

DATA WAREHOUSING & MINING

BSBC 501

Objective: The objective of this course is to get students familiar with the data mining techniques, softwares and tools being used in Industries.

Expected Outcome: After completing this course, students will learn various tools and techniques which are prominent from Industrial point of view.

Instructions for Paper-Setter

The question paper will consist of five sections A, B, C, D and E. Section A, B, C and D will have two questions from the respective sections of the syllabus and will carry 10 marks each. Section E will have 10 short answer type conceptual questions, which will cover the entire syllabus uniformly and will carry 20 marks in all.

Instructions for Candidates

Candidates are required to attempt one question each from Sections A, B, C and D of the question paper and the entire Section E.

Use of non-programmable scientific calculator is allowed.

Internal Assessment-40 Marks
External Assessment-60 Marks

SECTION-A

Introduction to Data Warehousing, The need for data warehousing, Operational & Informational Data Stores, Data Warehouse Characteristics, Data Warehouse role & Structure, The cost of warehousing data.

Introduction to OLAP & OLTP, Difference between OLAP & OLTP. OLAP Operations

SECTION-B

Building a Data Warehouse, Design/Technical/Implementation Considerations, Data Pre-processing Overview. Data Summarization, Data Cleaning, Data Transformation, Concept Hierarchy, Structure. Patterns & Models, Artificial Intelligence (Overview).

Multidimensional Data Model, Schemas for Multidimensional Data (Star Schema, Snowflake Schema, Fact Constellation), Data Warehouse Architecture, Data Warehouse Design, OLAP

Three-tier Architecture, Indexing & Querying in OLAP, OLAM, Efficient Methods of Cube Computation, Discovery Driven Exploration of Data Cubes, Attributed-Oriented Induction.

SECTION -C

Association Rule Mining, Market Basket Analysis, Apriori Algorithm, Mining Multilevel Association Rules, From Association Mining to Correlation Analysis, Constraint Based Association Mining, Introduction to Classification, Classification by decision Tree, Attribute Selection Measure.

SECTION -D

Introduction to Prediction techniques, Accuracy of a Classifier, Cross-Validation, Bootstrap, Boosting, Bagging, Introduction to Clustering, Classification of Various Clustering Algorithms, Selecting and Using Right DM Technique, Selecting and Using Right DM Technique, Data Visualization.

Suggested Books:

1. Data Warehousing, Data Mining, and OLAP, Alex Berson, First Edition, Tata McGraw Hill
2. Data Mining Concepts & Techniques, Jiawei Han & Micheline Kamber, Second Edition, Morgan Kaufmann Publishers
3. Modern Data Warehousing, Mining & Visualization Core Concepts, George M Marakas, First Edition, Pearson Education
4. Data Warehousing, Architecture & Implementation, Hawkin, Prentice Hall
5. Data Mining: Modelling Data for Marketing, Risk and Customer Relationship Mgmt, Rud,Olivia, Paperback Edition
6. Data Mining Techniques, Berry,Michael, Third Edition
7. Data Mining, Data Warehousing and OLAP, Sharma, Gajendra, Second Edition
8. Data Mining with Case Studies, Gupta GK, Second Edition
9. Principles of Data Mining, Hand,David

PROGRAMMING IN JAVA

BSBC 502

Objective: The objective of this course is to let students understand basics of java programming language, development of programs and database connectivity.

Expected Outcome: Students will be able to create number of small applications in Java.

Instructions for Paper-Setter

The question paper will consist of five sections A, B, C, D and E. Section A, B, C and D will have two questions from the respective sections of the syllabus and will carry 10 marks each. Section E will have 10 short answer type conceptual questions, which will cover the entire syllabus uniformly and will carry 20 marks in all.

Instructions for Candidates

Candidates are required to attempt one question each from Sections A, B, C and D of the question paper and the entire Section E.

Use of non-programmable scientific calculator is allowed.

Internal Assessment-40 Marks

External Assessment-60 Marks

SECTION-A

FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING: - Introduction; Object-Oriented Paradigm; Basic Concepts of Object-Oriented Programming Benefits of OOP; Applications of OOP.

JAVA EVOLUTION: - Java History; Java Features; How Java Differs from C and C++; Java and Internet, Java and World Wide Web, Web Browsers; Hardware and Software Requirements; Java Support Systems, Java Environment

OVERVIEW OF JAVA LANGUAGE: - Introduction; Simple Java Program; Comments in java; An application with Two Classes; Java Program Structure; Java Tokens; Java Statements; Implementing a Java Program; Java Virtual Machine; Command Line Arguments; Programming Style.

CONSTANTS, VARIABLES AND DATA TYPES: - Introduction; Constants; Variables; Data Types; Variables, Constants, Standard Default Values.

OPERATORS AND EXPRESSIONS: - Introduction to Operators, Expressions; Operator Precedence; Mathematical Functions.

DECISION MAKING, BRANCHING AND LOOPING: - Decision making and Branching Statements, Looping Statements, Labeled loops, Jumping Statements

SECTION-B

CLASSES, OBJECTS AND METHODS: - Introduction; Defining a Class; Adding Variables; Adding Variables; Adding Methods; Creating Objects; Accessing Class Members; Constructors; Methods Overloading; Static Members; Nesting of Methods;

Inheritance: Extending a Class; Overriding Methods; Final Variables and Methods; Final Classes; Finalizer Methods; Abstract Methods and Classes; Visibility Control.

ARRAYS, STRINGS AND VECTORS: - Arrays; Jagged Arrays; Strings; String functions; Vectors; Wrapper Classes.

INTERFACES: Introduction; Defining Interfaces; Extending Interfaces; Implementing Interfaces; Accessing Interface Variables, Implementing Multiple Inheritance using Interfaces.

PACKAGES: Introduction; System Packages; Using System Packages; Naming Conventions; Creating Packages; Accessing a Package; Using a Package; Adding a Class to a Package; Hiding Classes.

SECTION-C

MANAGING ERRORS AND EXCEPTIONS: - Introduction; Types of Errors; Exceptions; Exception Handling using Try, Catch and Finally block; Throwing Our Own Exceptions; Using Exceptions for Debugging.

APPLET PROGRAMMING: - Introduction; How Applets Differ from Applications; Applet Life Cycle; Creating an Executable Applet; Passing Parameters to Applets; Aligning the Display; More about HTML Tags; Displaying Numerical Values; Getting Input from the User.

GRAPHICS PROGRAMMING: - Introduction; The Graphics Class; Lines and Rectangles; Circles and Ellipses; Drawing Arcs; Drawing Polygons; Line Graphs; Using Control Loops in Applets; Drawing Bar Charts.

SECTION-D

JAVA AWT: - Java AWT package Containers; Basic User Interface components; Layouts.

EVENT HANDLING: - Event delegation Approach; ActionListener; AdjustmentListener, MouseListener; MouseMotionListener; WindowListener; KeyListener; ItemListener

JAVA I/O HANDLING : I/O File Handling(Input Stream & Output Streams, File Input Stream & FileOutputStream, Data I/P and O/P Streams, File Class, Reader and Writer Streams, Random Access File).

Suggested Book:

1. Programming In Java, E-Balagurusami, Fourth Edition, Tata McGraw Hill
2. Mastering Java, Second Edition, BPB Publications
3. Advance Java, Ivan Bayross, BPB Publications

MANAGEMENT INFORMATION SYSTEM

BSBC 503

Objective: To familiarize students with different types of information systems used at different levels in organizations.

Expected Outcome: After the completion of this course students will be able to know the concepts and usage of different types of information systems at various managerial levels in the organizations.

Instructions for Paper-Setter

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective units of the syllabus and will carry 10 marks each. Section E will have 10 short answer type conceptual questions, which will cover the entire syllabus uniformly and will carry 20 marks in all.

Instructions for Candidates

Candidates are required to attempt one question each from Sections A, B, C and D of the question paper and the entire Section E.

Use of non-programmable scientific calculator is allowed.

Note: Suitable Case Studies must be incorporated while teaching for better understanding of the concepts.

Internal Assessment-40 Marks

External Assessment-60 Marks

SECTION- A

Introduction to Systems and Basic Systems Concepts, Elements (Components) of System, Characteristics of System, Types of Systems, System Approach. Information Systems: Definition & Characteristics, Types of Information, Role of Information in Decision - Making, Levels of Management. Introduction to different kinds of Information Systems: ESS, EIS, DSS, MIS, KWS, TPS, OAS and EDP.

SECTION- B

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Robert Anthony's Hierarchy of Management Activity, Structured Vs Unstructured Decisions, Formal Vs. Informal Systems, Pitfalls in MIS Development.

SECTION- C

Simon's Model of Decision – Making. DSS: Concept, Characteristics and Components, Gorry & Scott Morton Grid, Introduction to GDSS.

Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation.

SECTION- D

Functional MIS: A Study of Marketing, Personnel, Financial and Production MIS.

Suggested Books:

1. Management Information Systems, Goyal, D.P., Third Edition, Macmillan.
2. Management Information Systems, Oz, Effy, Thomson Press Indian Edition.
3. "Management Information Systems", Kanter, J., Third Edition, PHI.
4. "Management Information Systems", Davis, Gordon B. & Olson, M.H, Second Edition
5. "Information Systems for Modern Management", Murdick, Robert G., & Ross, Joel E., & Claggett, James R., Third Edition, PHI.
6. "Analysis, Design & Implementation of Information System", Lucas, Fourth Edition
7. Management Information Systems, Laudon K.C., Eleventh Edition, Pearson

WORKSHOP ON ADVANCED WEB DEVELOPMENT

BSBC 504

Objective: Objective of this course to learn modern web development technology using Microsoft ASP.Net and its various controls.

Expected Outcome: Students will develop a website in ASP.NET and make it online by the end of the semester.

Internal Assessment-60 Marks

External Assessment-40 Marks

SECTION-A

Introduction to ASP.NET:

.NET Framework (CLR, CLI, BCL), ASP.NET Basics, ASP.NET Page Structure, Page Life Cycle.

Controls:

HTML Server Controls, Web Server Controls, Web User Controls, Validation Controls, Custom Web Controls.

SECTION-B

State Management:

View State, Control State, Hidden Fields, Cookies, Query Strings, Application State, Session State, Profile Properties, Master Pages, Themes, Site Navigation.

Introduction to ADO.NET, Data Binding, Importing the SqlClient Namespace, Defining the Database Connection, Managing Content Using Grid View and Details View.

Security and User Authentication:

Basic Security Guidelines, Securing ASP.NET Applications, ASP.NET Memberships and Roles.

Working with Files and Email:

Writing and Reading Text Files, Uploading Files, Sending Email with ASP.NET.

Introduction to Web Services, Ajax, Silverlight.

Suggested Books:

1. Beginning ASP.NET 4: in C# and VB (Wrox), Imar Spaanjaars, Paperback Edition
2. Sams Teach Yourself ASP.NET 4 in 24 Hours, Complete Starter Kit Scott Mitchell
3. Microsoft ASP.NET 4 Step by Step (Microsoft), George Shepherd, Paperback Edition

Websites:

- www.asp.net
- www.w3schools.com
- www.learn-asp.net
- www.aspnetutorials.com

SOFTWARE LAB-VI (Programming in Java)

BSBC 505

Internal Assessment-60 Marks

External Assessment-40 Marks

Implementation of all the programs related to theory concepts studied in Programming in Java Paper [BSBC 502].

1. Operators and Mathematical Functions.
2. Decision making, Branching and Looping Statements.
3. Classes, Objects and Methods.
4. Arrays, Strings and Vectors.
5. Interfaces.
6. Packages.
7. Exception handling.
8. Applet Programming.
9. AWT.
10. Event Handling.
11. I/O Handling.

PROJECT WORK-I

Internal Assessment-60 Marks

External Assessment-40 Marks

BSBC 506

Starting of Major Project named as Minor Project (Feasibility Study, Requirement Analysis and Design)

Tools for Minor Projects

Frontend

VB or .NET (Either VB .Net or ASP .Net) or Java

Backend

Sql Server or Oracle

In Minor Projects 2 normal applications and one database related application is must

Note: The break up of marks for the External practical will be as under

Viva Voce 15 marks

System Development 25 marks