

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

I B.Com(C.A.) – I Semester

FUNDAMENTALS OF COMMERCE

Course Code:

No. of Hours/Week: 5

Paper : I

Course Objectives:

The objective of this paper is to help students to acquire conceptual knowledge of the Commerce, Economy and Role of Commerce in Economic Development. To acquire Knowledge on Accounting and Taxation.

Course Outcomes:

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

1. Identify the role commerce in Economic Development and Societal Development. Equip with the knowledge of imports and exports and Balance of Payments.
2. Develop the skill of accounting and accounting principles.
3. Acquire knowledge on micro and micro economics and factors determine demand and supply.
4. Understand Indian Tax system and various taxes levied on in India.
5. Acquire skills on web design and digital marketing.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1					2	1	3	2	3	2
CO2	2	1	3	2	1	1	2	3	1	1
CO3	1	1	2	3	3	1	1	1	2	3
CO4	2	2	3	2	2	2	1	2	1	2
CO5	1	2	1	1	1	2	2	1	1	1
Average	1.4	1.6	2.2	1.8	1.8	1.4	1.8	1.8	1.6	1.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

Unit 1: Introduction: Definition of Commerce – Role of Commerce in Economic Development - Role Commerce in Societal Development. Imports and Exports, Balance of Payments. World Trade Organization.

Unit 2: Economic Theory: Macro Economics – Meaning, Definition, Measurements of National Income, Concepts of National Income. Micro Economics – Demand and Supply. Elasticity of Demand and Supply. Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price, Marginal Utility.

Unit 3: Accounting Principles: Meaning and Objectives Accounting, Accounting Cycle - Branches of Accounting - Financial Accounting, Cost Accounting, Management Accounting. Concepts and Conventions of Accounting – GAAP.

Unit 4: Taxation: Meaning of Tax, Taxation - Types of Tax- Income Tax, Corporate Taxation, GST, Customs & Exercise. Differences between Direct and Indirect Tax – Objectives of Tax- Concerned authorities – Central Board of Direct Taxes (CBDT) and Central Board of Excise and Customs (CBIC).

Unit 5: Computer Essentials: Web Design - Word Press Basics, Developing a Simple Website, Digital Marketing - Social Media Marketing, Content Marketing, Search Engine Optimization (SEO), E-mail Marketing. Data Analytics- Prediction of customer behavior, customized suggestions.

Reference Books:

1. S.P. Jain & K.L.Narang, Accountancy - I Kalyani Publishers.
2. R.L. Gupta & V.K. Gupta, Principles and Practice of Accounting, Sultan Chand
3. Business Economics -S.Sankaran, Margham Publications, Chennai.
4. Business Economics - Kalyani Publications.
5. Dr. Vinod K. Singhania: Direct Taxes – Law and Practice, Taxmann Publications.
6. Dr. Mehrotra and Dr. Goyal: Direct Taxes – Law and Practice, SahityaBhavan Publications

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

I B.Com(C.A.) – I Semester

BUSINESS ORGANISATION

Course Code:

No. of Hours/Week: 5

Paper : II

Course Objectives:

The course aims to acquire conceptual knowledge of business, formation various business organizations. To provide the knowledge on deciding plant location, plan layout and business combinations.

Course Outcomes:

After completing this course a student will have:

1. Ability to understand the concept of Business Organization along with the basic laws and norms of Business Organization.
2. Ability to understand the terminologies associated with the field of Business Organization along with their relevance and to identify the appropriate types and functioning of Business Organization for solving different problems.
3. Ability to apply Business Organization principles to solve business and industry related problems and to understand the concept of Sole Proprietorship, Partnership and Joint Stock Company etc.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1										
CO2										
CO3										
CO4										
CO5										
Average										

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-/0:No Correlation)

Unit 1: Business: Concept, Meaning, Features, Stages of development of business and importance of business. Classification of Business Activities. Meaning, Characteristics, Importance and Objectives of Business Organization.. Difference between Industry & Commerce and Business & Profession, Modern Business and their Characteristics.

Unit 2: Promotion of Business: Considerations in Establishing New Business. Qualities of a Successful Businessman. Forms of Business Organization - Sole Proprietorship, Partnership, Joint Stock Companies & Co-operatives and their Characteristics, relative merits and demerits, Difference between Private and Public Company, Concept of One Person Company.

Unit 3: Plant Location and Layout: Meaning, Importance, Factors affecting Plant Location. Plant Layout - Meaning, Objectives, Importance, Types of Layout. Factors affecting Layout. Size of Business Unit - Criteria for Measuring the Size and Factors affecting the Size. Optimum Size and factors determining the Optimum Size.

Unit 4: Business Combination: Meaning, Characteristics, Objectives, Causes, Forms and Kinds of Business Combination. Rationalization: Meaning, Characteristics, Objectives, Principles, Merits and demerits, Difference between Rationalization and Nationalization.

Unit 5: Computer Essentials: Milestones of Computer Evolution – Computer, Block diagram, generations of computer . Internet Basics - Internet, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications. Ethical and Social Implications - Network and security concepts- Information Assurance Fundamentals, Cryptography - Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques, privacy and data protection

Reference Books:

1. Gupta, C.B., “Business Organisation”, Mayur Publication, (2014).
2. Singh, B.P., Chhabra, T.N., “An Introduction to Business Organisation & Management”, Kitab Mahal, (2014).
3. Sherlekar, S.A. & Sherlekar, V.S, “Modern Business Organization & Management Systems Approach Mumbai”, Himalaya Publishing House, (2000).
4. Bhusan Y. K., “Business Organization”, Sultan Chand & Sons.
5. Prakash, Jagdish, “Business Organistaton and Management”, Kitab Mahal Publishers (Hindi and English)
6. Fundamentals of Computers by V. Raja Raman
7. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

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

I B.Com(C.A.) – II Semester

Course4: OFFICE AUTOMATION TOOLS

Course Code:

No. of Hours/Week: 4

Paper I

Course Objectives:

The objective of this paper is to help students to acquire knowledge on the environment of GUI in Ms-Word and its features. To introduce the fundamentals concepts of using Ms-Word and its features to make it more useful and provide hands on use of Word, Excel and PowerPoint.

Course Outcomes:

After the successful completion of the course, the students will be able:

1. To understand concept of Word Processor and use its features.
2. To use the advanced features of Ms-Word to make day to day usage easier.
3. To work comfortably with Ms-Excel Environment.
4. To create work sheets and user advanced feature of Excel.
5. To create make presentations and inserting multimedia in them.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	1	-	-	-	2	1	2	2
CO2	2	2	2	-	-	-	3	2	2	2
CO3	2	1	1	-	-	-	3	2	2	3
CO4	2	2	2	-	-	-	3	2	2	3
CO5	2	3	3	-	-	-	3	3	3	3
Average	2	2	1.8	-	-	-	2.8	2	2.2	2.6

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

Unit 1: Introduction to MS Office & MS Word: MS-Word: Features of MS-Word, MS-Word Window components, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, Formatting characters, changing cases, Paragraph formatting ,Indents, Drop Caps ,Using format painter, Page formatting, Header & footer, Bullets & numbering, Tabs, Forming tables. Finding & replacing text, go to(F5) command, proofing text (Spell-check, Auto correct).

Case Study:

1. Create a document to write a letter to the DM&HO of the district complaining about Hygienic conditions in your area.
2. Create a document to share your experience of your recent vacation with family.

Unit 2: MS Word Advanced features: Difference between Wizard and Template - Customize the Quick Access Tool Bar – Macros: Purpose – Creating Macro – Using Macro – Storing Macro - ,Inserting pictures: From Computer, Online Pictures – Insert 3d Models - Insert Shapes – Insert Text Box – Insert Equation, Hyperlinks, Tables Insert tables Mail merging, Printing documents, Tables : Insert tables, Mathematical calculations on tables data. Insert Text Box etc.

Case Study:

1. Create a document to send a holiday intimation to all the parents at time about Dasara Vacation.
2. Create a document to create Time Table of you class using tables.

Unit 3: Introduction to MS Excel & Its features: MS-Excel: Excel Features, Spreadsheets, workbooks, creating, saving & editing a workbook, Renaming sheet, cell entries (numbers, labels, and formulas), spell check ,find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its parts, Some useful Functions in Excel (SUM,AVERAGE,COUNT, MAX,MIN, IF),

Case Study:

1. Create a worksheet with you class marks displaying total, average, top marks in the class and least marks in the class.

Unit 4: Ms-Excel Advanced Features: Cell referencing (Relative, Absolute, Mixed), What-if analysis, Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet – Sort – Filters – View Menu

Case Study:

1. Prepare a chart with height and weights of you class mates in atleast 3 types of charts.
2. Demonstrate the use of Filter with the attendance data of your class.

Unit 5: Ms-PowerPoint and its Applications: MS-Power Point: Features of Power Point, Uses, components of slide, templates and wizards, using template, choosing an auto layout ,using outlines, adding sub headings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding cliparts and auto shapes. Various presentation, Working in slide sorter view(deleting, duplicating, rearranging slides),adding transition and animations to slide show, inserting music or sound on a slide, viewing slide show ,Printing slides.

Case Study:

1. Prepare a presentation with your achievements and experiences in College

Additional Inputs:

Create and modify simple macros, Insert and configure form controls, Apply Custom Data Formats and Validation

Note: Concepts from Additional inputs must be excluded from Examinations

Text Books:

1. Computer Fundamentals–Pradeep.K.Sinha:BPBPublications.
2. Fundamentals of Computers -ReemaThareja, Oxford University Press India

References Books

1. Fundamentals of Computer – V . Rajaraman, Printice Hell of India.
2. Introduction to Computers–Peter Norton McGraw-Hill.

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

I B.Com(C.A.) – II Semester

Course: Office Automation Tools

List of Experiments

Course Code:

No. of Hours/Week: 2

Course Objectives:

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

Course 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

List of Experiments

- 1) Design a visiting card for Managing Director of a company as per the following specification.
 - Size of visiting card is $3\frac{1}{2} \times 2$
 - Name of the company with big font
 - Phone number, Fax number and E-mail address with appropriate symbols.
 - Office and Residence address separated by a line
- 2) Create a table with following columns and display the result in separate cells for the following
 - Emp Name, Basic pay, DA, HRA, Total salary.
 - Sort all the employees in ascending order with the name as the key
 - Calculate the total salary of the employee
 - Calculate the Grand total salary of the employee
 - Finding highest salary and
 - Find lowest salary
- 3) Prepare an advertisement to a company requiring software professional with the following
 - Attractive page border
 - Design the name of the company using WordArt
 - Use at least one clipart.
 - Give details of the company (use bullets etc)
 - Give details of the Vacancies in each category of employee's (Business manager, Software engineers, System administrators, Programmers, Data entry operators) qualification required.
- 4) Create a letter having following specifications
 - Name of the company on the top of the page 2 with big font and good style
 - Phone no, Fax no and E-mail address with symbols.
 - Main products manufactured by the company
 - Slogans if any should be specify in bold at the bottom
- 5) Create two pages of curriculum vitae of a graduate with the following specifications
 - Table to show qualifications with proper headings
 - Appropriate left and right margins
 - Format $\frac{1}{2}$ page using two-column approach about yourself
 - Name on each page at the top right side
 - Page no. in the footer on the right side.

6) Write a macro format documents below

- Linespacing“2”(double)
- Paragraphindentof0.1
- Justification formatting style
- Arial font andBoldof14pt-size

7) Create a letter as the main document and create10 records for the10 persons use mailmerge to create letter for selected persons among10.

8) Create an electronic spread sheet in which you enter the following decimal numbers and convert the min to octal, Hexa decimal and binary numbers and vice-versa.

Decimal Numbers: 35,68,95,78,165,225,355,375,465

Binary Numbers: 101,1101,11101,11111,10001,11101111

9) Calculate the net pay of the employees following the conditions below

	A	B	C	D	E	F	G	H	I
1	Employee Number	Employee name	Basic Pay	DA	HRA	GPF	Gross Pay	Income tax	Net Pay
2									

DA :- 56%ofthebasicpayifBasicpayisgreaterthan20000 or else44%.

HRA:- 15%oftheBasicpaysubjectto maximumofRs.4000.

GPF: -10%ofthebasicpay.

INCOMETAX:-10%ofbasicifBasicpayisgreaterthan20000. Find who is getting highest salary & who is get lowestsalary?

10) The ABC Company shows the sales of different product For5years.CreateBARGraph, 3D and Pie chart for the following.

A	B	C	D	E	F
S.No.	Year	Pro1	Pro2	Pro3	Pro4
1	1989	1000	800	900	1000
2	1990	800	80	500	900
3	1991	1200	190	400	800
4	1992	400	200	300	1000
5	1993	1800	400	400	1200

11) Create a suitable examination data base and find the sum of the marks (total) of each student and respective, class secured by the student.

Pass: if marks in each subject \geq 35

Distinction :if average \geq 75

First class :if average \geq 60but $<$ 75

Second class: if average \geq 50butlessthan60

Third class: if average \geq 35butlessthan50

Fail: if marks in any subject $<$ 35

12) Enter the following data into the sheet.

Name	Department	Salary
Anusha	Accounts	12000
Rani	Engineering	24000
Lakshmi	Accounts	9000
Purnima	Marketing	20000
Bindu	Accounts	4500

Tejaswi	Accounts	11000
Swetha	Engineering	15000
Saroja	Marketing	45000
Sunitha	Accounts	5600
Sandhya	Engineering	24000
Harika	Marketing	8000

13. Enter the following data in to the sheet.

	Raju	Rani	Mark	Rosy	Ismail	Reshma
English	76	89	43	51	76	87
2ndLang	55	85	78	61	47	33
Maths	65	82	34	58	52	65
Computers	45	91	56	72	49	56
Human Values	51	84	54	64	32	64

Apply the conditional formatting for marks

- 35 below Red
- 35 to 50 Blue
- 51 to 70 Green
- 71 to 100 Yellow

14) Create a presentation using templates.

15) Create a Custom layout or Slide Master for professional presentation.

16) Create a presentation with slide transitions and animation effects.

17) Create a table in PPT and apply graphical representation.

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

II B.Com(C.A.) – III Semester

Course: Programming with C & C++

Course Code:

No. of Hours/Week: 2

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:

1. Develop programming skills in C and C++
2. Learn the syntax and semantics of programming languages C and C++
3. Ability to work with textual information (characters and strings) & arrays
4. Understand functional hierarchical code organization
5. Evaluate comparisons and limitations of the various programming constructs and choose correct one for the task in hand.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	-	-	1	3	2	2	2
CO2	3	2	2	-	-	2	3	2	3	3
CO3	3	-	-	-	-	1	3	3	3	3
CO4	3	1	1	-	-	1	3	3	3	3
CO5	2	-	-	-	-	1	3	3	3	3
Average	2.8	1	0.8	-	-	1.2	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

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, **Nested** If, Else-if ladder 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- Categories of Functions, Types of arguments, 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.

Additional Inputs:

Constructor Overloading, Virtual functions-Advantages & Disadvantages,

Note: Concepts from Additional inputs must be excluded from Examinations

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 [Yashavant Kanetkar](#)
6. The C++ Programming Language [Bjarne Stroustrup](#)
7. C++ Primer [Stanley B. Lippman](#), [Josée Lajoie](#), [Barbara E. Moo](#)

Online Resources:

1. <https://www.tutorialspoint.com/cprogramming/index.html>
<https://www.learn-c.org/>
2. <https://www.programiz.com/c-programming>
3. <https://www.w3schools.in/c-tutorial/>
4. <https://www.tutorialspoint.com/cplusplus/index.html>
5. <https://www.programiz.com/cppprogramming>
6. <http://www.cplusplus.com/doc/tutorial/>
7. <https://www.learn-cpp.org/>
8. <https://www.javatpoint.com/cpp-tutorial>

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

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 APPLICATIONS
II B.Com(C.A.) – IV Semester

Course: Database Management Systems

Course Code:

No. of Hours/Week: 4

Paper : IV

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.

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of the relational data model.
3. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization
4. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS using SQL
5. Perform PL/SQL programming

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1	-	1	3	2	2	3
CO2	3	3	3	2	1	1	3	3	2	3
CO3	3	2	3	2	-	2	3	3	2	3
CO4	3	3	3	1	1	1	3	3	3	3
CO5	2	2	2	1	1	2	3	2	3	3
Average	2.8	2.4	2.6	1.4	0.6	1.4	3	2.6	2.4	3

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

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, Integrity Constraints: General constraints, Key Constraints, Referential Integrity Constraints, Domain Constraints, 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.

Additional Inputs:

Functional Dependencies, Loss-less Join

Note: Concepts from Additional inputs must be excluded from Examinations

References:

1. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
2. Paneerselvam: Database Management system, PHI.
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:

1. <http://www.onlinegdb.com/>
2. <http://www.tutorialspoint.com/>
3. <http://learnsql.com>
4. <https://www.codecademy.com/learn/learn-sql/>
5. <https://www.w3schools.com/sql/default.asp>

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

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 and with user permission has to be merged with basic.

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

Course: BIG DATA ANALYTICS USING R

Course Code:

No. of Hours/Week: 2

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.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1	-	1	3	2	2	3
CO2	3	3	3	1	1	1	3	3	2	3
CO3	3	2	3	1	-	2	3	3	2	3
CO4	3	3	3	1	1	1	3	3	3	3
CO5	2	2	2	1	1	2	3	2	3	3
Average	2.8	2.4	2.6	1	0.6	1.4	3	2.6	2.4	3

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], -/0:No Correlation)

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

Additional Inputs:

Data Cleansing in R, Techniques in Data Cleansing

Note: Concepts from Additional inputs must be excluded from Examinations

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

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

Course: BIG DATA ANALYTICS USING R LAB

Course Code:

No. of Hours/Week: 2

Paper : 6A

Big Data Analytics Using R---- Lab (Practical) Syllabus

Course Outcomes:

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

1. Create vectors in R and perform operations on them
2. Create objects in R. and perform operations on them
3. Load data using data frames in to R and manipulate them

(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 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 APPLICATIONS
III B.Com(C.A.) – V Semester

Course: DATA SCIENCE USING PYTHON

Course Code:

No. of Hours/Week: 4

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.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	-	-	1	3	2	2	2
CO2	3	2	2	-	-	2	3	2	3	3
CO3	3	-	-	-	-	1	3	3	3	3
CO4	3	1	1	-	-	1	3	3	3	3
CO5	2	-	-	-	-	1	3	3	3	3
Average	2.8	1	0.8	-	-	1.2	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], -/0:No Correlation)

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.

Additional Inputs:

Data Pipelines, Data Preparation

Note: Concepts from Additional inputs must be excluded from Examinations

References:

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

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

Course: DATA SCIENCE USING PYTHON LAB

Course Code:

No. of Hours/Week: 2

Paper : 7A

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.)

Course Outcomes:

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

1. Implement tasks in Python
2. Work with classes, functions and modules in Python
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 APPLICATIONS

III B.Com(C.A.) – V Semester

Course: MOBILE APPLICATION DEVELOPMENT

Course Code:

No. of Hours/Week: 4

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 and identify the significance of displays using the given view
4. Explain the features of services and able to publish android Application
5. Developing interesting Android applications using MIT App Inventor

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	-	-	-	3	2	2	2
CO2	3	2	2	-	-	-	3	2	3	3
CO3	3	-	-	-	-	-	3	3	3	3
CO4	3	1	1	-	-	-	3	3	3	3
CO5	2	-	-	-	-	-	3	3	3	3
Average	2.8	1	0.8	-	-	-	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

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 vie
- 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

Additional Inputs:

Android- Activities, Services, Intents, Receiving and Broadcasting Intents

Note: Concepts from Additional inputs must be excluded from Examinations

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 APPLICATIONS
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

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	1	1	-	3	2	2	2
CO2	3	2	2	2	1	-	3	2	3	3
CO3	3	-	1	1	1	-	3	3	3	3
CO4	3	1	1	2	1	-	3	3	3	3
CO5	2	-	2	2	1	-	3	3	3	3
Average	2.8	1	1.4	1.6	1	-	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

Unit I: Introduction to Networks & cyber security

- a. Computer Network Basics
- b. Computer network types
- c. OSI Reference model
- d. TCP/IP Protocol suite
- e. Difference between OSI and TCP/IP
- f. What is cyber, cyber-crime and cyber-security
- g. All Layer wise attacks
- h. Networking devices: router, bridge, switch, server, firewall
- i. How to configure: router
- j. How to create LAN

Unit-II: NIST Cyber security framework

- k. Introduction to the components of the framework
- l. Cyber security Framework Tiers
- m. What is NIST Cyber security framework
- n. Features of NIST Cyber security framework
- o. Functions of NIST Cyber security framework
- p. Turn the NIST Cyber security Framework into Reality/ implementing the framework

Unit-III: OWASP

- q. What is OWASP?
- r. OWASP Top 10 Vulnerabilities
 - i. Injection
 - ii. Broken Authentication
 - iii. Sensitive Data Exposure
 - iv. XML External Entities (XXE)
 - v. Broken Access Control
 - vi. Security Misconfiguration
 - vii. Cross-Site Scripting (XSS)
 - viii. Insecure Deserialization
 - ix. Using Components with Known Vulnerabilities
 - x. Insufficient Logging and Monitoring
 - xi. Web Application Firewall**

Unit-IV: MALWARE ANALYSIS

- s. What is malware
- t. Types of malware
 - i. Key loggers
 - ii. Trojans
 - iii. Ransomware
 - iv. Rootkits
- u. Antivirus
- v. Firewalls
- w. Malware analysis
 - i. VM ware
 - ii. How to use sandbox
 - iii. Process explorer
 - iv. Process monitor

Unit V: CYBER SECURITY: Legal Perspectives

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

Additional Inputs:

End Point device and Mobile phone, security, Password policy, Security patch management

Note: Concepts from Additional inputs must be excluded from Examinations

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 APPLICATIONS
III B.Com(C.A.) – V Semester
Course: E– COMMERCE APPLICATION DEVELOPMENT

Course Code:

No. of Hours/Week: 2

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.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	1	1	1	3	2	2	2
CO2	3	2	2	-	1	2	3	2	3	3
CO3	3	-	-	1	-	1	3	3	3	3
CO4	3	1	1	1	-	1	3	3	3	3
CO5	2	-	-	-	1	1	3	3	3	3
Average	2.8	1	0.8	0.6	0.6	1.2	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-/0:No Correlation)

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

Additional Inputs:

Online Product marketing, various strategies used in Ecommerce, Display Advertisements.

Note: Concepts from Additional inputs must be excluded from Examinations

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 APPLICATIONS
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

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	1	-	2	-	3	2	2	2
CO2	1	2	2	-	1	-	3	1	1	3
CO3	2	-	-	-	2	-	3	2	2	1
CO4	1	1	1	-	3	-	3	1	2	2
CO5	2	-	-	-	2	-	3	2	2	1
Average	1.6	1	0.8	-	2	-	3	1.6	1.8	1.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], -/0:No Correlation)

Unit I: Introduction to E-Governance

- a. Government, Governance and Good Governance
- b. What is E-Governance or Electronic Governance?
- c. E-Government and E-Governance: A conceptual Analysis
 - i. Objectives
 - ii. Components
 - iii. application domains
 - iv. four phase model
 - v. implementing E-Governance
 - vi. issues while implementing E-Governance
 - vii. Opportunities and challenges
- d. Types of E-Governance
- e. What is Real-Time Governance (RTG)
- f. Real Time Governance Society (RTGS)

Unit-II: E-Governance Infrastructure

- a. Data Systems infrastructure
 - i. Executive Information Systems
 - ii. Management Information Systems
 - iii. Knowledge Management Systems
 - iv. Transaction Processing Systems
- b. Legal Infrastructural preparedness
 - v. IT Act 2000
 - vi. Challenges to Indian law and cybercrime scenario in India
 - vii. Amendments of the Indian IT Act
- c. Institutional Infrastructural preparedness
 - viii. Internet
 - ix. intranet
 - x. extranet
- d. Human Infrastructural preparedness
 - xi. Top-level management
 - xii. Middle-level management
 - xiii. Low-level management
- e. Technological Infrastructural preparedness
 - xiv. Information and communications technology
 - xv. Data Warehousing
 - xvi. Cloud Computing

Unit-III: E-Governance: Country Experience

- a. INDIA
- b. US
- c. UK
- d. AUSTRALIA
- e. DUBAI

Unit-IV: E-Governance in India

- a. Andhra Pradesh
- b. Karnataka
- c. Kerala
- d. Uttar Pradesh
- e. Madhya Pradesh
- f. West Bengal
- g. Gujarat

Unit V: Latest Applications in Real Time Governance

- a. Agriculture
- b. Rural Development
- c. Health care
- d. Education
- e. Tourism
- f. Commerce and Trade

Additional Inputs:

Case study on mee-seva/Village Secretariat/Ward secretariat, a new paradigm in citizen Services in India/Andhra Pradesh

Note: Concepts from Additional inputs must be excluded from Examinations

References:

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

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

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	-	-	-	3	2	2	2
CO2	3	2	2	-	-	-	3	2	3	3
CO3	3	-	-	-	-	-	3	3	3	3
CO4	3	1	1	-	-	-	3	3	3	3
CO5	2	-	-	-	-	-	3	3	3	3
Average	2.8	1	0.8	-	-	-	3	2.6	2.8	2.8

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

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
 - Pulse code modulation
 - Differential coding of audio
 - 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
 - 1.2.3 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

Additional Inputs:

Product design and Authoring tools: Building blocks – classes of products

Note: Concepts from Additional inputs must be excluded from Examinations

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 APPLICATIONS
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:

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

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	-	-	-	3	2	2	2
CO2	3	2	2	-	-	-	3	2	3	3
CO3	3	-	-	-	-	-	3	3	3	2
CO4	3	1	1	-	-	-	3	3	3	3
Average	3	1.25	1	-	-	-	3	2.5	2.75	2.75

The COs are mapped to POs based on the relevance on a scale of 0-3

(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High], '-'/0:No Correlation)

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

Additional Inputs:

GIMP Plug-ins, GIMP-DDS Plug-in, GIMP-Resynthesizer

Note: Concepts from Additional inputs must be excluded from Examinations

References:

- 1. Beginning GIMP from Novice to professional by Akkana Peck, Second Edition, Apress