Kadi Sarva Vishwavidyalaya, Gandhinagar
MASTERS OF COMPUTER APPLICATION (MCA)
Year – II (Semester – IV) (W.E.F. January 2015)
Subject Name: Big Data & Data Analytics – MCA-405(B)

Sub Total Credit	Teaching scheme		Examination scheme				
	(per week)		MID	CEC	External		Total Marks
	Th	Pr	Th	Th	Th.	Pr.	
5	3	4	25	25	50	50	150

Course Description:
This course introduces Big Data and Data Analysis. The course gives fundamental knowledge of data analysis with structured program logic of R-Language. It introduces the basic flow and construction of programming language for given problem. Course includes language syntax, data types, program organization, problem-solving methods, algorithm design, and logic control structures.

Objectives:
More and more organizations these days use their data a decision supporting tool and to build data - intensive products and services. The collection of skills required by organizations to support these functions has been grouped under the term "Data Sciences". This course will cover the basic concepts of big data, methodologies for analyzing structured and unstructured data with emphasis on the relationship between the Data Scientist and the business needs. The course provides a deep - dive into Big Data, Data Analytics, by providing an advanced, practical background that allows the students to lead and participate in Big Data and Data Analytics projects.

Prerequisites: Database Management Systems, Object Oriented Programming, Statistics

Course Contents:

Unit – I – What Is Big Data and Why Does It Matter?
What Is Big Data? - Is the "Big" Part or the "Data" Part More Important? - How Is Big Data Different? - How Is Big Data More of the Same? - Risks of Big Data - Why You Need to Tame Big Data - The Structure of Big Data - Exploring Big Data - Most Big Data Doesn't Matter - Filtering Big Data Effectively - Mixing Big Data with Traditional Data - The Need for Standards - Today's Big Data Is Not Tomorrow's Big Data

Unit – II – Industry Examples of Big Data
Digital Marketing and the Non-line World - Database Marketers, Pioneers of Big Data - Big Data and the New School of Marketing - Fraud and Big Data - Risk and Big Data - Credit Risk Management - Big Data and Algorithmic Trading - Big Data and Advances in Health Care - Pioneering New Frontiers in Medicine - Advertising and Big Data: From Papyrus to Seeing Somebody - Using Consumer Products as a Doorway -

Unit – III – Business Analytics
The Last Mile in Data Analysis - Geospatial Intelligence Will Make Your Life Better - Listening: Is It Signal or Noise? - Consumption of Analytics - From Creation to Consumption - Visualizing: How to Make It Consumable? - Organizations Are Using Data Visualization as a Way to Take Immediate Action - Moving from Sampling to Using All the Data - Thinking Outside the Box - 360° Modeling - Need for Speed - Let's Get Scrappy - What Technology Is Available? - Moving from Beyond the Tools to Analytic Applications

UNIT – IV – Basic of R

A few concepts before starting

How R works - Creating, listing and deleting the objects in memory - The on-line help

Data with R

Objects - Reading data in a file - Saving data - Generating data - Manipulating objects

Graphics with R

Managing graphics - Graphical functions - Low-level plotting commands - Graphical parameters - A practical example - The grid and lattice packages

UNIT – V – Programming with R

Statistical analyses with R

A simple example of analysis of variance - Formulae - Generic functions - Packages

Programming with R in Practice

Loops and vectorization - Writing a program in R - Writing your own functions

Textbook for the Subject:

1. Taming The Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics Bill Franks ISBN: 978-1-118-20878-6, March 2012
2. Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses Michael Minelli, Michele Chambers, Ambiga Dhiraj, ISBN: 978-1-118-14760-3, January 2013
3. R for Beginners, Emmanuel Paradis

Chapter wise Book coverage:

Unit – I – Chapter 1 - What Is Big Data and Why Does It Matter?
Taming The Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics Bill Franks ISBN: 978-1-118-20878-6, March 2012

Unit – II – Chapter 2 - Industry Examples of Big Data
Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses Michael Minelli, Michele Chambers, Ambiga Dhiraj, ISBN: 978-1-118-14760-3, January 2013

Unit – III - Chapter 5 Business Analytics
Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses Michael Minelli, Michele Chambers, Ambiga Dhiraj ISBN: 978-1-118-14760-3, January 2013

Unit – IV – Chapter 2, 3, 4
R for Beginners, Emmanuel Paradis,
http://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf

Unit – V – Chapter 5, 6
R for Beginners, Emmanuel Paradis,
http://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf