A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE

I B.Com(C.A.) – I Semester

Course:Information Technology

Course Code: **No. of Hours/Week: 3**

Paper I

Course Objectives:

To introduce the fundamental concepts of Computers, Hardware, Software and able to interact with documentation, PowerPoint, Spreadsheet and databases.

Learning Outcomes:

At the end of the course, the student is expected to demonstrate the following cognitive abilities (thinking skill) and psycho-motor skills.

A. Remembers and states in a systematic way (Knowledge)

1. Describe the fundamental hardware components that make up a computer's hardware and the role of each of these components
2. understand the difference between an operating system and an application program, and what each is used for in a computer
3. Use technology ethically, safely, securely, and legally
4. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems

B. Explains (Understanding)

5. Apply standard statistical inference procedures to draw conclusions from data
6. Retrieve information and create reports from databases
7. Interpret, produce, and present work-related documents and information effectively and accurately

*C. Critically examines, using data and figures (Analysis and Evaluation**)*

8. Analyse compression techniques and file formats to determine effective ways of securing, managing, and transferring data
9. Identify and analyse user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.
10. Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
11. Identify and analyse computer hardware, software

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)

Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

E. Efficiently learn and use Microsoft Office applications.

I Introduction:

Computer Definition - Characteristics and Limitations of Computer Hardware-Generations of Computer, Classification of Computers, Applications of Computer,Basic Components of PC, Computer Architecture - Primary and Secondary Memories-Input and Output Devices- Operating System- Function of Operating System- Types of Operating System- Languages and its Types

II MS word:

Word Processing – Features-Advantages and Applications- Parts of Word Window Toolbar-Creating, Saving, Closing, Opening and Editing of a Document-Moving and Coping a Text-Formatting of Text and Paragraph- Bullets and Numbering-Find and Replace - Insertion of objects-Headers and Footers- Page Formatting- Auto Correct Spelling and Grammar- Mail Merge- Macros

III MS Excel:

Features – Spread Sheet-Workbook – Cell-Parts of a window-Saving, Closing, Opening of a Work Book – Editing – Advantages – Formulas- Types of Function,Templates – Macros – Sorting-Charts – Filtering – Consolidation – Grouping- Pivot Table

IV MS Power point:

Introduction – Starting – Parts-Creating of Tables- Create Presentation – Templates Auto Content Wizard-Slide Show-Editing of Presentation-Inserting Objects and charts

V MS Access:

Orientation to Microsoft Access - Create a Simple Access Database - Working with Table Data - Modify Table Data - Sort and Filter Records - Querying a Database - Create Basic Queries - Sort and Filter Data in a Query - Perform Calculations in a Query - Create Basic Access Forms - Work with Data on Access Forms - Create a Report - Add Controls to a Report - Format Reports

References:

1. P.Mohan computer fundamentals- HimalayaPublications.
2. R.K.Sharma and Shashi K Gupta, Computer Fundamentals - Kalyani Publications
3. Fundamentals of Computers ByBalagurusamy, Mcgraw Hill
4. Computer Fundamentals Anita Goel Pearson India
5. Introduction to Computers Peter Norton
6. Fundamentals of Computers Rajaraman V Adabala N
7. Office 2010 All-in-One For Dummies Peter Weverka
8. MS-Office S.S. Shrivastava
9. MS-OFFICE 2010 Training Guide Prof. Satish Jain, M. Geetha, KratikaBPB Publications

Online Resources:

https://support.office.com/en-us/office-training-center
https://www.skillshare.com/browse/microsoft-office
https://www.tutorialspoint.com/computer_fundamentals/index.htm
https://www.javatpoint.com/computer-fundamentalstutorial
https://edu.gcfglobal.org/en/subjects/office/
https://www.microsoft.com/en-us/learning/training.aspx

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE

I B.Com(C.A.) – I Semester

Course:Information Technology Lab

Course Code: **No. of Hours/Week: 2**

Course Objectives:

To provide hands on use of Microsoft Office applications Word, PowerPoint, Spreadsheet and Access databases.

Learning Outcomes:

At the end of the course student will be able to

- to perform documentation using MS Word
- to enter and manipulate data in Excel
- to perform presentation skills
- to manage databases using MS Access

List of Experiments

1. Prepare a Leave Letter to the Principal using MS Word.
2. Prepare your class Time Table using MS Word.
3. Demonstrate Mail Merge tool/option in MS Word.
4. Create your Resume/Bio Data using MS Word.
5. The following are the marks obtained by the students in 3 different subjects. Draw a Bar Chart for the given data.

a.	Roll No	Name	SUB1	SUB2	SUB3
b.	1011	Pravallika	50	90	80
c.	1012	Arya	40	80	60
d.	1013	Akrosh	38	70	75
e.	1014	Prajaktha	80	60	68
f.	1015	Trisha	84	57	84

6. The following are the marks obtained by the students in 3 different subjects. Find Total Marks, Pass/Fail and Class/Grade secured by the student using the given rules.

a.	Name	SUB1	SUB2	SUB3	SUB4	SUB5
b.	Ravi	45	75	64	48	98
c.	Vamsi	65	74	85	85	86
d.	Rao	35	45	48	74	82
e.	Satya	32	48	78	76	79
f.	Siva	46	31	86	78	75
g.	Ramesh	89	45	45	82	72
h.	Ramu	45	46	43	44	41

Rules:

Pass if marks in each subject > = 35

Distinction if average>=70

First class if average>=60 but <70

Second class if average >=50 but <60

Third class if average>=35 and but <50

Fail if marks in any subject is <35

7. Create a Power Point using different layouts – describing about your College.
8. Create a Power Point using Templates in MS PowerPoint.
9. Create an Employee database with table Emp (Eno, Ename, Esal, Edept, Eloc) and insert any five records. Create a report for the above table with some fields only.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
LIFE SKILLS COURSE
Course: BASIC COMPUTER APPLICATIONS

SEMESTER-I

Course Code: **No. of Hours/Week: 2**
Paper :

Objectives: This course aims at providing exposure to students in skill development towards basic office applications.

Course Learning Outcomes:

After successful completion of the course, student will be able to:

1. Demonstrate basic understanding of computer hardware and software.
2. Apply skills and concepts for basic use of a computer.
3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
4. Create personal, academic and business documents using MS office.
5. Create spreadsheets, charts and presentations.
6. Analyze data using charts and spread sheets

UNIT-I

Basics of Computers: Definition of a Computer - Characteristics of computers, Applications of Computers Block Diagram of a Digital Computer – I/O Devices, hardware, software human ware, application software, system software, Memories - Primary, Auxiliary and Cache Memory.
MS Windows – Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar, Control Panel.

Unit-II

MS-Word : Features of MS-Word - MS-Word Window Components - Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.

Unit-III:

MS-Excel : Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns –Changing column widths and row heights, Formulae, Referencing cells , Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.
MS-PowerPoint: Features of PowerPoint – Creating a Presentation - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and scaling of an Object – Slide Transition – Custom Animation

TEXT BOOKS:

1. Working in Microsoft Office – Ron Mansfield - TMH.
2. MS Office 2007 in a Nutshell –Sanjay Saxena – Vikas Publishing House.
3. Excel 2020 in easy steps-Michael Price – TMH publications

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE

I B.Com(C.A.) – II Semester

Course:E-COMMERCE AND WEB DESIGNING

Course Code: **No. of Hours/Week: 3**

Paper II

Learning Outcomes:

At the end of the course, the students is expected to demonstrate the following cognitive abilities (thinking skill) and psychomotor skills.

A.Remembers and states in a systematic way (Knowledge)

1. Understand the foundations and importance of E-commerce
2. Define Internet trading relationships including Business to Consumer, Business to Business, Intra-organizational
3. Describe the infrastructure for E-commerce
4. Discuss legal issues and privacy in E-Commerce
5. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture

B. Explains (Understanding)

6. Recognize and discuss global E-commerce issues
7. Learn the language of the web: HTML and CSS.

C. Critically examines, using data and figures (Analysis and Evaluation)

8. Analyze the impact of E-commerce on business models and strategy
9. Assess electronic payment systems
10. Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using css

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)

Use the Systems Design Approach to implement websites with the following steps:

- Define purpose of the site and subsections
- Identify the audience
- Design and/or collect site content
- Design the website theme and navigational structure
- Design & develop web pages including: CSS Style Rules, Typography, Hyperlinks, Lists, Tables, Frames, Forms, Images, Behaviours, CSS Layouts

E. Build a site based on the design decisions and progressively incorporate tools and techniques covered

Unit I: Introduction:

Meaning, Nature, Concepts, Advantages, Disadvantages and reasons for Transacting Online, Types of E-Commerce, e-commerce Business Models (Introduction , Key Elements of a Business Model And Categorizing Major E-Commerce Business Models), Forces Behind e-commerce.

Technology used in E-commerce: The dynamics of World Wide Web and Internet (Meaning, Evolution and Features); Designing, Building and Launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing Vs. in-house development of a website)

Unit-II: E-payment System:

Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money), Digital Signatures (Procedure, Working And Legal Position), Payment Gateways, Online Banking (Meaning, Concepts, Importance, Electronic Fund Transfer, Automated Clearing House, Automated Ledger Posting), Risks Involved in e-payments.

Unit-III: On-line Business Transactions:

Meaning, Purpose, Advantages and Disadvantages of Transacting Online, E Commerce Applications in Various Industries Like {Banking, Insurance, Payment of Utility Bills, Online Marketing, E-Tailing (Popularity, Benefits, Problems and Features), Online Services (Financial, Travel and Career), Auctions, Online Portal, Online Learning, Publishing and Entertainment} Online Shopping (Amazon, Snap Deal, Alibaba, Flipkart, etc.)

Unit-IV: Website designing

Designing a home page, HTML document, Anchor tag Hyperlinks, Head and body section, Header Section, Title, Prologue, Links, Colorful Pages, Comment, Body Section, Heading Horizontal Ruler, Paragraph, Tabs, Images And Pictures, Lists and Their Types, Nested Lists, Table Handling.

Frames: Frameset Definition, Frame Definition, Nested Framesets, Forms and Form elements.
DHTML and Style Sheets: Defining Styles, elements of Styles, linking a style sheet to a HTML Document, Inline Styles, External Style Sheets, Internal Style Sheets & Multiple Style Sheets.

Unit V: Security and Encryption:

Need and Concepts, E-Commerce Security Environment: (Dimension, Definition and Scope Of E-Security), Security Threats in The E-Commerce Environment (Security Intrusions and Breaches, Attacking Methods Like Hacking, Sniffing, Cyber Vandalism Etc.), Technology Solutions (Encryption, Security Channels Of Communication, Protecting Networks And Protecting Servers And Clients)

References:

1. E-commerce and E-business Himalaya publishers
2. E-Commerce by Kenneth C Laudon, PEARSON INDIA
3. Web Design: Introductory with MindTap Jennifer T Campbell, Cengage
4. HTML & WEB DESIGN:TIPS& TECHNIQUES JAMSA, KRIS, McGraw Hill
5. Fundamentals Of Web Development by Randy Connolly, Ricardo Hoar,Pearson
6. HTML & CSS: COMPLETE REFERENCE POWELL,THOMAS, McGrawHill

Online Resources:

http://www.kartrocket.com
http://www.e-commerceceo.com
http://www.fastspring.com
https://teamtreehouse.com/tracks/web-design

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE

I B.Com(C.A.) – II Semester

Course: E-COMMERCE AND WEB DESIGNING LAB

Course Code: **No. of Hours/Week: 2**

Course Objective:

To enable the students to develop static and dynamic web pages.

Course Outcomes:

At the end of the course the student will be able to

1. Make use of HTML tags to design Web pages.
2. Develop dynamic Web pages

List of Experiments

1. Write a HTML script to illustrating text formatting.
2. Write a HTML script to create a table using different attributes
3. Write a simple HTML script to illustrate three types of lists.
4. a.Prepare a sample code to illustrate links between different sections of the page
   b.Write a HTML script to use image as a hyperlink
5. Create a form that accepts the information from a user
6. Divide the page into different sections using frames
7. Design a web page using internal style sheets
8. Design a web page using embedded style sheets
9. Design a web page using external style sheets

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – III Semester
Course: Programming with C & C++

Course Code: **No. of Hours/Week: 3**
Paper : III

Course Objective:

To impart basic knowledge of C Programming language so that Students will be able to develop logics and applications to solve real time problems using C and To impart knowledge on fundamentals of Object Oriented Programming.

Course Outcomes:

At the end of the course, the student is expected to demonstrate the following abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge)

1. Develop programming skills
2. Declaration of variables and constants use of operators and expressions
3. learn the syntax and semantics of programming language
4. Be familiar with programming environment of C and C++
5. Ability to work with textual information (characters and strings) & arrays

B. Explains (Understanding)

6. Understanding a functional hierarchical code organization
7. Understanding a concept of object thinking within the framework of functional model
8. Write program on a computer, edit, compile, debug, correct, recompile and run it
9. Choose the right data representation formats based on the requirements of the problem
10. Analyze how C++ improves C with object-oriented features
11. Evaluate comparisons and limitations of the various programming constructs andchoose correct one for the task in hand.

C. Critically examines, using data and figures (Analysis and Evaluation)

D. Working in 'Outside Syllabus Area' under a Co-curricular Activity(Creativity) Planning of structure and content, writing, updating and modifying computer programs for user solutions

E. Exploring C programming and Design C++ classes for code reuse (Practical skills***)

Unit I: Introduction and Control Structures

History of 'C' - Structure of C program – C character set, Tokens, Constants, Variables, Keywords, Identifiers – C data types - C operators - Standard I/O in C - Applying if and Switch Statements.

Unit-II: Loops And Arrays

Use of While, Do While and For Loops - Use of Break and Continue Statements -Array Notation and Representation - Manipulating Array Elements - Using Multi-Dimensional Arrays.

Unit-III: Strings and Functions

Declaration and Initialization of String Variables - String Handling Functions - Defining Functions- Function Call - Call By Value, Recursion

Unit-IV: Principles of Object Oriented Programming

Procedure Oriented Programming, Object Oriented Programming, Basic concepts of Object Oriented Programming, Applications of C++, A simple C++ Program, An example with Class, Structure of C++ Program, Creating source file, Compiling and Linking.

Unit V: Classes and Objects:

Tokens, Keywords, Declaration of Variables, Dynamic initialization of variables, Specifying a Class, Defining member functions, Function overloading, Operator overloading, Constructors and Destructors, Inheritance and types of Inheritance.

References:

1. E. Balagurusamy "Object oriented programming with C++
2. R.Ravichandran "Programming with C++"
3. Mastering C by K R Venugopal and Sudeep R Prasad, McGraw Hill
4. Expert C Programming: Deep Secrets Kindle Edition Peter van der Linden
5. Let Us C YashavantKanetkar
6. The C++ Programming Language Bjarne Stroustrup
7. C++ Primer Stanley B. Lippman, Josée Lajoie, Barbara E. Moo

Online Resources:

https://www.tutorialspoint.com/cprogramming/index.html
https://www.learn-c.org/
https://www.programiz.com/c-programming
https://www.w3schools.in/c-tutorial/
https://www.cprogramming.com/tutorial/c-tutorial.html
https://www.tutorialspoint.com/cplusplus/index.html
https://www.programiz.com/cpp-programminghttp://www.cplusplus.com/doc/tutorial/
https://www.learn-cpp.org/
https://www.javatpoint.com/cpp-tutorial

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – III Semester
Course: Programming with C & C++ LAB

Course Code: **No. of Hours/Week: 2**

Course Objective:

To develop programming skills using the fundamentals of C Language and to enable effective usage of arrays, functions and to introduce various Object Oriented Concepts through which the students will be enabled to implement classes, inheritance and operator overloading.

Course Outcomes:

At the end of the course the student will be able to

1. Implement programs using fundamental features of C Language.
2. Solve problems with the use of loops, decision making statements and functions.
3. Implement programs performing various Operations on Arrays
4. Implement programs using constructor.
5. Implement programs to implement inheritance
6. Implement programs for operator overloading

List of Experiments

1. Write C programs for
   a. Fibonacci Series
   b. Prime number
   c. Palindrome number
   d. Armstrong number.
2. 'C' program for multiplication of two matrices
3. 'C' program to implement string functions
4. 'C' program to swap numbers
5. 'C' program to calculate factorial using recursion
6. 'C++' program to perform addition of two complex numbers using constructor
7. Write a program to find the largest of two given numbers in two different classes using friend function
8. Program to add two matrices using dynamic constructor
9. Implement a class string containing the following functions:
   a. Overload + operator to carry out the concatenation of strings.
   b. Overload == operator to carry out the comparison of strings.
10. Program to implement inheritance.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – IV Semester

Course: Database Management Systems

Course Code: **No. of Hours/Week: 3**

Paper : III

Course Objective:

To present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.

Course Outcomes:

At the end of the course, the students is expected to demonstrate the following abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge)

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of therelational data model.
3. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization
4. Understand Functional Dependency and Functional Decomposition

B. Explains (Understanding)

5. To design and build a simple database system and demonstrate competence with thefundamental tasks involved with modeling, designing, and implementing a DBMS.
6. Perform PL/SQL programming using concept of Cursor Management, ErrorHandling, Packages

C. Critically examines, using data and figures (Analysis and Evaluation)

7. Apply various Normalization techniques
8. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)
Design and implement a small database project

E. Construct simple and moderately advanced database queries using Structured QueryLanguage (SQL)(Practical skills)

Unit I: Overview of Database Management System

Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management System, Classification of Database Management System.

Unit-II: File-Based System

File Based System. Drawbacks of File-Based System, DBMS Approach, Advantage of DBMS, Data Models, Components of Database System, Database Architecture, DBMS Vendors and their products.

Unit-III: Entity-Relationship Model

Introduction, The Building Blocks of an Entity-Relationship, Classification of Entity Set, Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, Aggregation and Composition, CODD's Rules, Relational Data Model, Concept of Relational Integrity.

Unit-IV: Structured Query Language

Introduction, History of SQL Standards, Commands in SQL, Data types in SQL, Data Definition Language (DDL),Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations

Unit V:PL/SQL

Introduction, Structure of PL/SQL,PL/SQL Language Elements, Data Types, Control Structure, Steps to Create a PL/SQL Program, Iterative Control Cursors, Steps to Create a Cursor, Exceptions Handling, Database Triggers, Types of triggers.

References:

1. Paneerselvam:Database Management system,PHI.
2.David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3.Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4.Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5.MARTIN,Database Management-Prentice Hall of India, New Delhi.
6.Bipin C.Desai ,`An Introduction to Database System`,Galgotia Publications
7.Korth, Database Management System.
8.Navathe, Database Management System.
9.S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:

http:// www.onlinegdb.com/ http:// www.tutorialspoint.com/
http://learnsql.com
https://www.codecademy.com/learn/learn-sql/
https://www.w3schools.com/sql/default.asp

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – IV Semester

Course: Database Management Systems Lab

Course Code: **No. of Hours/Week: 2**

Course Objective:

To provide a strong formal foundation in database concepts and emphasis is on practice to the students to groom them into well-informed database application developers.

Course Outcomes:

At the end of the course the student will be able to

1. Design database for the real world scenarios
2. Make use of SQL and PL/SQL to efficiently retrieve and maintain relational database.

List of Experiments

1. Create tables department and employee with required constraints.
2. Initially only the few columns (essential) are to be added. Add the remaining columns separately by using appropriate SQL command.
3. Basic column should not be null
4. Add constraint that basic should not be less than 5000.
5. Calculate HRA, DA, Gross and net by using PL/SQL program.
6. The percentage of HRA and DA are to be stored separately.
7. When the DA becomes more than 100%, a message has to be generated andwith user permission has to be merged with basic.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: BIG DATA ANALYTICS USING R

Course Code: **No. of Hours/Week: 3**

Paper : 6A

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand data and classification of digital data.
2. Understand Big Data Analytics.
3. Load data in to R.
4. Organize data in the form of R objects and manipulate them as needed.
5. Perform analytics using R programming.

Unit I: Introduction to Big data

Data, classification Of Digital Data--structured, unstructured, semi-structured data, characteristics of data, evaluation of big data, definition and challenges of big data, what is big data and why to use big data ?, business intelligence Vs big data.

Unit-II: Big data Analytics

What is and isn't big data analytics? Why hype around big data analytics? Classification of analytics, top challenges facing big data, importance of big data analytics, technologies needed to meet challenges of big data.

Unit-III: Introduction to R and getting started with R

What is R? Why R? , advantages of R over other programming languages, Data types in R-logical, numeric, integer, character, double, complex, raw, coercion, ls() command, expressions, variables and functions, control structures, Array, Matrix, Vectors, R packages.

Unit-IV: Exploring data in R

Data frames-data frame access, ordering data frames, R functions for data frames dim(), nrow(), ncol(), str(), summary(), names(), head(), tail(), edit() .Load data frames—reading from .CSV files, sub setting data frames, reading from tab separated value files, reading from tables.

Unit V: Data Visualization using R

Reading and getting data into R (External Data): XML files, Web Data, JSON files, Databases, Excel files.

Working with R Charts and Graphs: Histograms, Bar Charts, Line Graphs, Scatterplots, Pie Charts

References:

1. Seema Acharya , Subhashini Chellappan --- Big Data And Analytics second edition, Wiley
2. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
3. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, Preeti Saxena, McGraw Hill, 2018.
4. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, John Wiley & Sons, 2013

Big Data Analytics Using R---- Lab (Practical) Syllabus (15 Hrs.)

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per semester.)

1. Create a vector in R and perform operations on it.
2. Create integer, complex, logical, character data type objects in R and print their values and their class using print and class functions.
3. Write code in R to to demonstrate sum(), min(), max() and seq() functions.
4. Write code in R to manipulate text in R using grep(), toupper(), tolower() and substr() functions.
5. Create data frame in R and perform operations on it.
6. Import data into R from text and excel files using read.table () and read.csv () functions.
7. Write code in R to find out whether number is prime or not.
8. Print numbers from 1 to 100 using while loop and for loop in R.
9. Write a program to import data from csv file and print the data on the console.
10. Write a program to demonstrate histogram in R.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: DATA SCIENCE USING PYTHON

Course Code: **No. of Hours/Week: 3**
Paper : 7A

Course Outcomes:
Upon successful completion of the course, a student will be able to:

1. Understand basic concepts of data science
2. Understand why python is a useful scripting language for developers.
3. Use standard programming constructs like selection and repetition.
4. Use aggregated data (list, tuple, and dictionary).
5. Implement functions and modules.

Unit I: Introduction to data science

Data science and its importance, advantages of data science, the process of data science, Responsibilities of a data scientist, qualifications of data scientists, would you be a good data scientist, why to use python for data science.

Unit-II: Introduction to python

What is python , features of python, history of python, writing and executing the python program, basic syntax, variables, keywords, data types ,operators ,indentation, Conditional statements-if, if-else, nested if-else, looping statements-for, while, break, continue, pass

Unit-III: Control structures and strings

Strings - definition, accessing, slicing and basic operations
Lists - introduction, accessing list, operations, functions and methods,
Tuples - introduction, accessing tuple
Dictionaries - introduction, accessing values in dictionaries

Unit-IV: Functions and modules

Functions - defining a function, calling a function, types of functions, function arguments, local and global variables, lambda and recursive functions, Modules- math and random

Unit V: Classes & Objects

Classes and Objects, Class method and self-argument, class variables and object variables, public and private data members, private methods, built-in class attributes, static methods.

References:

1. Steven cooper--- Data Science from Scratch, Kindle edition
2. Reemathareja—Python Programming using problem solving approach, Oxford Publication

Data Science Using Python; Lab (Practical) Syllabus (15 Hrs.)

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per semester.)

1. Python Program to Find the Square Root
2. Python Program to Swap Two Variables
3. Python Program to Generate a Random Number
4. Python Program to Check if a Number is Odd or Even
5. Python Program to Find the Largest Among Three Numbers
6. Python Program to Check Prime Number
7. Python Program to Display the multiplication Table
8. Python Program to Print the Fibonacci sequence
9. Python Program to Find the Sum of Natural Numbers
10. Python Program to Find Factorial of Number Using Recursion
11. Python Program to work with string methods.
12. Python Program to create a dictionary and print its content.
13. Python Program to create class and objects.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: MOBILE APPLICATION DEVELOPMENT

Course Code: **No. of Hours/Week: 3**

Paper : 6B

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Identify basic terms ,tools and software related to android systems
2. Describe components of IDE, understand features of android development tools
3. Describe the layouts and controls
4. Explain the significance of displays using the given view
5. Explain the features of services and able to publish android Application
6. Developing interesting Android applications using MIT App Inventor

Unit I: Introduction to Big data

1.1 Introduction to Android ,open headset alliance, Android Ecosystem

1.2 Need of Android

1.3 Features of Android

1.4 Tools and software required for developing an Application

Unit-II:

2.1 operating system, java JDK, Android SDK

2.2 Android development tools

2.3 Android virtual devices

2.4 steps to install and configure Android studio and sdk

2.5 Android activities

Unit-III:

3.1 control flow, directory structure

3.2 components of a screen

3.3 fundamental UI design

3.4 linear layout, absolute layout , table layout

3.5 text view

3.6 edit text

3.7 button, image button, radio button

3.8 radio group, check box, and progress bar

3.9 list view, grid view, image view, scroll view

3. 10. Time and date picker

3.11 Toast

Unit-IV:

4.1 android platform services

4.2 Android system Architecture

4.3 Android Security model

Unit V:

5.1 Introduction of MIT App Inventor
5.2 Application Coding
5.3 Programming Basics & Dialog
5.4 Audio& Video
5.5 File

References:

1. Erik Hellman, "Android Programming – Pushing the Limits", 1st Edition, Wiley India Pvt Ltd, 2014.
2. App Inventor: create your own Android apps by Wolber, David (David Wayne)

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester
Course: CYBER SECURITY AND MALWARE ANALYSIS

Course Code: **No. of Hours/Week: 3**

Paper : 7B

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the computer networks, networking tools and cyber security
2. Learn about NIST Cyber Security Framework
3. Understand the OWASP Vulnerabilities
4. Implement various Malware analysis tools
5. Understand about Information Technology act 2000

Unit I: Introduction to Networks & cyber security

- Computer Network Basics
- Computer network types
- OSI Reference model
- TCP/IP Protocol suite
- Difference between OSI and TCP/IP
- What is cyber, cyber-crime and cyber-security
- All Layer wise attacks
- Networking devices: router, bridge, switch, server, firewall
- How to configure: router
- How to create LAN

Unit-II: NIST Cyber security framework

- Introduction to the components of the framework
- Cyber security Framework Tiers
- What is NIST Cyber security framework
- Features of NIST Cyber security framework
- Functions of NIST Cyber security framework
- Turn the NIST Cyber security Framework into Reality/ implementing the framework

Unit-III: OWASP

- What is OWASP?
- OWASP Top 10 Vulnerabilities
  - ❖ Injection
  - ❖ Broken Authentication
  - ❖ Sensitive Data Exposure
  - ❖ XML External Entities (XXE)
  - ❖ Broken Access Control
  - ❖ Security Misconfiguration
  - ❖ Cross-Site Scripting (XSS)
  - ❖ Insecure Deserialization
  - ❖ Using Components with Known Vulnerabilities
  - ❖ Insufficient Logging and Monitoring

- **Web Application Firewall**

Unit-IV: MALWARE ANALYSIS

- What is malware
- Types of malware
  - Key loggers
  - Trojans
  - Ran some ware
  - Rootkits
- Antivirus
- Firewalls
- Malware analysis
  - VM ware
  - How to use sandbox
  - Process explorer
  - Process monitor

Unit V: CYBER SECURITY: Legal Perspectives

- Cybercrime and the legal landscape around the world
- Indian IT ACT 2000 --Cybercrime and Punishments
- Challenges to Indian law and cybercrime scenario in India

References:

1. Computer Networks | Fifth Edition | By Pearson (6th Edition)|Tanenbaum, Feamster & Wetherill
2. Computer Networking | A Top-Down Approach | Sixth Edition | By Pearson | Kurose James F. Ross Keith W.
3. Cyber Security by Sunit Belapure, Nina Godbole|Wiley Publications
4. TCP/IP Protocol Suite |Mcgraw-hill| Forouzan|Fourth Edition

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: E– COMMERCE APPLICATION DEVELOPMENT

Course Code: **No. of Hours/Week: 3**
Paper : 6C

Course Outcomes:
Upon successful completion of the course, a student will be able to:

1. To apply in an integrative and summative fashion the students' knowledge in all fields of business studies by drafting a website presence plan.
2. To understand the factors needed in order to be a successful in ecommerce
3. To gain the skills to bring together knowledge gathered about the different components of building a web presence
4. To critically think about problems and issues that might pop up during the establishment of the web presence
5. To apply Word Press as a content management system (CMS), Plan their website by choosing colour schemes, fonts, layouts, and more

Unit I:

1.1 Introduction to E– commerce:
1.2 Meaning and concept – E– commerce
1.3 E– commerce v/s Traditional Commerce
1.4 E– Business & E– Commerce – History of E– Commerce
1.5 EDI – Importance, features & benefits of E– Commerce
1.6 Impacts, Challenges & Limitations of E– Commerce

Unit-II:

2.1 Business models of E – Commerce: Business to Business
2.1.2 Business to customers
2.1.3 Customers to Customers
2.1.4 Business to Government
2.1.5 Business to Employee
2.2 Influencing factors of successful E– Commerce
2.3 Architectural framework of Electronic Commerce
2.4 Web based E Commerce Architecture.
2.5 Internet Commerce

Unit-III:

3.1 Electronic data Interchange
3.2 EDI Technology
3.3 EDI- Communications
3.4 EDI Agreements
3.5 E– Commerce payment system.
3.6 Digital Economy

Unit-IV:

1.1 A Page on the web - HTML Basics
1.2 Client Side scripting -JAVA SCRIPT basics
1.3 Server side Scripting- PHP basics.

Unit V:

5.1 Logging in to Your Word press Site
5.2 word press dash board
5.3 creating your first post
5.4 adding photos and images
5.5 creating hyper link
5.6 adding categories and tags

References:

1. Turban, Rainer, and Potter, Introduction to E-Commerce, second edition, 2003
2. H. M. Deitel, P. J. Deitel and T. R. Nieto, E-Business and E-Commerce: How to Programe, Prentice hall, 2001
3. WordPress All-in-One For Dummies -written by Lisa Sabin Wilson with contributions by Michael Torbert, Andrea Rennick, Cory Miller, and Kevin Palmer

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: Real time governance system (RTGS)

Course Code: **No. of Hours/Week: 3**
Paper : 7C

Course Outcomes:
Upon successful completion of the course, a student will be able to:

1. Understand the terms regarding Governance, E-Governance and RTGS
2. Learn about E-Governance Infrastructure
3. Understand the E-Governance implementation in several countries
4. Understand the E-Governance implementation in several Indian states
5. Understand the applications of RTG

Unit I: Introduction to E-Governance

- Government, Governance and Good Governance
- What is E-Governance or Electronic Governance?
- E-Government and E-Governance: A conceptual Analysis
  - ❖ Objectives
  - ❖ Components
  - ❖ application domains
  - ❖ four phase model
  - ❖ implementing E-Governance
  - ❖ issues while implementing E-Governance
  - ❖ Opportunities and challenges
- Types of E-Governance
- What is Real-Time Governance (RTG)
- Real Time Governance Society (RTGS)

Unit-II: E-Governance Infrastructure

- Data Systems infrastructure
  - ❖ Executive Information Systems
  - ❖ Management Information Systems
  - ❖ Knowledge Management Systems
  - ❖ Transaction Processing Systems
- Legal Infrastructural preparedness
  - ❖ IT Act 2000
  - ❖ Challenges to Indian law and cybercrime scenario in India
  - ❖ Amendments of the Indian IT Act
- Institutional Infrastructural preparedness
  - ❖ Internet
  - ❖ intranet
  - ❖ extranet
- Human Infrastructural preparedness

- ❖ Top-level management
- ❖ Middle-level management
- ❖ Low-level management

- Technological Infrastructural preparedness
  - ❖ Information and communications technology
  - ❖ Data Warehousing
  - ❖ Cloud Computing

Unit-III: E-Governance: Country Experience

- INDIA
- US
- UK
- AUSTRALIA
- DUBAI

Unit-IV: E-Governance in India

- Andhra Pradesh
- Karnataka
- Kerala
- Uttar Pradesh
- Madhya Pradesh
- West Bengal
- Gujarat

Unit V: Latest Applications in Real Time Governance

- Agriculture
- Rural Development
- Health care
- Education
- Tourism
- Commerce and Trade

References:

1. E-Governance: concepts and case studies| CSR Prabhu| Prentice-Hall|
2. E-Governance| Niranjanpani, Sanhari Mishra | Himalaya Publishing House

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: MULTIMEDIA TOOLS AND APPLICATIONS

Course Code: **No. of Hours/Week: 3**

Paper : 6D

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Gain knowledge on the concepts related to Multimedia.
2. Understand the concepts like image data representation and colour modes.
3. Understand the different types of video signals and digital audio.
4. Know about multimedia data compression types and audio compression standards
5. Know about basic video compression techniques.

Unit I: Introduction to multimedia

1. What is Multimedia?
2. Components of Multimedia System
3. Multimedia and Hypermedia
4. Multimedia Authoring metaphors
5. Multimedia Production
6. Multimedia Presentation
7. Some Technical Design Issues
8. Automatic Authoring

Unit-II: Image Data Representations and color models:

Data Systems infrastructure

1. Color science Human vision Image data types:
2. 2.Black & white images
   2.1 1-bit images (Binary image)
   2.2 8 -bit (Gray -level images)
3. Color images
   3.1 24-bit color images
   3.2 8-bit color images
4. Color models

Unit-III: Fundamental concepts in video

1. Types of Video Signals
   1.1 Analog Video
   1.2 Digital Video

   Basics of Digital Audio:
2. What is Sound?
   2.1 Digitization of Sound
   2.2 Quantization and Transmission of Audio
   2.2.1 Pulse code modulation
   2.2.2 Differential coding of audio
   2.2.3 Predictive coding

Unit-IV: Multimedia Data Compression

1. Introduction

1.1 Basics of Information Theory

1.2 Lossless Compression Algorithms

1.2.1 Fix-Length Coding

1.2.2 Run-length coding

1.2.4 Dictionary- based coding

1.3. Variable Length Coding

1.3.1 Huffman Coding Algorithm

Unit V: Latest Applications in Real Time Governance

Basic Video Compression Techniques:

1. Introduction to Video compression
2. Video compression standard H.261
3. Video compression standard MPEG-1

References:

1. An introduction to digital multimedia by Savage, T. M. and Vogel, K. E. 2008.
2. Digital Multimedia by Nigel Chapman & Jenny Chapman. 2009.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
III B.Com(C.A.) – V Semester

Course: DIGITAL IMAGING

Course Code: **No. of Hours/Week: 3**

Paper : 7D

Course Outcomes:

Upon successful completion of the course, a student will be able to:

- Gain knowledge about Types of Graphics, Types of Objects and Types of video editing tools
- Show their skills in editing and altering photographs for through a basic understanding of the tool box.
- Gain knowledge in using the layers.
- Gain knowledge in using the selection tools, repair tools.

Unit I: Introduction to multimedia

1. Types of Graphics
    1.1 Raster vs Vector Graphics
2. Types of Objects
    2.1 Audio formats
    2.2 Video formats
    2.3 Image formats
    2.4 Text document formats
3. Types of video editing
4. Different color modes.
5. Image Scanner
    5.1 Types of Image Scanners

Unit-II:

1. What is GIMP?
2. GIMP tool box window
3. Layers Dialog
4. Tool Options Dialog
5. Image window
6. Image window menus

Unit-III: Fundamental concepts in video

Improving Digital Photos

1.1 Opening files
    1.1.1 Rescaling saving files
1.2. Cropping
1.3. Brightening & Darkening
1.4. Rotating
1.5. Sharpening

Introduction to layers

2. What is layer?

2.1. Using layer to add text

2.2. Using move tool

2.3. Changing colors

2.4. Simple effects on layers

2.5 Performing operations on layers

2.7 Using layers to copy and paste

Unit-IV:

Drawing:

1.1 Drawing lines and curves

1.2 Changing colors and brushes

1.3 Erasing

1.4 Drawing rectangles, Circles and other shapes

1.6 Outlining and filling regions

1.7 Filling with patterns and gradients

Selection:

2.1 Working with selections

2.2 Select by color and fuzzy

2.3 Select Bezier paths

2.5 Modifying selections with selection modes

Unit V:

Erasing and Touching Up:

1.1 Dodge and burn tool

1.3 Color Balance

Filters:

2.1 Filters

1.4 Blur Clone tool

1.5 Sharpening using convolve tool

2.1.1 Correcting

2.1.2 Enhance

2.1.3 Noise Filters

References:

Textbook: Beginning GIMP from Novice to professional by Akkana Peck, Second Edition, Apress