Devi Ahilya University, Indore, India Institute of Engineering & Technology				I Year M.E. (Computer Engineering Sp. in Software Engineering) (Full Time)			
Subject Code & Name	**Instructions Hours per Week**			**Credits**			
SER1E2	**L**	**T**	**P**	**L**	**T**	**P**	**Total**
Big data analytics	**3**	**1**	**2**	**3**	**1**	**1**	**5**
Duration of Theory Paper: 3 Hours							

LEARNING OBJECTIVES:

1. To increase knowledge of the Big Data landscape.
2. Develop a comprehensive knowledge R and to use R for effective data analysis.
3. Develop skills in independent managing Big data projects and related issues.
4. Develop ability to carry out research in area of Big Data.

Pre requisites: Some programming experience (in any language) is recommended.

COURSE CONTENTS

UNIT-I

Introduction to Big Data : Overview of Big Data, Characteristics of Big Data, Sources of Big data, Five V's of Big Data, Examples of Big Data, Advantagesof Big Data, Big Data Applications, Strategies of Big Data, challenges Process of Data Analysis.

UNIT II

Introduction R : Overview and History of R, R Console Input and Evaluation, Data Types - R Objects and Attributes, Vectors and Lists, Matrices, Factors, Missing Values, Data Frames, Names Attribute, Reading Tabular Data, Reading Large Tables, Textual Data Formats, Connections: Interfaces to the Outside World.

Unit III

Programming with R: Subsetting – Basics, Lists, Matrices, Partial Matching, Removing Missing Values, Vectorized Operations. Control Structures - If-else, For loops, While loops, Repeat, Next,

Break, Functions, Scoping Rules - Symbol Binding, R Scoping Rules, Coding Standards, Dates and Times

Unit IV

Loop Functions and Debugging : Loop Functions – lapply, apply, mapply, tapply, split, Debugging Tools - Diagnosing the Problem, Basic Tools, Using the Tools

Unit V

Developing Data Products : Introduction to Data Products, Intro to rCharts and GoogleVis, rCharts introduction, rCharts examples, rCharts mapping, GoogleVis, plotly, Interactive graphics

LEARNING OUTCOMES:

Upon completing the course, students will be able to:

1. Apply Knowledge of Big Data to solve real world big data problems.
2. Understand the fundamentals of 'R' programming
3. Work on a real life Project, implementing R Analytics to create Business Insights.
4. Apply Data Visualization to create fancy plots
5. Undergo into further research in Big Data.

BOOKS RECOMMENDED:

1. Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Todays Businesses, Michael Minelli, Michele Chambers, AmbigaDhira, Wiley India Pvt Ltd, 2013.

2. R for Everyone: Advanced Analytics and Graphics, 1st Ed., Jared P. Lander, Pearson Education, Inc., 2014.

3.Big Data Analytics with R and Hadoop, Vignesh Prajapati, Packt Publishing Ltd, 2013.

4. Big Data Analytics: Turning Big Data into Big Money, Frank J. Ohlhorst, Wiley, 2012.

5. Creating Value with Big Data Analytics: Making Smarter Marketing Decisions, Peter C. Verhoef, Edwin Kooge, Natasha Walk, Taylor & Francis, 2016.

List of Practical/ Programming Assignments: (if applicable)

During the learning of course, students need to do assignments:

5. To learn the R Programming language.
6. To explore Rstudio for solving the Big data problems.