GURU KASHI UNIVERSITY

Diploma in Computer Applications
Session: 2022-2023

Department of Computer Applications

PROGRAM LEARNING OUTCOME

After completion the program the student will be able to:

- Understand and apply mathematical foundation, computing knowledge for the conceptualization of computing models from defined problems.
- Identify, critically analyze and formulate complex computing problems using fundamentals of computer science and application domains.
- Use the modern programming languages, tools, techniques, and skills necessary for designing, developing, and deploying software-based applications.
- Apply ethical principles and commit to professional ethics and responsibilities and norms of the computer practice.
- Communicate effectively with different stakeholders using a variety of modes and techniques, including written reports, oral presentations, and visual aids.
- Adopt a research culture and implement policies to address pressing local and global concerns.

Programme Structure

Course Code	Course Title	Type of course	L	T	P	Credits
Semester-I						
DCA101	Fundamentals of Computer	T	3	1	0	4
DCA102	Operating Systems	T	3	1	0	4
DCA103	Effective Communication Skills	T	3	1	0	4
DCA104	Office Automation Systems	T	3	1	0	4
DCA105	S/W Lab-I (Office Automation System)	P	0	0	4	2
DCA106	Effective Communication Skills Lab	P	0	0	8	4
DCA107	Installation, Assembling and Networking of Computers (Practical)	P	0	0	4	2
Total			**12**	**4**	**16**	**24**

Semester-II							
Course Code	**Course Title**	**Type of course**	**L**	**T**	**P**	**Credits**
DCA201	Fundamentals of Web Technology	T	3	1	0	4
DCA202	Programming in C	T	3	1	0	4
DCA203	Data Structures	T	3	1	0	4
DCA204	S/W Lab-II (Programming in C)	P	0	0	6	3
DCA205	S/W Lab-IV(Fundamentals of Web Technology)	P	0	0	4	2
DCA206	Workshop on MS-Office	P	0	0	16	8
Total			**9**	**3**	**26**	**25**

Evaluation Criteria for Theory Courses

A. Continuous Assessment: [25 Marks]

   i. CE-I(10 Marks)
   ii. CE-II(10 Marks)
   iii. CE-III(5Marks)

(For each CE Conduct Surprise Test, Quiz, and Term Paper. Assignment etc.)

B. Attendance (5 marks)
C. Mid Semester Test-1: [30 Marks]
D. MST-2: [20Marks]
E. End-Term Exam: [20 Marks]

Evaluation Criteria for Practical Subjects

 Total 20 Marks (Each Practical)

A. Performance of each practical (10 Marks)
B. Report (05 Marks)
C. Practical Viva (05 Marks)

Evaluation Criteria for Training/Internship/Survey Camp etc.

 Total 25 Marks

A. Each Report(25 Marks) – Weekly/Monthly (25 Marks)

Evaluation Criteria for other courses has been given separately with the respective courses

Semester-I

Course Title: Fundamentals of Computer
Course Code: DCA101

UNIT - I

Computer Fundamentals: Block diagram of a computer, characteristics of computers and generations of computers.

Number System: Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other, representation of characters, integers and fractions.

Binary Arithmetic: Addition, subtraction and multiplication.

UNIT – II

Computer Codes: weighted and non-weighted code, BCD, EBCDIC, ASCII, Unicode.

Input Devices: Keyboard, Mouse, Joy tick, Track Ball, Touch Screen, Light Pen, Digitizer, Scanners, Speech Recognition Devices, Optical Recognition devices – OMR, OBR, OCR **Output Devices:** Monitors, Printer and its Types.

UNIT – III

Memories: Units of Memory, Main Memories - RAM, ROM and Secondary Storage Devices - Hard Disk, Compact Disk, DVD.

Computer languages: Machine language, assembly language, higher level language,4GL.

UNIT – IV

Introduction to Compiler, Interpreter and Assembler.

Computer Software: Need, Types – System software, Application software

Internet: Basic Internet terms: Web Page, Website, Home page, Browser, URL, Hypertext, Web Server, Applications: WWW, e-mail, Instant Messaging, Videoconferencing. Computer Virus Virus ,Types of Viruses Virus detection and prevention.

Text Book:
1. **"Foundations of Computing",** P.K. Sinha and P. Sinha, First Edition, 2002, BPB.
2. **"Computers Today",** D. H. Sanders, Fourth Edition, McGraw Hill, 1988.
3. **"Fundamentals of Computers"**, V. Rajaraman, Second Edition, Prentice Hall of India, New Delhi, 1996.
4. **"Information Technology",** Satish Jain, Paperback Edition, BPB 1999.
5. **"Fundamentals of Information Technology**", Chetan Srivastva, Third edition, Kalayani Publishers.

Course Title: Operating Systems
Course Code: DCA102
UNIT-I

Introduction: Operating system Meaning, Supervisor & User mode, Operating system operations & Functions, Types of OS.

UNIT-II

Process management: Process Concept, PCB, Process Scheduling, Cooperating Processes, Overview of Inter process Communication, Context Switching, scheduling criteria, Type of Scheduling: Long term, Short term & Medium term scheduling, scheduling algorithms, Deadlock concept & handling.

UNIT-III

Memory Management: Logical & Physical Address space, Swapping, Contiguous memory allocation, paging, segmentation, Virtual memory, demand paging, Overview of Page replacement, Thrashing.

UNIT-IV

Secondary Storage Structure: disk structure, Disk Scheduling, disk management, swap space management.

 Text Books:

1. Silberschatz, Gagne & Galvin, "Operating System Concepts", John Wiley & Sons, Seventh Edition or Latest.
2. A.S. Tanenbaum : Operating System : Design and Implementation, Prentice Hall of India.
3. Milankovic, Operating system, Tata Macgraw Hill, New Delhi.
4. Stalling, W., "Operating Systems", 2nd edition, Prentice Hall.
5. Deitel H. M., "Operating Systems, 2nd edition, Addison Wesley.

Course Title: Effective Communication Skills
Course Code: DCA103

UNIT – I

English Language: Sentence, Parts of speech, Tenses, Active passive voice, Direct/Indirect speech, Creative writing& vocabulary, Comprehension passage, Reading of Biographies of at least 10 IT business personalities.

UNIT – II

Business communication: Types, Medias, Objectives, Modals, Process, Importance Understanding Barriers to communication & ways to handle and improve barriers.
Listening skills: Its importance as individual and as a leader or as a worker,

Types of listening and Traits of a good listener, Note taking, barriers to listening & remedies to improve listening barriers

UNIT - III

Non verbal Communication- understanding what is called non verbal communication, its importance as an individual, as a student, as a worker and as a leader, its types.

Presentation skills-Its Purpose in business world, How to find material for presentation, How to sequence the speech with proper introduction and conclusion, How to Prepare PPT& Complete set of required body language while delivering presentation.

UNIT - III

Reading Skills- to enhance independent reading, Comprehension Passages, News / Magazine articles on stereotype topics, Poems – Abu Ben Adhem, The Tiger

Writing skills- Importance of reading and writing, improving writing skills through Basic cohesive paragraph writing, Resume writing, Job application writing/acceptance letter

Text Book:
1. **"Effective Business Communication"**, M.V.RODRIGUEZ
2. **"Living English Structure"**, W. Standard Allen (Orient Longman)
3. **"Business Communication"**, Meenakshi Raman,Parkash Singh,   Paperback Edition,Oxford University Press.

Course Title: Office Automation Systems
Course Code: DCA104

UNIT - I

MS Word: Introduction, Creating & Editing Word Document. Saving Document, Working with Text: Selecting, Formatting, Aligning, Finding Replacing Text, Bullets & Numbering, Header & Footer, Working with Tables, Properties Using spell checker, Grammar, AutoCorrect Feature, Graphics: Inserting Pictures, Clipart, Drawing Objects, Setting page size and margins; Printing documents. Mail Merge.

UNIT – II

MS-Excel: Environment, Creating, Opening, & Saving Workbook, Range of Cells, Formatting Cells, Functions: Mathematical, Logical, Date Time, Auto Sum, Formulas. Graphs: Charts. Types & Chart Tool Bar, Printing: Page Layout, Header and Footer Tab.

UNIT - III

MS PowerPoint: Environment, Creating and Editing presentation, Auto content wizard using built-in templates, Types of Views: Normal, Outline, Slide, Slide Sorter, Slide Show, Creating, customized templates; formatting presentations, AutoShapes, adding multimedia contents, printing slides

UNIT - III

Internet: Basic Internet terms: Web Page, Website, Home page, Browser, URL, Hypertext, Web Server, Applications: WWW, e-mail, Instant Messaging, Videoconferencing.

Text Book:

1. **"Foundations of Computing",** P.K. Sinha and P. Sinha, First Edition, 2002, BPB.
2. **"Computers Today",** D. H. Sanders, Fourth Edition, McGraw Hill, 1988.
3. **"Fundamentals of Computers"**, V. Rajaraman, Second Edition, Prentice Hall of India, New Delhi, 1996.
4. **"Information Technology",** Satish Jain, Paperback Edition, BPB 1999.
5. **"Fundamentals of Information Technology**", Chetan Srivastva, Third edition, Kalayani Publishers
6. **"Computers"**, Larry long & Nancy long, Twelfth edition, Prentice Hall

Course Title: S/W Lab – I (Office Automation System)
Course Code: DCA105

MS Windows: Familiarizing with windows operating system; using built-in accessories; managing files and folders using windows explorer; working withcontrol panel; installing hardware and software, Installation of MS Office.

MS Word: Salient features of MS WORD, Starting and quitting of MS WORD, File, Edit, View, Insert, Format, Tools, Tables, Window, Help options and all of their features, Options and
sub options etc. Transfer of files between MS WORD and other word processors and software packages.

MS Excel: Spread Sheet. Getting started with Excel worksheet, Entering data into work sheet, Editing cell addressing, Ranges and range names, Commands, Menus, Copying and moving cell contents, Inserting and deleting rows and columns, Column width control, Cell protection,Printing reports, Creating and displaying graphs, Statistical functions.

MS Power Point: Salient features of POWER POINT, File, Edit, View, Insert, Format, Tools, and Slide Show.

Internet: Navigating with Internet Explorer; surfing the net, using search engines; using email.

Course Title: S/W Lab – I (Effective Communication Skills Lab)

Course Code: DCA106

UNIT I

Listening Practices: Listen and takes notes of Lecture, Listen and Write appropriate word, Talks on Engineering and Technology, Developing effective listening skills, barriers to effective listening

Unit – 2

Speaking: Self-Introduction, Role play of Celebrities, Sharing memorable incidents

Unit – 3

Reading: Reading Online Blogs, Reading Advertisement in Online, Newspaper archives reading

Unit – 4

Writing Process Description, Narrating experiences, Creating Email blogs, Review Writing – Books, Movies, and Journals

Unit -5

Summarized Activities:

Reading – cloze exercises, identifying redundant words, Jargon words, foreign words, Technical terms

Writing – Error free sentences, Sequential paragraphs, Essay writing on various levels – basic, middle, and advanced

Speaking – Face to face conversation on specific topics, interviewing celebrities, getting acquaintance with new people, sharing information with persons from abroad

Course Title: Installation, Assembling and Networking of Computers

Course Code: DCA 107

1. Introduction of Hardware and Software/components of computer.
2. Mother boards, Chipsets & Microprocessor concept & latest available in market.
3. Basics & Types of Floppy drive/HDD/DVD/RAM /SMPS/ /BIOS.
4. Assembling of different parts of computers.
5. Knowing ports, wires attached in the Computer.
6. Installation of OS (Linux/Windows).
7. Installation of application and utility software.
8. Networking Basics: Different types of Topologies and their configuration.
9. Types of Switches, I/O Sockets.
10. Creation of Cross Wires and Direct Cables.
11. IP & Setting up a computer on LAN.

Course Title: Fundamentals of Web Technology
Course Code: DCA201

Course Content
UNIT I

HTML: Introduction, HTML Tags, Commonly used HTML Commands, Structure of HTML
Program, Formatting, TextStyles, Text Effects
HTML: HTML Lists, Types of lists,Adding graphics to HTML Document

UNIT II

HTML: Creating tables, Linking documents, Frames
HTML Forms: Properties and Methods, Button, Text, Text Area, Checkboxes, radio buttons,select and option elements

UNIT III

Web Development: Web site, Web page, Static Website and Dynamic Website.
HTML: Web Server, Web Client/ Browser
DHTML: Cascading Style Sheets, Class, External Style Sheets
Introduction to JavaScript: How & Where to put the JavaScript Code, JavaScript Statements, Comments,Variables, Operators, Control Statements, Loops, Popup Boxes, Functions.

UNIT IV

Purchasing a Domain Name & Web Space:Domain Name & Web Space, Getting a Domain Name & Web Space (Purchaseor Free), Uploading the Website to Remote Server.
Internet: Basic Concepts, Communicating on the Internet, Internet Domains, Establishing connectivity to the Internet, Client IP Address, IP Address.

Text Books:

1.Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, PHP", Bayros Ivan, BPB publication,Fourth Revised Edition

2. "Beginning JavaScript", by Paul Wilton, Jeremy McPeak, Wrox

3. "E-Commerce for Dummies",Don Jones, Mark Scott & rick Villars, Published by Hungry Minds

Course Title: Programming Using C
Course Code: DCA 202

Course Content
UNIT I

Introduction: ANSI C standard, Overview of Compiler and Interpreters, Structure of C Program, Programming rules, Execution
Basic structure of C program: Character set, Identifiers and keywords, constants, variable, Data types, input and output, type conversion,

Operators and expressions: Arithmetic, Unary, Logical and Relational operators, assignment operators, Conditional operators, type conversion. Library functions.

UNIT II

Input/ Output in C: Formatting input & output functions.
Decision making statements – if, else if

Control statements: branching, looping using For, While and Do-While statements, nested control structures, switch, break and continue statements.

UNIT III

Arrays: Definition, declaration, assignment, one dimensional and two dimensional arrays.

Strings: input/output of strings, string handling functions, table of strings.

Pointers: pointer data type, pointer declaration, initialization, accessing values using pointers.

Functions: prototype, definition and call, formal and actual arguments, methods of parameter passing to functions, recursion versus iteration.

UNIT IV

Structures and unions: using structures and unions, comparison of structure with arrays and union.

Files: opening and closing files, Basic I/O operation on files.
Storage Classes: automatic, external, static and register variables.

Text Book:
1. "Let us C", Yashvant P Kanetkar, Seventh Edition, BPB Publications, New Delhi.
2. "Programming in C", E. Balagurusamy, Tata McGraw Hill.
3. "Programming in C", Byron S. Gottfried, Second Edition, McGraw Hills.
4. "The C Programming Language", Kernighan & Richie, Second Edition, PHI
Publication
5. "Problem Solving and Programming in C", R. S. Salaria, Second Edition

 Course Title: Data Structures
 Course Code: DCA203

Course Content

UNIT I

Introduction: definition, various types of data structures, data structure operations, algorithms complexity and Time Space Trade-off.

Arrays and Records: Linear arrays, Representation of linear arrays in memory, Operations on Array, Multidimensional arrays and its implementation, Pointers, pointer arrays, Records.

UNIT II

Stacks: Stacks, array representation of stacks, operation on stacks, Polish Notation, Notation conversion, evaluation of postfix expression, Applications of Stack.

Queues: Queues, implementation, operations on queue, Dequeues, Priority queues.

UNIT III

Linked Lists: Linked lists, Representation in memory, traversing link lists, operations on link list, overflow and underflow, Memory allocation, Header link list, two way lists.

Trees: Basic terminology, Binary trees and its representation, Complete binary tree, Extended binary tree, linked representation of binary tree, traversing binary tree, searching binary tree, Binary search trees.

UNIT IV

Sorting and Searching: Definitions, bubble sort, insertion sort, selection sort, quick sort, merge sort, radix sort, heap sort, Quick Sort, Linear Search, Binary Search.

Graphs: representation of graph, types of Graph, adjacency matrices, path matrix, Graph traversal: Breadth first search. Depth first search, shortest path problem: Warshall's algorithm, Dijkstra algorithm.

Text Books:

1. "Theory and Problems of Data Structures", Schaum's, SeymourLipschutz.
2. "Data structures through C++", G.S Baluja, PHI

Course Title: S/W Lab – II (C Programming)

Course Code: DCA204

1. Program to find sum of two numbers.

2. Program to test whether an entered number is even, odd or zero.

3. Program to test whether an entered number is prime number or not.

4. Program to print N terms of a Fibonacci Series.

5. Program to find the reverse of number.

6. Program to check whether a given Number or a given string is palindrome or not.

7. Program to reverse a given string.

8. Program to check whether a given number is prime or not.

9. Program to find the prime numbers up to N.

10. Program to print:

```
*
**
***
****
*****
```

11. Program to search a string in an array using read-data.

12. Program to find the frequency of vowels in a given string.

13. Program to find the frequency of each character in a given string.

14. Program to find greatest in a matrix using subroutine.

15. Program for Matrices Addition. And subtraction.

16. Program for Matrix Transpose.

17. Program to find sum of rows and column of a matrix.
18. Program to find sum of both diagonals of the matrix.

Course Title: S/W Lab – IV (Fundamentals of Web Technology)
Course Code: DCA205

1. Design the page with an attractive background color, text color and background image.
2. Design the page with an attractive color combination, with suitable headings and horizontal rules.
3. Write an HTML document with an example of Ordered List and Unordered List.
4. Write an HTML document with an example of Table format to print your Bio-Data.
5. Write an HTML document with an example of Table format to print your Telephone Bill.
6. Develop a complete web page using Frames and Frameset.
7. Write an HTML code for designing the subscription form of mail account in the e-mail website with appropriate fields.
8. Write an example of Style Sheet.
9. Design a webpage with colors in bgcolor, text and link, try out different sizes.
10. Design a single page web site for a university containing a description of the courses offered, it should also contain some general information about the university such as its history.
11. Write a HTML code for specifying the heading BS or cities in the HTML document.
12. Write a HTML Code for Nested list.
13. Write HTML code to develop a web page having background in blue and title "Welcome to my home page" in red other color.
14. Create an HTML document of giving details of your name, age, telephone no, address and enrolment no, aligned in proper order.
15. Design a web page that provides links to five different web pages or to entirely different websites.

Course Title: Workshop on M.S Office
Course Code: DCA206

1. Create and Design Admission/Enquiry Forms
2. Create bills/leaflets/brochures. See the sample below
3. Design E-book cover pages / Magazine front/ books front/back page using cover page option in Insert Menu

4. Create Business Cards using Shapes, text, and colors.

5. Use smart art and create organization charts

6. Make books content page or index page

7. Try to create similar Header & Footer that you're seeing in the Book

8. Create a letterhead, Identity card of any company or institution that you got and insert the Watermark with that company name in the document

9. Decorate word document with page border, content border, add pattern, and write beautiful text in it.

10. Insert Images and Practice on Format Menu and Image options

11. Write a leave letter to the Principal by using different alignments, correct formats in MS Word.

12. Insert template or download the new template in Microsoft Word from the Internet and edit those templates with your content

13. Uses of Microsoft Excel in Goal Setting and Planning

14. Uses of Microsoft Excel in Grading of a Student

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

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 .

Display average marks of the class, subject wise and pass percentage

15. Create a Visiting Card of your college using page size as follows

Page width="3.2"

Page height="2.2"

And use different font styles, sizes, alignments.