

KVR GOVT. COLLEGE FOR WOMEN (A), KURNOOL.

Re-Accredited by NAAC with Grade "A".

CHOICE BASED CREDIT SYSTEM (w.e.f. 2019-20).

B.Sc. Three-Year Degree Course (Semester Wise).

Syllabus for II Year – III Semester.

Part – II : COMPUTER SCIENCE.

Paper-III: OBJECT ORIENTED PROGRAMMING USING JAVA.

No. of hours per week: 04

Max Marks: 60

Unit-I

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING: Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOPS, Applications of OOP, Java Features: **OVERVIEW OF JAVA LANGUAGE:** Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **CONSTANTS, VARIABLES & DATA TYPES:** Introduction, Constants, variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values, **OPERATORS & EXPRESSIONS.**

Unit-II

DECISION MAKING & BRANCHING: Introduction, Decision making with if statement, Simple if statement, if-Else statement, Nesting of if- else statements, the else if ladder, Switch statement, the conditional operator. **LOOPING:** Introduction, The While statement, The do-while statement, The for statement, Jumps in loops.

CLASSES, OBJECTS & METHODS: Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method Overloading, Static members, Nesting of methods.

Unit-III

INHERITANCE: Extending a class, Overriding methods, Final variables and methods, Final classes, Abstract methods and classes.

ARRAYS, STRINGS: Arrays, One-dimensional arrays, Creating an Array, Two – dimensional arrays, Strings.

Unit –IV

INTERFACES: MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending Interfaces, implementing interfaces, Assessing interface variables.

PACKAGES: Introduction, Java API Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, using a Package.

MULTITHREADED PROGRAMMING: Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the ‘Runnable’ Interface.

Unit-V

MANAGING ERRORS AND EXCEPTIONS: Types of errors : Compile-time errors, Runtime Errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally Statement.

APPLET PROGRAMMING: local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, Running state, Idle or stopped state, Dead State, Display state.

REFERENCE BOOKS

1. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill.

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B.Sc. Three-Year Degree Course (Semester Wise).

Syllabus for II Year – III Semester.

Part – II: DATA SCIENCE.

Paper-DS-III: DATA MINING AND DATA ANALYSIS.

No. of hours per week: 04

Max Marks: 60

Unit-I

Data mining-KDD versus data mining, stages of the Data Mining Process- Task primitives, Data Mining Techniques-Data mining knowledge representation.

Unit-II

Data Mining query language – Integration of Data Mining System with a Data Warehouse – Issues, Data pre-processing – Data Cleaning.

Data transformation – Feature selection – Dimensionality reduction – Discretization and generating concept hierarchies- Mining frequent patterns association – correlation

Unit-III

Classification: Basic concepts, General Approach to solving a classification problem, Decision Tree Induction: Working of Decision Tree, building a decision tree, methods for expressing an attribute test conditions, measures for selecting the best split, Algorithm for decision tree induction. Bayesian Classification – Rule Based Classification – Classification by back propagation – Support Vector Machines – Associative Classification.

Unit-IV

Association Rules: Basic concepts, Market Basket Analysis: A motivating example- Frequent itemsets, closed itemsets and association rules- **Frequent itemset Mining Methods:** Apriori algorithm: Finding frequent itemsets by confined candidate generation-Generating association rules from frequent item sets- Improving the efficiency of apriori- A pattern: Growth approach for mining frequent itemsets.

Unit-V

Clustering techniques – Partitioning methods – K-means-Hierarchical Methods – Distance based agglomerative and divisible clustering –Density – Based Methods – Expectation maximization – Grid Based Methods – Model – Based Clustering – Methods –Constraint – Based Cluster Analysis – Outlier Analysis.

REFERENCE BOOKS

1. Hawei Hen Micneline kamber, "Data Mining: Concepts and Techniques", 3rd Edition, Morgan Kaufmann Publishers, 2011.
2. Data Mining – Arun K. Pujari
3. Web Data Mining and the Development of Knowledge-Based Decision Support Systems, G-Sreedhar
4. Adelchi Azzalini, Bruno Scapa "Data Analysis and Data mining", 2nd Edition, Oxford University Press Inc., 2012.
5. Alex Berson and Stephen J. Smith "Data Warehousing, Data Mining & OLAP", 10th Edition, TataMcGraw Hill Edition, 2007.
6. G.K. Gupta "Introduction to Data Mining with Case Studies 1st ", Edition ,Easter Economy Edition, PHI, 2006.

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Syllabus for II Year – IV Semester.

Part – II: COMPUTER SCIENCE

Paper-IV: DATA STRUCTURES

No. of hours per week : 04

Max Marks :60

Unit-I

Concept of Abstract Data Types (ADTs) - Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Data Structures.

Linear Lists – ADT, Arrays-ADT Array and Linked representations, Pointers.

Linked Lists: Single Linked List, Double Linked List, Circular Linked List, applications.

Unit-II

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues, Implementations and Applications.

Unit-III

Trees: Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications. Binary Search Trees (BST) – Definition, ADT, Operations and Implementations, BST Applications. Threaded Binary Trees, Heap trees.

Unit-IV

Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees, Dijkstra's Algorithm, Prim's Algorithm.

Unit-V

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential and Binary Searching.

REFERENCE BOOKS

1. D S Malik, Data Structures Using C++, Thomson, India Edition 2006.
2. Sahni S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002.
3. SamantaD, Classic Data Structures, Prentice-Hall of India, 2001.
4. Heilman G I., Data Structures and Algorithms with Object-Oriented Programming, Tata McGraw-Hill. 2002. (Chapters I and 14).
5. Tremblay P, and Sorenson P G, Introduction to Data Structures with Applications, Tata McGraw-Hill,

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B.Sc. Three-Year Degree Course (Semester Wise)

Syllabus for II Year – IV Semester

Part – II: DATA SCIENCE.

Paper-DS-I: MULTIVARIATE TECHNIQUE FOR DATA ANALYSIS

No. of hours per week: 04

Max Marks: 60

Unit-I : Introduction to Multivariate Analysis

Meaning of Multivariate Analysis, Measurements Scales – Metric measurement scales and Non-Metric measurement scales, classification of multivariate techniques (Dependence Techniques and Inter-dependence Techniques), Applications of Multivariate Techniques in different disciplines.

Unit-II : Factor Analysis

Factor Analysis: Meaning, objectives and Assumptions, Designing a factor analysis, Deriving factors and assessing overall factors, Interpreting the factors and validation of factor analysis.

Unit-III: Cluster Analysis

Cluster Analysis: Objectives and Assumptions, Research design in cluster analysis, Deriving clusters and assessing overall fit (Hierarchical Methods, Non Hierarchical Methods and Combinations), Interpretation of clusters and validation of profiling of the clusters.

Unit-IV: Regression Analysis

Regression Analysis: Objectives and Assumptions-A decision process for multiple regression analysis, Research design in multiple regression analysis, Interpreting the multiple regression and validation of multiple regression analysis.

Unit-V: Discriminate Analysis & Linear Programming

Discriminate Analysis: Concept, objective and applications, Procedure for conducting discriminate analysis, Stepwise discriminate analysis and Mahalanobis procedure. Logit model. Linear Programming problem – Formulation, graphical method, simplex method.

REFERENCE BOOKS

1. Joseph F Hair, William C Blacketal, “Multivariate Data Analysis”, Pearson Education, 7th edition, 2013.
2. T.W Anderson, “ An introduction to Multivariate Statistical Analysis, 3rd Edition”, Wiley 2003.
3. Williamr Dillon, John Wiley & Sons, “Multivariate Analysis Methods and Applications”, Wiley, 1984.
4. Naresh K Malhotra, Satyabhusan Dash, “Marketing Research An applied Orientation”, Pearson, 2011.
5. Hamdy A Taha, “Operations Research”, Pearson, 2012.

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B.A(AE) Three-Year Degree Course (Semester Wise).

Syllabus for II Year – III Semester.

Part – II: COMPUTER APPLICATIONS

Paper III: GOOGLE WEB PRODUCTS

No. of hours per week: 03

Max Marks: 60

Unit-I : Basics of Web : The Internet and Web defined – Timeline of Internet History – Advantages and disadvantages of Internet, Browser– Text-based and Graphics-based Browsers – Web Terminology – Browser Components.

Unit-II : Browser Details: Miscellaneous Browser Details : Cookies, Disk Cache, Plug-ins, Helper Applications, Homepage, JavaScript and Java, Images, Messages and Bookmarks/Favorites – Lynx, Internet Explorer, Navigator, Firefox, Chrome Browsers, etc.

Unit-III : Web, Media and Geo : E-mail with Gmail : Create, Send/Receive, Search, Spam, Trash – Google Drive : Create, share and Delete – Google Search : Web, Image, Video, Books, Photos, News – Google You tube : Video search/download/upload – Google Maps : To View Map and Directions – Google Earth : Explore the world from the computer.

Unit-IV : Documents, Presentations and Spreadsheets : Google Docs : Open, Edit and Create Documents –Programs on Documents – Google Slides : Open, Edit and Create Presentations – Programs on Presentations -Google Sheets : Open, Edit and Create Spreadsheets –Programs on Spreadsheets.

Unit-V : Forms and Social media – Google Forms : Open, Edit and Create Forms for Surveys/Tests –Programs on Forms. What is Social Media-Classification of Social media-Global Usage-Criticism-Twitter-You tube-Blogs-Facebook- LinkedIn, virus and antivirus, configuring firewalls ,Internet of Things –Introduction ,Applications of Internet of things.

REFERENCE BOOKS/Websites :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e – by Raymond Greenlaw and Ellen Hepp, Publishers : TMH
2. Refer the URL : <https://www.google.co.in/intl/en/about/products>

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Syllabus for II Year – IV Semester.

Part – II: COMPUTER APPLICATIONS.

Paper-IV: OFFICE AUTOMATION TOOLS.

No. of hours per week: 03

Max Marks: 60

Unit-I

MS-Excel: features of Ms-Excel, Parts of MS-Excel window, entering and editing data in worksheet, number formatting in excel, different cell references, how to enter and edit formula in excel, auto fill and custom fill, printing options. **Formatting options:** Different formatting options, change row height, formulae and functions.

Unit-II

Functions: Meaning and advantages of functions, different types of functions available in Excel.

Charts: Different types of charts, Parts of chart, chart creation using wizard, chart operations, data maps, graphs, data sorting, filtering. Excel sub totals, scenarios, what-if analysis

Macro: Meaning and advantages of Macros, creation, editing and deletion of macros – Creating a macro, how to run, how to delete a macro.

Unit-III

MS Access: Creating a Simple Database and Tables: Features of Ms-Access, Creating a Database, Parts of Access. **Tables:** table creation using design view, table wizard, datasheet view, import table, link table. **Forms:** The Form Wizard, design view, columnar, tabular, data sheet, chart wizard.

Unit- IV

Finding, Sorting and Displaying Data: Queries and Dynasts, Creating and using select queries, Returning to the Query Design, Multi-level sorts, Finding incomplete matches, showing All records after a Query, saving queries - Crosstab Queries.

Unit V

Export Data: Exporting the data from other Applications (Excel, HTML) **Relational Databases:** Types of Relationships, Viewing Relationships, Creating and Deleting Relationships.

REFERENCE BOOKS

- 1.Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill(2008)
- 2.Ed Bott, Woody Leonhard, Using Microsoft Office 2007, Pearson Education(2007)
3. Sanjay Saxsena, Microsoft Office, 4.Microsoft Office, BPB Publications

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Third Semester for all B.Sc/ B.A/ B.Com.

INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2).

Internet Fundamentals and Web Tools.

No.of hours per week:2

Max. Marks: 50

Unit-I

Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.

Unit-II

Internet applications: Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking: twitter, tumblr, Linkedin, facebook, flickr, skype, yelp, vimeo, yahoo, google, youtube, WhatsApp, etc.

Unit-III

E-mail :Definition of E-mail - Advantages and Disadvantages – User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management.

Unit IV

WWW- Web Applications, Web Terminologies, Web Browsers, URL – Components of URL, Searching WWW – Search Engines and Examples

Unit-V

Basic HTML

Basic HTML-Web terminology-Structure of a HTML Document-HTML. Head and Body tags-Semantic and Syntactic tags- HR heading, Font, image and anchor tags_ Creation of Simple HTML Documents.

REFERENCE BOOKS

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers : TMH

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II B.Sc COMPUTER SCIENCE.

(Revised syllabus w.e.f. 2019-20).

LIST OF PRACTICALS.

OBJECT ORIENTED PROGRAMMING USING JAVA.

List of lab programs

1. Write a program to define a class and object in Java
2. Write a program to illustrate method Overloading in Java.
3. Write a program to find largest of n number using conditional statements in Java.
4. Write a program to illustrate Looping Structures in Java.
5. Write a program to illustrate the usage of constructors in Java.
6. Write a program to perform matrix multiplication by using arrays in Java.
7. Write a program to sort an integer array in Java.
8. Write a program to perform various String Operations in Java.
9. Write a program to illustrate multi level inheritance in Java.
10. Write a program to illustrate interface in Java.
11. Write a program to create packages in Java.
12. Write a program to Create Multiple Threads in Java.
13. Write a program to assign priorities to threads in Java.
14. Write a program to implement Exception handling.
15. Write a program to draw the various polygons using applets.

DATA STRUCTURES

List of lab programs

1. Write a Program to implement the Linked List operations.
2. Write a Program to implement the Stack operations using an array.
3. Write Programs to implement the Queue operations using an array.
4. Write Programs to implement the Stack operations using a single linked list.
5. Write Programs to implement the Queue operations using a single linked list.
6. Write a program for arithmetic expression evaluation using stack.
7. Write a program to implement Queue using a double linked list.
8. Write a program to search an item in a given list using Linear Search
9. Write a program to search an item in a given list using Binary Search.
10. Write a program for Bubble Sort.
11. Write a program for Quick Sort.
12. Write a program for Merge Sort.
13. Write a program on Binary Search Tree operations(insertion, deletion and traversals)
14. Write a program for Graph traversals using DFS.
15. Write a program for Graph traversals using BFS.

KVR GOVT. COLLEGE FOR WOMEN(A), KURNOOL.

II B.Sc DATA SCIENCE.

(Revised syllabus w.e.f. 2019-20).

LIST OF PRACTICALS.

DATA MINING AND DATA ANALYSIS LAB.

List of lab programs

1. Perform data processing tasks and Demonstrate performing association rule mining on data sets.
2. Demonstrate performing classification on Data sets.
3. Demonstrate performing clustering on Data sets.
4. Demonstrate performing Regression on Data sets.
5. Sample programs using Hospital Management System.

MULTIVARIATE TECHNIQUE FOR DATA ANALYSIS Using 'R' Lab

List of lab programs

1. Navigating the basic operating environment of 'R'
2. Importing network data.
3. Creating and manipulating network objects.
4. Plotting Network Graphs.
5. Network Descriptive Statistics.
6. Hypothesis Testing.

KVR GOVT. COLLEGE FOR WOMEN(A), KURNOOL.

II B.A(AE)COMPUTER APPLICATIONS.

(Revised syllabus w.e.f.2019-20)

LIST OF PRACTICALS.

GOOGLE WEB PRODUCTS.

List of lab programs

- 1) Procedure to creation of e-mail.
- 2) Procedure for storing the data in Google drive and getting link.
- 3) Procedure to create a Bio data by using Google documents
- 4) Procedure to create a Brochure using Google documents.
- 5) Procedure to create a General Presentation using Google slides
- 6) Procedure to create a Lesson Plan using Google slides
- 7) Procedure to calculate Monthly budget using Google Sheets
- 8) Procedure to calculate Attendance of the students using Google Sheets
- 9) Procedure for creating Job Application form using Google forms
- 10) Procedure for creating Course Evaluation report using Google forms.

LIST OF PRACTICALS

KVR GOVT. COLLEGE FOR WOMEN (A), KURNOOL.

II B.A (AE)/B.Com COMPUTER Applications.

(Revised syllabus w.e.f.2019-20).

OFFICE AUTOMATION TOOLS.

List of lab programs

MS-Excel

- 1) Write a program to create pay details of Employee.
- 2) Write a program to design charts in MS-Excel.
- 3) Write a program to perform filtering and Sorting Techniques.
- 4) Write a program to create Pivote Table in MS-Excel.
- 5) Write a program to collect the data of various college by using Vlookup and Hlookup.

MS-Access

- 6) Write a program to create table in MS-Access.
- 7) Write a program to create From in MS-Access.
- 8) Write a program to create Query in MS-Access.
- 9) Write a program to create Report in MS-Access.
- 10) Write a program to Export data from MS-Access to MS-Excel.