K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		L	T	P	Credits
Course Code : BUS201	Course Name : **MARKETING ANALYTICS**		3	0	0	3

Course Description:

Marketers want to understand and forecast how customers purchase products and services and how they respond to marketing initiatives. This course will make students learn how analytics help businesses drive marketing to maximize its effectiveness and optimize return on investment (ROI). The course will focus on developing marketing strategies and resource allocation decisions driven by quantitative analysis. The course will use a combination of cases, lectures, and a hands-on project to develop these skills.

Course Learning Outcomes:
1. Apply customer theories to given research problems and types of customer data.
2. To critically evaluate business problems and determine the most appropriate analytical technique
3. Design an appropriate course of action based on empirical evidence.by gaining insights from the analysis of data
4. Formulate and confidently communicate (oral and written) research findings that is understandable to marketing managers.

Prerequisite:
Basic understanding of marketing, advance excel and quantitative analysis.

Course Content

Unit No	Description	Hrs
1.	**Introduction to Marketing Analytics** Marketing Analytics- Basics , importance and application areas , Slicing and Dicing marketing data, Excel chart to summarize marketing data, excel functions to summarize marketing data.	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

2.	**Measuring customer expectation** Conjoint Analysis- product, Attributes, levels, full profile conjoint analysis, using evolutionary solver to generate product profiles; Logistic Regression- logistic regression model, maximum likelihood estimate of logistic regression model, using StatTools to estimate and test logistic regression hypotheses; Discrete choice analysis: random utility theory, discrete choice analysis of chocolate preferences, incorporating price and brand equity into discrete choice analysis.	6
3.	**Market Segmentation** Segmentation Cluster analysis, Collaborative filtering- User-based filtering and iteim-based filtering, Decision tree, constructing decision tree, pruning tree and CART.	6
4.	**Forecasting New Product Sales** S Curves to forecast sales of a new product- examining S curve, fitting the Pearl or logistic Curve, Fitting an S curve with seasonality, fitting the Gompertz curve, pearl curve VS, bass diffusion model	6
5.	**Retailing** Market basket analysis and lift, RFM Analysis and optimizing direct mail campaigns, forecasting sales using SCAN*PRO model and its variants, allocating retail space and sales resources.	6
6.	**Advertising** Measuring the effectiveness of advertising, Media Selection models. Marketing research tools- Multidimensional scaling and ANOVA	6

References -
Text Books:
Winston Wayne L. Marketing Analytics, John Wiley & Sons Inc, ISBN: 9781118373439, 111837343X
Reference Books:
Grigsby Mike, Marketing Analytics, Kogan Page Ltd, ISBN: 9780749482169, 0749482168

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III	L	T	P	Credits
Course Code : BUS202	Course Name: **HR ANALYTICS**	**3**	**0**	**0**	**3**

Course Description:

This course will serve as an introduction to Human Resource Analytics. This will explore the use of analytics within the Human Resource discipline, through guest speakers and class case studies, HR Analytics will specifically focus on the applied methods and techniques with an output orientation for improving the human resource functions in large scale organizations. The frameworks, models, and hands-on analytical approaches will equip the participants with developing the SMART (specific, measurable, attainable, reliable, and time bound) targets and identifying business contributions of the HR function.

Course Learning Outcomes:

After successful completion of the course, students will be able to,
1. Explain basic concepts of HR Analytics
2. Apply Data Analytic techniques using software packages
3. Identify and use key HR Metrics.
4. Forecast budget numbers for HR costs
5. Measure workforce productivity and performance
6. Explore and visualize data

Prerequisite:

Basic understanding of Human Resources and Excel.

Course Content

Unit No	Description	Hrs
1	**Introduction to HR Analytics:** Basics of HR Analytics: Concept and Evolution of HR Analytics & data sources - HCM:21Model. Use of workforce analytics to improve decision making. Analytics and Prediction.	6
2	**HR Metrics and predictive analytics:**	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

	Importance of HR Analytics. Data Analytic techniques using software packages. Future of Human Resource Analytics.HR Metrics and HR Analytics; Intuition versus analytical thinking.	
3	**Creating business understanding for HR initiatives:** Workforce segmentation and search for critical job roles; Statistical driver analysis – association and causation; Linking HR measures to business results; choosing the right measures for scorecards; Identifying and using key HR Metrics.	6
4	**Forecasting budget numbers for HR costs:** Workforce planning including internal mobility and career pathing; training and development requirement forecasting and measuring the value and results of improvement initiatives; optimizing selection and promotion decisions	6
5	**Predictive modelling in HR:** Employee retention and turnover; workforce productivity and performance; scenario planning.	6
6	**Communicating with data and visuals:** Data requirements; identifying data needs and gathering data; HR data quality, validity and consistency; Using historical data; Data exploration; Data visualization; Association between variables; Insights from reports; Root cause analysis of HR issues	6

References –
TEXT BOOK:
1.Jac Fitz-Enz , The New HR Analytics: Predicting the Economic Value of Your Company's Human Capital Investments, Amacom.
2. Gene Pease, Boyce Byerly and Jac Fitz-enz, Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset, John Wiley & Sons
REFERENCE BOOK:
1.The New HR Analytics: Predicting the Economic Value of Your Companys Human Capital Investments: Predicting the Economic Value of Your Company's Human Capital Investments Hardcover – Import, 1 Jun 2010, Jacfitz-Enz

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		**L**	**T**	**P**	**Credits**
Course Code : BUS203	Course Name: **CORE PYTHON PROGRAMMING**		3	0	0	3

Course Description:

Python is a language with a simple syntax, and a powerful set of libraries. It is an interpreted language, with a rich programming environment, including a robust debugger and profiler. While it is easy for beginners to learn, it is widely used in many scientific areas for data exploration. This course is an introduction to the Python programming language for students without prior programming experience. We cover data types, control flow, object-oriented programming.

Course Learning Outcomes:

After successful completion of the course, students will be able to,
1. Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python
2. Express different Decision-Making statements and Functions
3. Interpret Object oriented programming in Python
4. Summarize different File handling operations
5. Create and execute Python programs

Prerequisite:

Basic understanding of Computer Programming Terminologies

Course Content		
Unit No	Description	Hrs
1	**Introduction and Conditional Statements** History, Features, setting up path, Working with Python, Basic Syntax, Variable and Data, Types, Operator.	6
2	**Looping and Control Statements** If, If- else, Nested if-else, For, While, Nested loops, Break, Continue, Pass	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

3	**String Manipulation and Lists** Accessing Strings, Basic Operations, String slices, Function and Methods, accessing list, Operations, Working with lists, Function and Methods	6
4	**Tuple and Dictionaries** Accessing tuples, Operations, Working, Functions and Methods, accessing values in dictionaries, Working with dictionaries, Properties, Functions	6
5	**Functions and Modules** Calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables, Importing module, Math module, Random module, Packages, Composition	6
6	**Input-Output and Exception Handling** Printing on screen, Reading data from keyboard, Opening and closing file, Reading and writing files, Functions, Exception, Exception Handling, Except clause, Try, finally clause , User Defined Exceptions	6

References -
Text Books:
R. Nageswara Rao, Core Python Programming, second edition, Dreamtech Press, ISBN: 9789386052308, 938605230X
Reference Books:
Ashok Namdev Kamthane, Amit Ashok Kamthane, Programming and Problem Solving with Python, Edition: 1, 2017, Mcgraw Hill, SBN: 9789387067578, 9387067572.

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		L	T	P	Credits
Course Code : BUS204	Course Name: **R PROGRAMMING**		3	0	0	3

Course Description:

This course will teach students how to develop workflows going from raw data to graphics and statistical analysis, using the programming language and statistical environment R. Over the course of the semester, students will learn the skills to write scripts to automate data formatting and analysis, making their studies replicable.

Course Learning Outcomes:

After successful completion of the course, students will be able to,

1. Access online resources for R and import new function packages into the R workspace
2. Import, review, manipulate and summarize data-☐sets in R
3. Explore data-☐setsto create testable hypotheses and identify appropriate statistical tests
4. Apply appropriate statistical tests using R
5. Create and edit visualizations with R

Prerequisite:

Basic understanding of Computer Programming Terminologies

Course Content

Unit No	Description	Hrs
1	**Introduction to the R language –** SAS versus R - R, S, and S-plus - Obtaining and managing R - Objects - types of objects, classes, creating and accessing objects - Arithmetic and matrix operations - Introduction to function	6
2	**Working with R –** Reading and writing data - R libraries - Functions and R programming - the if statement - looping: for, repeat, while - writing functions -function arguments and options	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

3	**Graphics –** Basic plotting - Manipulating the plotting window - Advanced plotting using lattice library - Saving plots	6
4	**Standard statistical models in R –** Model formulae and model options - Output and extraction from fitted models – Models considered: Linear regression: lm() , Logistic regression: glm() , Linear mixed models: lme()	6
5	**Advanced R –** Data management (importing, sub setting, merging, new variables, missing data etc.) Plotting– Loops and functions-Migration SAS to R– Plotting and Graphics in R – Writing R functions,	6
6	**Optimizing R code –** Bioconductor, analysis of gene expression and genomics data. More on linear models – Multivariate analysis, Cluster analysis, dimension reduction methods (PCA).	6

References -
Text Books:
1. Peter Dalgaard. Introductory Statistics with R (Paperback) 1st Edition Springer-Verlag New York, Inc. ISBN 0-387-95475-9
2. W. N. Venables and B. D. Ripley. 2002. Modern Applied Statistics with S. 4th Edition. Springer. ISBN 0-387-95457-0

Reference Books:
1. Andreas Krause, Melvin Olson. 2005. The Basics of S-PLUS. 4th edition. Springer-Verlag, New York. ISBN 0-387-26109-5
2. Jose Pinheiro, Douglas Bates. 2000. Mixed-effects models in S and S-PLUS SpringerVerlag, Berlin. ISBN 0-387-98957-9

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		**L**	**T**	**P**	**Credits**
Course Code : BUS205	Course Name: **FINANCIAL ANALYTICS**		**3**	**0**	**0**	**3**

Course Description:

Financial analytics course blends easy-to-use statistical tools with complex machine learning tools and algorithms to equip the participants with the requisite skill set in analyzing data. This course is full of hands-on exercises to get an in-depth understanding of advanced techniques that can help the participant to solve complex financial problems in an easy and structured way. Financial analytics helps in combining internal and external financial information by using social media and big data to provide predictive insights. Whether it is with respect to stock market prediction or customer profitability, finance analytics enables to provide a direction in predicting all.

Course Learning Outcomes:

After successful completion of the course, students will be able to,
1. Explore, Analyse stock market using Analytics Tools
2. Apply quantitative methods of financial decisions in businesses
3. Evaluate opportunities in financial /investments decisions.
4. Analyse real-life proposals for financial investment in a meaningful manner

Prerequisite:

Working knowledge of MS Excel and any statistical package is desirable.

Course Content		
Unit No	**Description**	**Hrs**
1	**Entities in Stock Market & their roles:** Stock Exchanges (For retail as well as Institutions- CCIL), Participants & their roles- Retail, Institutions Regulators & their roles, Intermediaries- Brokers, Depositories, Clearing corporations of exchanges etc	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

2	**Basics of Market and Product Structure:** Primary market and Secondary market, IPO process, Private Placements for Stocks as well as Bonds, Primary market for Government Securities (G Secs as well as T Bills)- RBI auction process for Government Securities and Secondary market trading for Government Securities, Spot/Cash Market, Derivatives Market, Options payoff graphs	6
3	**Introduction to Securities/Asset classes:** Basic concepts of all asset classes: Equities, Bonds, Currency, Commodities, Money Market Securities	6
4	**Equity and Equity Derivatives:** Meaning of Equity/ Stocks, Primary market and Secondary market i.e. Spot/ Cash market of Equity, Equity Derivatives- Concept, Terminologies, Trading parameters/ Specifications	6
5	**Bonds:** Bonds- concept and classification, Government Securities market, Corporate Bonds market, Money market Securities, Primary market struture for both G-Sec as well as Corporate bonds, Secondary market structure for both G-Sec as well as Corporate Bonds, Terminologies-Coupon, Price, Yield and relationship between price and yield, Yield calculation methods- Current yield, Yield to maturity	6
6	**Currency/Forex market:** Introduction to Fx market, Currency pairs - FCYINR and FCYFCY, Spot and derivative markets of Currency	6

References -
Text Book:

1. M Y Khan and P H Jain, "Management accounting, McGraw hill, 5th edition

Reference Book:

1. Palepu Healy and Bernard: Business analysis & valuation, South western college publication, 2nd edition .

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		L	T	P	Credits
Course Code : BUS206	Course Name: **DATA MINING**		3	0	0	3

Course Description:

Data Mining is a dynamic and fast growing field at the interface of Statistics and Computer Science. The emergence of massive datasets containing millions or even billions of observations provides the primary impetus for the field. Such datasets arise, for instance, in large-scale retailing, telecommunications, astronomy, computational biology, and internet commerce. The analysis of data on this scale presents exciting new computational and statistical challenges. This course will provide an overview of current research in data mining

Course Learning Outcomes:

After successful completion of the course, students will be able to,

1. Discuss basic concept of data mining
2. Identify appropriate data mining algorithms to solve real world problems
3. Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
4. Describe complex data types with respect to spatial and web mining.

Prerequisite:

Basic understanding of statistical techniques.

Course Content

Unit No	Description	Hrs
1	**Introduction** Data Mining, Big Data, Data Science, Core Ideas in Data Mining- Classification, Prediction Association Rules and Recommendation Systems, Predictive Analytics, Data Reduction and Dimension Reduction, Data Exploration and Visualization, Supervised and Unsupervised Learning	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

2	**Data mining process** The Steps in Data Mining, Preliminary Steps -Organization of Datasets, Predicting Home Values in the West Roxbury Neighborhood, Loading and Looking at the Data in R Sampling from a Database, Oversampling Rare Events in Classification Tasks, Preprocessing and Cleaning the Data, Predictive Power and Overfitting, Creation and Use of Data Partitions.	6
3	**Data Visualization** Uses of Data Visualization, Basic Charts: Bar Charts, Line Graphs, and Scatter Plots, Distribution Plots: Boxplots and Histograms, Heatmaps: Visualizing Correlations and Missing Values, Multidimensional Visualization, Adding Variables: Color, Size, Shape, Multiple Panels, and Animation, Manipulations: Rescaling, Aggregation and Hierarchies, Zooming, Filtering, Reference: Trend Lines and Labels, Scaling up to Large Datasets, Multivariate Plot: Parallel Coordinates Plot, Interactive Visualization, Specialized Visualizations, Visualizing Networked Data, Visualizing Hierarchical Data: Tree maps, Visualizing Geographical Data: Map Charts.	6
4	**Dimension Reduction** Practical Considerations, Data Summaries-Summary Statistics, Aggregation and Pivot Tables, Correlation Analysis, Reducing the Number of Categories in Categorical Variables Converting a Categorical Variable to a Numerical Variable, Principal Components Analysis, Normalizing the Data, Using Principal Components for Classification and Prediction, Dimension Reduction Using Regression Models, Dimension Reduction Using Classification and Regression Trees	6
5	**Prediction and classification methods** Multiple Linear Regression, k-Nearest Neighbors (kNN), The Naive Bayes Classifier, Classification and Regression Trees, Logistic Regression.	6
6	**Cluster Analysis** Introduction, Measuring Distance Between Two Records, Euclidean Distance, Normalizing Numerical Measurements, Other Distance Measures for Numerical Data, Distance Measures for Categorical Data, Distance Measures for Mixed Data, Measuring Distance Between Two Clusters Minimum Distance, Maximum Distance.	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

References -
Text Book:
Galit Shmueli Peter C. Bruce Inbal Yahav Nitin R. Patel Kenneth C. Lichtendahl, Jr., Data mining for business analytics Concepts, Techniques, and Applications in R, Wiley.

Reference Book:
1. Jaiwei Ham and MichelineKamber, Data Mining concepts and techniques, Kauffmann Publishers 2006

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

Class:- **Year M.B.A.**	Semester-III		**L**	**T**	**P**	**Credits**
Course Code : BUS207	Course Name: **BUSINESS INTELLIGENCE**		**3**	**0**	**0**	**3**

Course Description:

This course provides an introduction to the concepts of business intelligence (BI) as components and functionality of information systems. It explores how business problems can be solved effectively by using operational data to create data warehouses, and then applying data mining tools and analytics to gain new insights into organizational operations. Detailed discussion of the analysis, design and implementation of systems for BI, including: the differences between types of reporting and analytics, enterprise data warehousing, data management systems, decision support systems, knowledge management systems, big data and data/text mining.

Course Learning Outcomes:

After successful completion of the course, students will be able to,
1. Explain role of mathematical models in business intelligence
2. Describe link between strategy and business analytics
3. Apply various statistical methods on available data
4. Design physical database
5. Develop Business Intelligence System

Prerequisite:
Basic understanding of statistical techniques.

Course Content

Unit No	Description	Hrs
1	**Introduction** Business Intelligence: definition, concept and need for Business Intelligence, Case studies BI Basics: Data, information and knowledge, Role of Mathematical models	6

K.E. Society's
Rajarambapu Institute of Technology, Sakharale
(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)
Syllabus (Theory Courses)
To be implemented from **2019-20**
Department of Management Studies (MBA)

2	**Analytics Strategy** Business Analytics at the strategic level: Strategy and BA, Link between strategy and Business Analytics, BA supporting strategy at functional level, dialogue between strategy and BA functions, information as strategic resource.	6
3	**Data Mining** Business Analytics at Analytical level : Statistical data mining, descriptive Statistical methods, lists, reports, automated reports, hypothesis driven methods, data mining with target variables, cluster analysis, Discriminate analysis, logistic regression, principal component analysis.	6
4	**Data Warehousing** Business Analytics at Data Warehouse Level, Designing physical database, Deploying and supporting DW/BI system	6
5	**Business Intelligence** Business Intelligence Architectures: Cycle of Business Intelligence Analysis, Development of Business Intelligence System, spread sheets, concept of dashboard, CLAP, SQA, decision engineering. BI Tools: Concept of dashboard.	6
6	**BI and Data Mining Applications** Applications in various sectors – Retailing, CRM, Banking, Stock Pricing, Production, Crime, Genetics, Medical, Pharmaceutical	6

References -
Text Book:
1. Turban, Sharda, Decision Support and Business Intelligence Systems, Delen, Pearson, 9th Edition, 2014
References:
1. Olivia Parr Rud, Business Intelligence Success Factors Tools for aligning your business in the global economy,John Wiley and Sons, 2009
2. Steve Williams and Nancy Williams, The Profit impact of Business Intelligence, Morgan Kauffman Publishers! Elsevier, 2007