral issues in RPackages ManagementFeaturesBasics in RData TypesVariablesOperators	Power point presentation, Chalk & Board	15-1-19	1.2, 2.1	
2.		L 1.2	<ul style="list-style-type: none">StringsVectorsListsMatricesArraysFactors	Power point presentation, Chalk & Board	16-1-19	1.2, 2.1	
3.	Module 2	L 2.1	<ul style="list-style-type: none">Data FramesDecision MakingLoops	Power point presentation, Chalk & Board	22-1-19	1.2	
4.		L 2.2	<ul style="list-style-type: none">FunctionsPackagesData Reshaping	Power point presentation, Chalk & Board	23-1-19	1.2	
5.		L 3.1	<ul style="list-style-type: none">Data TypesSub settingWriting dataReading tabular data filesReading from CSV Files, Excel Files, Binary Files	Power point presentation, Chalk & Board	29-1-19	1.1	
6.	Module 3	L 3.2	<ul style="list-style-type: none">Reading from XML Files, JSON FilesWeb DataDatabase	Power point presentation, Chalk & Board	30-1-19	1.1	

7.		L 4.1	<ul style="list-style-type: none"> Creating a vector and vector operations Initializing a data frame Control structures Selecting data frame cols by position and name Changing directories Re-directing R output 	Power point presentation, Chalk & Board	05-02-19	1.1	
8.		L 4.2	<ul style="list-style-type: none"> Need for data visualization Data visualization Components Creating a Pie Charts, Bar Charts, Boxplots 	Power point presentation, Chalk & Board	06-02-19	1.1, 2.1	
9.		L 5.1	<ul style="list-style-type: none"> Creating a Histograms, Line Graphs, Scatterplots Utility and limitations Introduction to grammar of graphics Using the ggplot2 package in R to create visualizations 	Power point presentation, Chalk & Board	12-02-19	1.2	
10.	Module 4	L 5.2	<ul style="list-style-type: none"> Appending data to a vector Combining multiple vectors List management Merging data frames Data transformation Strings and dates Outlier detection Handling NAs and Missing Values Matrices and Arrays 	Power point presentation, Chalk & Board	13-02-19	1.2, 2.1	
11.		L 6.1	<ul style="list-style-type: none"> Logical operations Relational operators Accessing Variables Matrix Multiplication and Inversion Managing Subset of data Character manipulation Data aggregation Subscripting 	Power point presentation, Chalk & Board	20-02-19	1.2	
12.	Module 5	L 6.2	<ul style="list-style-type: none"> Basics of SQL RODBC and DBI Package Performing queries Advanced Data Handling Combining and restructuring data frames 	Power point presentation, Chalk & Board	05-03-19	1.2, 2.1	

No. of (lectures planned)/(lecture taken): **20 Hours**



Reference Books:

- 1.1. R Programming For Data Science by Roger D.Peng
- 1.2. Exploratory Data Analysis With R by Roger D.Peng
- 1.3. R In Action by Robert Kabacoff
- 1.4. R Cook-Book by Paul Teetor

Digital Reference:

- 2.1. <http://www.r-bloggers.com/>
- 2.2. <http://www.ats.ucla.edu/stat/r/>
- 2.3. <https://www.rstudio.com/online-learning/#R>

Mr. Shridhar Kamble

Dr. Rajesh Bansode

**Name & Signature of Faculty
(Academics)**

Signature of HOD

Signature of Principal /Dean

Date:

Date:

Date:

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.