# III SEMESTER ELECTIVES SYSTEMS

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| **ES-301** | **Data Mining for Business Decisions** | **100** | **4** | **0** | **0** | **3** |

**Course Objective**: A student will be able to apply Data mining techniques for quicker and better decisions. Whenever there is a need for data mining helps.

## Unit I:

Introduction to Data Mining: Introduction-- Scope of Data Mining-- What is Data Mining-- How does Data Mining Works-- Predictive Modeling-- Data Mining and Data Warehousing-- Architecture for Data Mining: Profitable Applications-- Data Mining Tools:

## Unit II:

Business Intelligence: Introduction, Business Intelligence-- Business Intelligence tools-- Business Intelligence Infrastructure-- Business Intelligence Applications-- BI versus Data Warehouse--BI versus Data Mining-- Future of BI. Data Preprocessing: Introduction-- Data Preprocessing Overview-- Data Cleaning-- Data Integration and Transformation-- Data Reduction-- Discretization and Concept Hierarchy Generation.

## Unit III:

Data Mining Techniques An Overview: Introduction-- Data Mining-- Data Mining Versus Database Management System-- Data Mining Techniques- Association rules— Classification—Regression—Clustering-- Neural networks. Clustering—Introduction— Clustering-- Cluster Analysis-- Clustering Methods- K means-- Hierarchical clustering-- Agglomerative clustering-- Divisive clustering-- clustering and segmentation software-- evaluating clusters.

## Unit IV:

Web Mining—Introduction—Terminologies-- Categories of Web Mining – Web Content Mining-- Web Structure Mining-- Web Usage Mining-- Applications of Web Mining and Agent based and Data base approaches-- Web mining Software.

## Unit V:

Applications of Data mining: Introduction-- Business Applications Using Data Mining- Risk management and targeted marketing-- Customer profiles and feature construction-- Medical applications (diabetic screening)-- Scientific Applications using Data Mining-- Other Applications.

## References:

1. **Introduction to data mining** by Tan, Steinbach & Kumar.
2. Data Mining: Concepts and Techniques, Third Edition by Han, Kamber & Pei.
3. Data Mining and Analysis Fundamental Concepts and Algorithms by Zaki & Meira.
4. **Data Mining: The Textbook** by Aggarwal.
5. Data Mining for Business Intelligence by Galit Shmueli,Nitin R.Patel,PeterC.Bruce

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| **ES-302** | **Managing Software Projects** | **100** | **4** | **0** | **0** | **3** |

## OBJECTIVES:

* + To study how to plan and manage projects at each stage of the software development life cycle (SDLC)
  + To train software project managers and other individuals involved in software project planning and tracking and oversight in the implementation of the software project management process.
  + To understand successful software projects that support organization's strategic goals

**UNIT -I: Introduction**

Project, Management, Software Project Management activities, Challenges in software projects, Stakeholders, Objectives & goals

Project Planning: Step-wise planning, Project Scope, Project Products & deliverables, Project activities, Effort estimation, Infrastructure

**UNIT -II: Project Approach**

Lifecycle models, Choosing Technology, Prototyping

Iterative & incremental Process Framework: Lifecycle phases, Process Artifacts, Process workflows (Book 2)

**UNIT -III: Effort estimation & activity Planning**

Estimation techniques, Function Point analysis, SLOC, COCOMO, Use case- based estimation , Activity Identification Approaches, Network planning models, Critical path analysis

**UNIT -IV: Risk Management**

Risk categories, Identification, Assessment, Planning and management, PERT technique, Monte Carlo approach

**UNIT -V: Project Monitoring & Control, Resource Allocation**

Creating a framework for monitoring & control, Progress monitoring, Cost monitoring, Earned value Analysis, Defects Tracking, Issues Tracking, Status reports, Types of Resources, Identifying resource requirements, Resource scheduling, Planning Quality, Defining Quality - ISO 9016, Quality Measures, Quantitative Quality Management Planning, Product Quality & Process Quality Metrics, Statistical Process Control Capability Maturity Model

**OUTCOMES:**

* + To match organizational needs to the most effective software development model
  + To understand the basic concepts and issues of software project management
  + To effectively Planning the software projects
  + To implement the project plans through managing people, communications and change
  + To select and employ mechanisms for tracking the software projects
  + To conduct activities necessary to successfully complete and close the Software projects
  + To develop the skills for tracking and controlling software deliverables
  + To create project plans that address real-world management challenges

**TEXT BOOKS:**

1. Software Project Management, Bob Hughes & Mike Cotterell, TATA Mcgraw-Hill
2. Software Project Management, Walker Royce: Pearson Education, 2005.
3. Software Project Management in practice, Pankaj Jalote, Pearson.

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| **ES-303** | **WEB DESINING** | **100** | **4** | **0** | **0** | **3** |

**UNIT-I:**

Web Fundamentals – Introduction To The Web, History of the Web, Protocols Governing the Web, Creating Websites for Individuals and the Corporate World, Web Applications, Writing Web Projects, Identification of Objects, Target User, Web Team, Planning and Process Development, Web Architecture, Major Issues in the Web Solutions Development, Web Servers (Apache Web Server), Web Browsers, Internet Standards, TCP/IP Protocol Suite, IP Addresses, MIME, Cyber Laws.

**UNIT-II:**

Hyper Text Transfer Protocol (HTTP): Introduction - Web Server and Clients, Resources, URL and its Anatomy – Examples, Message Format, Persistent and Non-Persistent Connections, Web Caching, Proxy. Java Network Programming- Java and the Net, Java Networking Classes and Interfaces, Looking up Internet Address, Client/Server Programs, Socket Programming, E-mail Client.(lab sessions to be conducted)

**UNIT-III:**

Hyper Text Markup Language (HTML): Introduction, Structure, Text, Lists, Links, Images, Tables, Forms, Frames, Images, and Meta Tags. (lab sessions to be conducted)

**UNIT-IV:**

Cascading Style Sheets (CSS) Introduction, Advantages, Color, Text, Boxes, Lists, Tables and Forms, Layout, Images, HTML5 Layout. (Lab Sessions to be conducted)

**UNIT-V:**

JavaScript Introduction, Variables, Literals, Operators, Control Structure, Conditional Statements, Arrays, Functions, Objects, JavaScript and HTML DOM, Advanced JavaScript and HTML Forms (Lab sessions to be conducted).

(Lab Sessions to be conducted wherever it is required)

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

**References :**

Uttam K Roy: ―Web Technologies‖ –– Oxford University Press, 2010.

Jon Duckett: ―HTML & CSS: Design and Build Websites‖ – John Wiley & Sons, 2014.

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| **ES-304** | **BUSINESS ANALYTICS** | **100** | **4** | **0** | **0** | **3** |

Course Objective: The course is designed to gain an understanding of how managers use business analytics to formulate and solve business problems and to support managerial decision making. The course familiarizes the students with the processes needed to develop, report, and analyze business data.

**Unit I**

Introduction to Business Analytics: Evolution of Business analytics, scope, Data for Business Analytics, Models in Business Analytics, problem solving with business analytics- Types of data, Integrating Analytics with business, Business Analytics for Competitive Advantage, Descriptive, Predictive, and Prescriptive Analytics, Dashboards Business Analytics Process Cycle.

## Unit II

Analytics on Spreadsheets: Basic Excel, Excel Formulas, Excel Functions, Data Queries. Descriptive Analytics: Descriptive Statistical measures - Populations and samples, Statistical notations, Measures of Location, Measures of Dispersion, and Measures of Association. Statistical Inference: Hypothesis testing, one-Sample Test, Two-Sample Test, Two tailed Hypothesis for mean, ANOVA. Predictive Analytics: Simple Linear regression, Multiple Linear regression, Residual Analysis, Building regression models, Regression with categorical Independant variables – CASE STUDIES.

**Unit III**

Machine Learning, Supervised Learning and Unsupervised Learning, Clustering & Segmentation, Affinity/ Association Analysis, Data Reduction, Visual Analytics and Data Visualization Prescriptive Analytics: Building Linear Optimization models, Implementing Linear Optimization models on spreadsheets, Solving Linear Optimization models- CASE STUDIES.

## Unit IV

Marketing Analytics, Models and metrics- Market Insight – Market data sources, sizing, PESTLE trend analysis, and porter five forces analysis - Market basket Analysis, Text Analytics, Spreadsheet Modelling - Sales Analytics: E Commerce sales mode, sales metrics, profitability metrics and support metrics.

## Unit V

Introduction to Big Data, Master Data Management. Data Mining on what kind of data, What kinds of patterns can be mined, Which technologies are used, Which kinds of applications are targeted, Major issues in Data Mining. Getting to know your Data: Data Objects and Attribute Types, Basic Statistical Descriptions of Data, Data Visualization, Measuring data Similarity and Dissimilarity.

## References:

1. Analytics at Work by Thomas H. Davenport, Jeanne G.Harris and Robert Morison, Harvard Business Press, 2010.
2. Getting Started with Business Analytics: Insightful Decision – Making by David Hardoon, Galit Shmueli, Chapman & Hall/CRC, 2013.
3. Business Intelligence: A Managerial Approach by Efraim Turban, Ramesh Sharda, Dursun Delen and Daid King, Pearson Publication, 2012.
4. Business Intelligence Making Decision through Data Analytics, Jerzy Surma, Business Expert Press, 2011.
5. Successful Business Intelligence: Secrets to Making BI a Killer App by Cindi Howson, Tata McGraw Hill Edition 2012.
6. R for Everyone: Advanced Analytics and Graphics, Jared Lander, Addison Wesley.