Proposed Diploma Course in Business Analytics

Department of Management
&
Department of Computer Science

Course Details

Course Title	Business Analytics
Course Type	Diploma
Credit Value of course	48 credits
Duration of Course	1 Year
Total Fees	Rs 15000/-
Total Students	30
Eligibility Criteria	12th Pass With minimum 50% marks.

Course Objective

- Enable the learners to recognize, understand and apply the language, theory and models of the field of business analytics.
- Foster an ability to critically analyze, synthesize and solve complex unstructured business problems.
- Enable learners an aptitude for business management, innovation and entrepreneurial action.
- Encourage the sharing of experiences to enhance the benefits of collaborative learning an
- This course stresses the factors that impact the performance of business decision-makers and the data analysis and management methods that have value to them.

Course Format

Semester 1	July to December
Examination	December
Semester 2	January to June
Examination	June
Internship/ Major Project	May – June
Total Number of Paper Semester 1	4
Total Papers Semester II	3 Paper and 1 Major Project
Marks per Paper	100 marks
Internal Marks	40 marks
	Includes Presentation, Attendance, Written-test, Case Study Assessment and lab Assignments

Semester I Details

Paper Code	Paper Title	Credit Value
DBA 101	Management Concepts & Organizational Behaviour	6 credit
DBA 102	Business Statistics & Analysis	6 credit
DBA 103	Introduction to Business Analytics & Predictive Modeling	6 credits
DBA 104	Programming using 'R'	6 Credits
	Total Credit	**24 credit**

Semester II Details

Paper Code	Paper Title	Credit Value
DBA 201	Marketing Management	6 credit
DBA 202	Data Visualization And Descriptive Analysis	6 credit
DBA 203	Programming Using Python	6 credits
DBA 204	Major Project Work	6 Credits
	Total Credit	**24 credit**

SEMESTER I

DBA 101– Management Concepts & Organizational Behaviour

Course Credit: 6 credits

Course Objectives:

- To provide basic understandings of management processes and behavioural aspects of organizations.
- To apply the concepts of management and organizational behaviors in real world situations.
- Familiarizing the students with the contemporary issues in management and with techniques to handle them.
- Developing managerial and interpersonal skills among students needed for their professional growth.

UNIT I

- Definition and Meaning of Management, Functions and Responsibilities of Management, Role of Manager, Principles of Management, School & Thoughts of Management, Functional Areas of Management: Production & Operations management, HRM, Financial Management & Marketing Management, E-Business. Case Studies

UNIT II

- Planning: Process, types and Significance, Planning vs. Forecasting, Objective, Strategies and Policies, MBO, Decision making: Process & Significance. Direction: Principles & Techniques, Motivation: Types & Significance, Maslow's Need Hierarchy, Theory X & Y of Motivation, Leadership: Styles and Importance. Case Studies

Unit III

- Concept of Organisational Behaviour, Contributing Disciplines to Organisational Behaviour; Background/ Historical perspective and Framework of OB, Challenges to the field of OB in Global and Digital Era.

Unit IV

- Individual Behaviour, Personality, Perception- Perceptual selectivity, Perceptual organisation, Social Perception and Impression Management, Attitude and Values, Learning and Re-enforcement.

Unit V

- International Dimensions of Organisational Behaviour, Equal Employment Opportunities, Orgnisational Culture, Managing Cultural Diversity, Learning Organisation

DBA 102- Business Statistics & Analysis

Course Credit: 6 credits

Course Objective

- Understand the fundamentals of business statistics.
- Understand the importance of measures of Descriptive statistics and their implication on Business performance.
- Understand the concept of Correlation & Regression and its usage in various business applications.
- Understand the practical application of Descriptive and Inferential Statistics concepts and their uses for Business Analytics.

Unit I

Descriptive Statistics Meaning, Scope, types, functions and limitations of statistics, Measures of Central tendency – Mean, Median, Mode.

Unit II

Measures of Dispersion – Quartiles,– Range, Inter quartile range, Mean deviation, Standard deviation, Variance, Coefficient of Variation, Skewness.

Unit III:

Correlation & Regression Analysis, Correlation Analysis: Rank Method & Karl Pearson's Coefficient of Correlation and Properties of Correlation. Regression Analysis: Fitting of a Regression Line (Univariate Regression analysis) and Interpretation of Results, Properties of Regression Coefficients and Relationship between Regression and Correlation.

Unit IV

Time series analysis: Concept, Additive and Multiplicative models, Components of time series, Trend analysis: Least Square method – Linear and Non– Linear equations, Applications in business decision–making.

Unit V

Hypothesis Testing – Hypothesis Testing: Null and Alternative Hypotheses;TypeIandTypeIIerrors;TestingofHypothesis:LargeSampleTests, Small Sample test, (t, F, Z Test and Chi Square Test)

DBA -103 - INTRODUCTION TO BUSINESS ANALYTICS AND PREDICTIVE MODILITY

Course Credit: 2

Course Objective:

- To think critically in making decisions based on data and deep analytics.
- Course Outcomes:
- Use technical skills in predicative and prescriptive modeling to support business decision-making.
- To translate data into clear and actionable insights.

Unit 1

Introduction to Business Analytics – Evolution, Architecture, Benefits and Future; Overview of analytics process – problem definition, data profiling, modeling, evaluation of results; Data profiling – Data preparation, exploration and visualization.

Unit-II

Data Modeling: Relational data modeling – Logical, Physical and Conceptual data models, Need for multidimensional data models in present business context; Star, Snowflake and Fact Constellation Schemas; OLTP – Introduction, Characteristics, Models; OLAP – Introduction, benefits and architecture, ETL concepts, Data warehousing

Unit III

Descriptive analytics: KPI – characteristics, process of defining KPIs, KPI based balanced scorecard; Dashboards – Features of good dashboards, dashboard design; Reports, Querying

Unit-IV:

Optimizing business functions using Business Analytics applications Marketing and retail analytics, Financial analytics HR analytics Web analytics Big data analytics Unstructured analytics

Unit-V:

Case Studies

DBA 104
PROGRAMMING USING R

Course Credit: 2

Course Objectives

- To provide basic knowledge of R Syntax
- To provide practical experience of Data analysis using R
- To provide practical in sight of using R to calculate descriptive statistics

- Learn the basics of R Syntax
- Learn how to organize and modify data in R using data frame sand dplyr
- Learn how to prepare data for analysis in R using dplyr and tidyr.
- Learn the basics of how to create visualizations using the popular R package gg plot2
- Learn the basics of aggregate functions in R with dplyr, which let us calculate quantities that describe groups of data
- Learn the basics of joining tables together in R with dplyr
- Learn to use R or manually calculate the mean, median, and mode of real-world datasets
- Learn how to quantify the spread of the data set by calculating the variance and standard deviation in R
- Learn how to calculate three important descriptive statistics- Quartiles, Quantiles, and Interquartile range that describe the spread of the data
- Learn about the statistics used to run hypothesis tests and use R to run different t-tests that compared is dtributions.

SEMESTER II

DBA -201 -MARKETINGMANAGEMENT

COURSECREDIT: 2

Course Objectives

- Assess market opportunities by analyzing customers, competitors, collaborators, context, and the strengths and weaknesses of a company.
- Understand consumers' requirements and their behaviors.
- Develop effective marketing strategies to achieve organizational objectives.
- Communicate and defend your recommendations and critically examine and build upon the recommendations of your classmates both quantitatively and qualitatively.
- Develop the understanding the current global and digital aspect of marketing.

Unit 1

Introduction: Nature and scope of marketing, Various marketing orientations, Need, Want, Demand, Elements of Marketing mix, customer value and the value delivery process. Understanding Consumer Behavior: Buying motives, factors influencing buying behavior, buying habits, stages in consumer buying decision process, types of consumer buying decisions.

Unit2

Market segmentation, Targeting and Positioning: Meaning, Factors influencing segmentation, Market Aggregation, Basis for segmentation, Segmentation of Consumer. Targeting: Meaning, Basis for identifying target customers, Target Market Strategies. Positioning: Meaning, product differentiation strategies, tasks involved in positioning. Branding: Concept of Branding, Brand Types, Brand equity, Branding Positioning.

Unit 3

Product Decisions: Concept, product hierarchy, new product development, diffusion process, Product Life cycle, Product mix strategies. Packaging / Labeling: Packaging as a marketing tool, requirementofgoodpackaging,Roleoflabelinginpackaging.PricingDecisions:Pricingconceptsforestablishing value, Pricing Strategies-Value based, Cost based, Market based, Competitor based, New product pricing- Price Skimming & Penetration pricing

Unit4

Place Decision: Meaning, Purpose, Channel alternatives, Factors affecting channel choice, ChanneldesignandChannelmanagementdecisions,Channelconflict,Retailing&TypesofRetailers.Advertising: Advertising Objectives, Advertising Budget, Advertising Copy, AIDA model, Public Relation: Meaning, Objectives, Types, and Functions of Public Relations. Sales Promotion: SalesPromotionMix,Kindsofpromotion,ToolsandTechniquesofsalespromotion,Push-pullstrategiesof promotion, Personal Selling: Concept, Features, Functions, Steps/process involved in Personal Selling, Direct Marketing: Meaning, Features, Functions, Growth and benefits of direct marketing ,different forms.

Unit5

CRM:Meaning,RelationshipMarketingVs.RelationshipManagement,TypesofRelationshipManagement,SignificanceofCustomerRelationshipManagement.GlobalMarketing:currentscenario, Global Marketing environment, Entry strategies, Global P's of Marketing., Recent trends and Innovation in Marketing-Green Marketing, Agile Marketing

DBA- 202 – DATA VISUALIZATION AND DISCRIPTIVE ANALYSIS

COURSECREDIT: 2

Objectives of the Course:

- To describe the concept of Data Mining & its attributes.

Course Outcome:

- CO1: Application of the concept of data mining components and techniques in designing data mining systems.
- CO2: Solving basic Statistical calculations on Data
- CO4: Describing the aspect of data pre-processing
- CO5: To explain the concept of Data Cleaning & Integration

UNIT-I

Introduction to Data Mining: basic concepts in data mining, machine learning, scientific methods, theoretical basis of data mining process, data measurement, exploratory data analysis, data visualization, measurement of data similarity and dissimilarity.

Unit-II

Data Pre-processing: overview, data cleaning, data integration, data reduction, data transformation and data discretisation. Data Warehouse and Online Analytics Processing: data warehouse, data cube and OLAP, data warehouse design and usage; Data Cube Technology- data cube computation, and its methods.

Unit-III:

Pattern Discovery using Data Mining: Association rule mining, Aprori Algorithm, Improved Efficiency of Aprori Algorithm, Principles Predictive modeling- classification and regression, model fitting as optimization, evaluation of predictive performance, over fitting, regularization; clustering and pattern detection. Clustering – Hierarchical and K means, cluster evaluation, cluster profiling,Time series analysis.

Unit-IV:

Basics of Data Management with "R": Learn the basics of R Syntax . Learn how to organize and modify data in R using data frames and dplyr .Learn how to prepare data for analysis in R using dplyr and tidyr, create visualizations using the popular R package ggplot2 , Learn the basics of aggregate functions in R with dplyr, which let us calculate quantities that describe groups of data

Unit V:

Learn the basics of joining tables together in R with dplyr. Learn to use R or manually calculate the mean, median, and mode of real-world datasets . Learn how to quantify the spread of the dataset by calculating the variance and standard deviation in R . Learn how to calculate three important descriptive statistics- Quartiles, Quantiles, and Interquartile range that describe the spread of the data . Learn about the statistics used to run hypothesis tests and use R to run different t-tests that compare distributions.

DBA -203 - PROGRAMMING USING PYTHON

Course Credit: 2

Course Objective:

- Understand fundamentals of Python and Juypter Notebook.
- Understand the data structure, data frames and Pandas Idioms
- Knowledge of Natural Language Processing and learning algorithm for machine learning
- Understanding of Image and Pattern Recognition

Unit 1:

Introduction of Python, Juypter Notebook, Python Functions, Python Types and Sequences, Python More on Strings, Reading and Writing CSV files

Unit 2:

Advanced Python Objects, map(), Numpy, Pandas, Visualization Data Matplotlib, Bar Charts, Line Charts, Scatterplots

Unit 3:

The Series Data Structure, Querying a Series, The Data Frame Data Structure, Data Frame Indexing and Loading, Querying a Data Frame, Indexing Data frames, Merging Data frames

Unit 4:

Data Aggregation and Group Operations, Time Series, Date and Time Data Types and Tools, Time Series Basics, Date Ranges, Frequencies, and Shifting, Time Zone Handling, Periods and Period Arithmetic, Resampling and Frequency Conversion, Time Series Plotting, Moving Window Functions

Unit 5:

Natural Language Processing, Image Processing, Machine Learning K Nearest Neighbors Algorithm for Classification, Clustering

DBA 204 – Major PROJECT

Course Credit: 2

COURSE OUTCOME

- To gain knowledge of issues challenge of the industry
- Learn to prepare report on the application of emerging technologies in the selected industry
- To identify the issues challenge of the industry

- To able to prepare report on the application of emerging technologies in the selected industry
- In second semester, the students are required to take one industry as per his/her interest for analysis and preparing a project report. Preference should be given on the application of emerging technologies in the selected industry. It may consists of Fintech, Block chain, Financial Services, Data Science, Social Entrepreneurship or any other suitable area of interest. The report will be prepared individually. The report will be evaluated by one external examiner appointed by university.