

3.1 DIGITAL ELECTRONICS

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4 - 2

RATIONALE

This course has been designed to make the students know about the fundamental principles of digital electronics and gain familiarity with the available IC chips. This subject aims to give a background in the broad field of digital systems design and microprocessors.

LEARNING OUTCOMES

After undergoing the subject, student will be able to:

- Verify and interpret truth tables for all logic gates.
- Realize all logic functions with NAND and NOR gates
- Design half adder and full adder circuit
- Demonstrate and design 4-bit adder, 2's complement subtractor
- Verify and interpret truth tables for all flip flops.
- Verify and interpret truth tables of multiplexer, de-multiplexer, encoder and decoder ICs
- Design a four bit ring counter and verify its operation
- Design 4-bit SISO, PISO, SIPO, PIPO shift registers

DETAILED CONTENTS

1. Introduction (02 hrs)
 - a) Distinction between analog and digital signal.
 - b) Applications and advantages of digital signals.
2. Number System (04 hrs)
 - a) Binary, octal and hexadecimal number system: conversion from decimal and hexadecimal to binary and vice-versa.
 - b) Binary addition, subtraction, multiplication and division including binary points. Sign magnitude method of representation, 1's and 2's complement method of addition/subtraction, floating point representation
3. Codes and Parity (04 hrs)
 - a) Concept of code, weighted and non-weighted codes, examples of BCD, excess-3 and Gray code.

- b) Concept of parity, single and double parity and error detection and correction (Hamming code)
 - c) Alpha numeric codes: ASCII, EBCDIC and Unicode.
4. Logic Gates and Families (07 hrs)
- a) Concept of negative and positive logic
 - b) Definition, symbols and truth tables of gates. Construction of NOT, AND and OR gates from NAND and NOR gates (universal gates).
 - (c) Introduction to TTL and CMOS logic families and their sub classification
5. Logic Simplification (06 hrs)
- a) Postulates of Boolean algebra, De Morgan's Theorems. Various identities. Formulation of truth table and Boolean equation for simple problem. Implementation of Boolean (logic) equation with gates
 - b) Karnaugh map (upto 4 variables) and simple application in developing combinational logic circuits
6. Arithmetic circuits (06 hrs)
- a) Half adder and Full adder circuit, design and implementation.
 - b) Half and Full subtractor circuit, design and implementation.
 - c) 4 bit adder/subtractor.
 - d) Adder and Subtractor IC (7484)
 - e) 2-bit comparator
7. Decoders, Multiplexers and De-Multiplexers (06 hrs)
- a) Basic functions and block diagram of Encoders and decoders.
 - b) Basic functions and block diagram of Multiplexers and De-Multiplexers. Different types and ICs.
 - c) Four bit decoder circuits for 7 segment display and decoder/driver ICs.
8. Latches and flip flops (06 hrs)
- a) Concept and types of latch with their working and applications
 - b) Operation using waveforms and truth tables of RS, T, D, JK and Master/Slave JK flip flops.
 - c) Difference between a latch and a flip flop
 - d) Flip flop ICs
9. Shift Register (07 hrs)
- Introduction and basic concepts including shift left and shift right.

- a) Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out.
 b) Universal shift register
 c) Buffer register, Tristate Buffer register
 d) IC 7495
10. Counters (08 hrs)
- a) Introduction to Asynchronous and Synchronous counters
 b) Binary up/down counters (upto MOD-8)
 c) Decade counter.
 d) Pre settable and programmable counters
 e) Ring counter with timing diagram
 f) Counter ICs
11. Analog to Digital and Digital to Analog Converters (08 hrs)
- a) Working principle of A/D and D/A converters
 b) Detail study of :
 - Binary Weighted D/A converter
 - R/2R ladder D/A converter
- a) Brief idea about different techniques of A/D conversion and study of :
 - Stair step Ramp A/D converter
 - Dual Slope A/D converter
 - Successive Approximation A/D Converter
- b) Performance characteristics of A/D and D/A converter.
 c) Applications of A/D and D/A converter.

LIST OF PRACTICALS

1. Verification and interpretation of truth tables for AND, OR, NOT NAND, NOR and Exclusive OR (EXOR) and Exclusive NOR(EXNOR) gates
2. - Realisation of logic functions with the help of NAND or NOR gates
 - Design of a NOR gate latch and verification of its operation
3. - To design a half adder using XOR and NAND gates and verification of its operation
 - Construction of a full adder circuit using XOR and NAND gates and verify its operation
4. To design 4 bit adder, 2's complement subtractor circuit using an 4 bit adder IC and an XOR IC and verify the operation of the circuit.
5. To design a NOR Gate Latch and verification of its operation

6. Verification of truth table for positive edge triggered, negative edge triggered, level triggered IC flip-flops (At least one IC each of D latch , D flip-flop, JK flip-flops).
7. Verification of truth table for encoder and decoder ICs, Mux and DeMux
8. To design a 4 bit SISO, SIPO, PISO, PIPO shift registers using JK/D flip flops and verification of their operation.
9. To design a 4 bit ring counter and verify its operation.
10. Asynchronous Counter ICs
Verification of truth table for any one universal shift register IC
Use of IC 7490 or equivalent TTL (a) divide by 2 (b) divide by 10 Counter
OR
Use of IC 7493 or equivalent TTL (a) divide by 2 (b) divide by 8 (c) divide by 16 counter

Note: Above experiments may preferably be done on Bread Boards.

INSTRUCTIONAL STRATEGY

The digital systems in microprocessors have significant importance in the area of electronics. Adequate competency needs to be developed by giving sufficient practical knowledge in microprocessors (programming as well as interfacing), A/D, D/A Converters and other topics. Help may be taken in the form of charts, simulation packages to develop clear concepts of the subject. Programming exercises other than the tested in circulation may be given to the students.

RECOMMENDED BOOKS

1. Digital Electronics and Applications by Malvino Leach, Tata McGraw Hill Education Pvt Ltd, New Delhi
2. Digital Logic Designs by Morris Mano, Prentice Hall of India, New Delhi
3. Digital Circuits and Design by DP Kothari and JS Dhillon, Pearson Publication, New Delhi
4. Digital Electronics by Soumitra Kumar Mandal, Tata McGraw Hill Education Pvt Ltd.
5. Digital Electronics by Tokheim, Tata McGraw Hill Education Pvt Ltd.
6. Digital Fundamentals by Thomas Floyds, Universal Book Stall
7. Digital Electronics by RP Jain, Tata McGraw Hill Education Pvt Ltd, New Delhi

8. Digital Electronics by KS Jamwal, Dhanpat Rai and Co., New Delhi
9. Digital Electronics by BR Gupta, Dhanpat Rai & Co., New Delhi
10. Digital Systems: Principles and Applications by RJ Tocci, Prentice Hall of India, New Delhi
11. Digital Electronics by Rajaraman V., Prentice Hall of India, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allocation (%)
1.	2	5
2.	4	5
3.	4	5
4.	7	15
5.	6	10
6.	6	10
7.	6	10
8.	6	10
9	7	10
10.	8	10
11.	8	10
Total	64	100

3.2 COMPUTER PROGRAMMING USING C

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RATIONALE

Computers play a vital role in present day life, more so, in the professional life of technician engineers. People working in the field of computer industry, use computers in solving problems more easily and effectively. In order to enable the students use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various applications of computers. The knowledge of C language will be reinforced by the practical exercises.

LEARNING OUTCOME

After undergoing the subject, the students will be able to:

- Identify the problem and formulate an algorithm for it.
- Identify various control structures and implement them.
- Identify various types of variables.
- Use pointer in an array and structure.
- Use structures and union for handling data.
- Explain the concepts of C programming language
- Explain and implement the language constructs concepts
- Install C software on the system and debug the programme
- Explain and execute member functions of C in the programme
- Describe and implement array concept in C programme
- Describe and execute pointers

DETAILED CONTENTS

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|----|---|----------|
| 1. | Algorithm and Programming Development | (04 hrs) |
| | 1.1 Steps in development of a program | |
| | 1.2 Flow charts, Algorithm development | |
| | 1.3 Programme Debugging | |
| 2. | Program Structure | (08 hrs) |
| | 2.1 I/O statements, assign statements | |
| | 2.2 Constants, variables and data types | |
| | 2.3 Operators and Expressions | |
| | 2.4 Standards and Formatted | |
| | 2.5 Data Type Casting | |

3. Control Structures (08 hrs)
 - 3.1 Introduction
 - 3.2 Decision making with IF – statement
 - 3.3 IF – Else and Nested IF
 - 3.4 While and do-while, for loop
 - 3.5 Break. Continue, goto and switch statements

4. Functions (08 hrs)
 - 4.1 Introduction to functions
 - 4.2 Global and Local Variables
 - 4.3 Function Declaration
 - 4.4 Standard functions
 - 4.5 Parameters and Parameter Passing
 - 4.6 Call - by value/reference

5. Arrays (06 hrs)
 - 5.1 Introduction to Arrays
 - 5.2 Array Declaration, Length of array
 - 5.3 Single and Multidimensional Array.
 - 5.4 Arrays of characters
 - 5.5 Passing an array to function

6. Pointers (06 hrs)
 - 6.1 Introduction to Pointers
 - 6.2 Address operator and pointers
 - 6.3 Declaring and Initializing pointers,
 - 6.4 Single pointer,
 - 6.5 Pointers to an Array

7. Structures and Unions (08 hrs)
 - 7.1 Declaration of structures
 - 7.2 Accessing structure members
 - 7.3 Structure Initialization
 - 7.4 Pointer to a structures,
 - 7.5 Unions

LIST OF PRACTICALS

1. Programming exercises on executing and editing a C program.
2. Programming exercises on defining variables and assigning values to variables.
3. Programming exercises on arithmetic and relational operators.
4. Programming exercises on arithmetic expressions and their evaluation.
5. Programming exercises on formatting input/output using printf and scanf and their return type values.
6. Programming exercises using if statement.
7. Programming exercises using if – Else.
8. Programming exercises on switch statement.
9. Programming exercises on do – while, statement.
10. Programming exercises on for – statement.
11. Programs on one-dimensional array.
12. Programs on two-dimensional array.
13. (i) Programs for putting two strings together.
(ii) Programs for comparing two strings.
14. Simple programs using structures.
15. Simple programs using pointers.
16. Simple programs using union.

INSTRUCTIONAL STRATEGY

The subject is totally practical based. Students should be given clear idea about the basic concepts of programming. In practical session student should be asked to draw flow chart write algorithm and then write program for the algorithm and run on computer. It is required that students should maintain records (files with printouts).

RECOMMENDED BOOKS

1. Let us C by Yashwant Kanetkar
2. Programming in ANSI C by E Balaguruswami, , Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Problem Solving and Programming in C by RS Salaria, Khanna Book Publishing Co(P) Ltd. New Delhi
4. Programming in C by Reema Thareja; Oxford University Press, New Delhi
5. Programming in C by Gottfried, Schaum Series, , Tata McGraw Hill Education Pvt Ltd , New Delhi
6. Exploring C by Yashwant Kanetkar – BPB Publications, New Delhi
7. Programming in C by Stefin G. Coachin
8. Programming in C by R Subburaj, Vikas Publishing House Pvt. Ltd., Jangpura, New Delhi
9. Elements of C by M.H. Lewin, Khanna Publishers, New Delhi
10. Programming in C by Stephen G Kochan
11. Programming in C by BP Mahapatra, Khanna Publishers, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	04	12
2	08	16
3	08	16
4	08	16
5	06	12
6	06	12
7	08	16
Total	48	100

3.3 SOFTWARE ENGINEERING

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RATIONALE

The system analysis and design is backbone of Application software development. After studying the subject the students will be able to develop and design the system according to given requirements. It involves various steps in analysis and design of the system. It includes the knowledge of preparing a project systematically. It is important to know about various aspects of system analysis and design so that the students will be able to understand the responsibilities while designing and implementing the project.

LEARNING OUTCOME

After undergoing the subject, the students will be able to:

- Analyze business problems and develop a requirements/specification document.
- Describe the various phases of the system development life cycle.
- Identify the expected benefits and scope of the projects
- Explain at least three ways in which information system support business requirement
- Prepare and develop data flow diagrams and decision tables.
- Perform a feasibility study of the system
- Write detailed design specifications for programmes and database.
- Select methods for evaluating the effectiveness and efficiency of a system.
- Apply different testing techniques on simple programme.

DETAILED CONTENTS

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| 1. | Introduction | (04 hrs) |
| | Concept of system. Types of systems, Open and Closed, Static and Dynamic with examples | |
| 2. | Overview of System Analysis and Design | (08 hrs) |
| | Systems Development life cycle, brief Introduction to feasibility, design implementation and testing and maintenance | |
| 3. | Preliminary Investigations | (08 hrs) |
| | Project selection, scope definition and preliminary investigation | |

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| 4. | Feasibility Study | (08 hrs) |
| | Technical and economic and operational feasibility, cost and benefit analysis | |
| 5. | Requirement Specifications and Analysis | (08 hrs) |
| | Fact finding techniques, data flow diagrams, data dictionaries, decision trees and tables, structural English. | |
| 6. | Detailed Design | (05 hrs) |
| | Module specification, file design, data base design | |
| 7. | Testing and Quality Assurance | (07 hrs) |
| | Maintenance, unit and integration testing techniques, design objectives, quality factors such as reliability etc. | |

INSTRUCTIONAL STRATEGY

The system analysis and design is a theoretical subject, so after completing the syllabus of system analysis and design the teacher will ask group of students to select a small project. The students will apply system analysis and design in preparation of the project.

RECOMMENDED BOOKS

- 1) Structured System Analysis and Design by ISRD Group, Tata McGraw Hill Education Pvt Ltd, New Delhi
- 2) System Analysis and Design by Awad, Galgotia Publications, New Delhi
- 3) Software Engineering by Nasib Singh Gill; Khanna Book Publishing Co. (P) Ltd., New Delhi
- 4) System Analysis and Design Vol. I & II by Lee, Galgotia Publications
- 5) System Analysis and Design with Case Tools by Len Fertuck WCB Publications 1992
- 6) Introducing System Analysis by Skidmore, BPB Publication, New Delhi
- 7) Introducing System Design by Skidmore, BPB Publication, New Delhi
- 8) System Analysis and Design by Jefery L Whitten, Tata McGraw Hill Education Pvt Ltd, New Delhi
- 9) System Analysis and Design by Perry Edward
- 10) Analysis and design of Information System by V Rajaraman, Prentice Hall of India, New Delhi
- 11) Practical System Design by Daniels, Galgotia Publications, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	04	10
2	08	15
3	08	15
4	08	15
5	08	15
6	05	15
7	07	15
Total	64	100

3.4 OPERATING SYSTEMS (OS)

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RATIONALE

The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working. The students will also get hands-on experience and good working knowledge to work in windows and Linux environments. The aim is to gain proficiency in using various operating systems after undergoing this course. While imparting instructions, the teachers are expected to lay more emphasis on concepts and principles of operating systems, its features and practical utility.

LEARNING OUTCOME

After undergoing the subject, the students will be able to:

- Identify memory management technique.
- Differentiate scheduler algorithm.
- Setup of Linux labs.
- Use Linux for running various programming languages
- Set up open source labs.
- Describe and identify various file system.
- Assist in handling other open sources

DETAILED CONTENTS

1. Overview of Operating Systems (04 hrs)

Definition of Operating Systems, Types of Operating Systems, Importance of Operating Systems, Memory organization, Linking, loading and executing control program

2. Functions of Operating System (24 hrs)

Process Management Functions (Principles and Brief Concept); Job Scheduler, Process Scheduler, Process synchronization. Memory Management Function (Principles and Brief Concept); Introduction, Single Process System, Fixed Partition Memory, System Loading, Segmentation, Swapping, Simple Paging System, Virtual Memory. I/O Management Functions (Principles and Brief Concept); Dedicated Devices, Shared Devices, I/o Devices, Storage Devices, Buffering, Spooling. File Management; Principles and Brief Concept, Types of File System; Simple file system, Basic file system, Logical file system, Physical file system. Dead Lock; Condition for Dead lock, Dead Lock Preventions, Dead Lock Avoidance

3. Linux Operating System (20 hrs)

Introduction, history of Linux and Unix, Linux Overview, Structure of Linux, Linux releases, open linux, system requirements, file structures, processor scheduling and memory management in Unix. Linux Commands and Filters: Shell: concepts of command options, input, output redirecting and network file, process and communication commands like: mkdir, cd, ls, who, whoami, cat, more, tail, head, mv, chmod, grep, wc, sort, kill, write, wall, mail, news

LIST OF PRACTICALS

1. Directory commands
2. File commands
3. Process management
4. Using file permission commands
5. Mail commands
6. Editing file system rights in a Linux environment.
 - a) Interfacing with the network (Ethernet)
 - b) Preparing of network cables including hubs, connectors etc.
 - c) Establishment of LAN network for homogeneous systems
 - d) Establishment of LAN network for heterogeneous systems
 - e) Use of protocols and gateways in establishing LAN
 - f) Writing small programs such as file security, file transfer, remote testing
 - g) Trouble shooting of networks
 - h) Writing login scripts

INSTRUCTIONAL STRATEGY

This subject is both theory and practical oriental. Therefore, stress must be given on particulars along with theory. Laboratory must have windows as well as Linux operating system. Concepts of O.S. must be taught practically.

RECOMMENDED BOOKS

1. Operating Systems by Achyut S Godbole and Atul Kahate: Tata McGraw Hill Education Pvt Ltd , New Delhi
2. System Programming by John J Donovan, Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Linux – The Complete Reference by Ruichard Peterson, Tata McGraw Hill, New Delhi
4. Operating Systems by Stallings Tata McGraw Hill.
5. Operating Systems- A Concept Based Approach by Dham Dhare, Tata McGraw Hill Education Pvt Ltd , New Delhi
6. System Programming by Dham Dhare, Tata McGraw Hill Education Pvt Ltd , New Delhi
7. Operating System Concepts by Ekta Walia, Khanna Publishers, New Delhi.
8. Unleashed Linux by Tech Media Publishers, New Delhi
9. Linux – Install and Configuration Black Book by Die Annlebalnc and Issac Yates, IDG Books India Private Ltd., New Delhi.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	4	20
2.	24	50
3.	20	30
Total	48	100

3.5 MULTIMEDIA AND ANIMATION TECHNOLOGY

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RATIONALE

This subject aims to develop a clear understanding of What is multimedia?, and how it can be used for enhancing teaching instruction methodologies, business and personal communications. It will help the students in understanding technical aspects of multimedia content creation, the processes and tools used for designing multimedia systems. This will make the students proficient in designing and developing an multimedia application.

LEARNING OUTCOME

After undergoing the subject, the students will be able to:

- Define and describe multimedia functions.
- Identify and explain the devices, hardware and software system.
- Operate and design in graphics.
- Use photo-shop software for drawing and editing photos.
- Identify the tools to create animations,
- Reduce the size of various file formats i.e. audio, video and text.

DETAILED CONTENTS

1. Introduction to Multimedia Systems (06 hrs)
 What is Multimedia?, History of Multimedia, Quality criteria and specifications of different capturing devices, Communication devices, Storage devices, Display devices, Elements of Multimedia and different multimedia file formats, Applications of multimedia – benefits and problems.
2. Multimedia Hardware and Software Essentials (08 hrs)
 Classes of Multimedia Systems, Components of a Multimedia System: Quality Criteria and specifications of different Capturing Devices, Communication Devices, Storage Devices, Display Devices.
3. Content and Project Planning, Designing and development (08 hrs)
 Planning steps and process, Concept of data compression, Text encoding, Audio encoding techniques, Types of images, Capturing images using camera/scanner, coding techniques for Moving Images, Editing , Editing of images audio, text, video and graphics, navigation and user interface designing.

4. Using Image Processing Tools (08 hrs)

Photo-shop workshop, image editing tools, specifying and adjusting colors, using gradient tools, selection and move tools, transforming path drawing and editing tools, using channels, layers, filters and actions

5. Multimedia Authoring Tools (12 hrs)

Types of Authoring programmes – Icon based, Time based, Story boarding/scripting and object oriented working in macromedia flash, exploring interface using selection of PEN tools. Working with drawing and painting tools, applying colour viewing and manipulating time line, animating, processing, guiding layers, importing and editing sound and video clips in flash

6. Animation Technology (06 hrs)

Definition, History of Animation, Types of animation- 2D and 3D, Basic principles of animation, Various Terms-Animation Drawings/Cels, Rough Drawings, Clean ups, Color reference drawings, Layout, Model Sheet, Key Drawings and in Betweens, Master Background, Concept Piece, Character drawing, Story Board.

LIST OF PRACTICALS

1. Installation of various multimedia software like Photoshop, Flash, Director or any open source software
2. Installing and use of various multimedia devices
 - Scanner
 - Digital camera, web camera
 - Mike and speakers
 - Touch screen
 - Plotter and printers
 - DVD
 - Audio CD and Video CD
3. Reading and writing of different format on CD/DVD
4. Transporting audio and video files
5. Using various features of Flash
6. Using various features of Photo-shop/GIMP
7. Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations

8. Flip Books : Capture a series of images using your camera's continuous mode. Design your Flipbook , Printing the flipbook ,Lay out the Flipbook pages, Arrange the pictures, Holding the end of the stack.
9. Stop Motion Animation : using characters in stop motion animation.

INSTRUCTIONAL STRATEGY

As the subject is practice oriented, more stress should be given to students to do the work practically. The features of software packages Photo-shop, Flash are to be demonstrated in class using LCD projector.

RECOMMENDED BOOKS

1. Principles of Multimedia by Parikh, Tata McGraw Hill Education Pvt Ltd , New Delhi
2. Multimedia Technologies by Banerji,Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Multimedia An Introduction by Villam Casanova and Molina; Prentice Hall of India, New Delhi
4. Photo-shop for Windows Bible by Deke Maclelland IDG Books India Pvt. Ltd., New Delhi
5. The complete animation course by Chris Patmore Pub.-Baron's Educational Series.(New York)
6. Animation Unleashed by Ellen Bessen, Michael Weise Productions,2008(U.S.A)

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	15
2	08	15
3	08	15
4	08	15
5	12	25
6	06	15
Total	48	100

3.6 INTERNET AND WEB TECHNOLOGIES

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RATIONALE

This course will enable the students to understand the basics of internet and various application of internet like e-mail, FTP, Telnet, Newsgroups and video conferencing. In addition, this course develops competency amongst the students to design professional web sites and interactive web pages. They will have overview of different technologies like of HTML, DHTML, XML, CGI, ASP, JSP, Java Scripts, VB Scripts.

LEARNING OUTCOME

After undergoing the subject, the students will be able to:

- Define internet and its operation.
- Outline application of internet.
- Use application of video conferencing
- Use application of E-communication
- Describe the application of E-communication and benefit to society.
- Define and differentiate between various web browsers.
- Develop static webpage/web portal.
- Validate input data.

DETAILED CONTENTS

1. Internet Basics (10 hrs)
 What is Internet, its applications, specification and technical details for establishing Internet. Types and functions of modems, IP addressing, internet domains, domain name server, TCP/IP protocols, Internet service providers, Intranets, E-mail, Telnet, FTP, IRC, NNTP, Video conferencing, e-commerce
2. Internet Connectivity (04 hrs)
 Telephone line, cable, leased line, ISDN, VSAT, RF link, Wi-Fi
3. World Wide Web (WWW): (10 hrs)
 World Wide Web and its evolution, web page, web server, HTTP/HTTPS protocol. Examples of web servers. Navigation Tools: Mozilla Firefox, Google Chrome, Internet Explorer, Uniform Resource Locator (URL). Hypertext,

hyperlinks and hypermedia, URL, its registration, browsers, search engines, proxy servers

4. Developing Portals Using HTML (16 hrs)

Introduction to HTML-5 and CSS-3 Basic structure of HTML, designing a web page, inserting links images, horizontal rules, comments. Formatting text, title, headings, colours, fonts, sizes, simple tables and forms. HTML tags, hyperlinks. Adding graphics and images, image maps, image files. Using tables, forms, style sheets and frames. Floating of web sites/pages.

5. Java Script, (08 hrs)

Java Script Event Modeling, Document Object Model (DOM), Validating Forms using Java script

LIST OF PRACTICALS

1. Configuring computer system to access internet
2. Managing social networking profile and e-mail account
3. Using WWW for accessing relevant information
4. To demonstrate the use of TELNET, FTP, IRC
5. Creating Web pages using HTML
6. Creating web pages using Dream Weaver
7. Demonstration of audio-video conferencing
8. Demonstration of e-commerce transaction
9. Creating the email validation using JAVA script
10. Creating of mobile validation, reage checking and empty text box.

INSTRUCTIONAL STRATEGY

Students should be exposed to Internet as the subject is practice oriented, theoretical Instruction may be given during practical session also.

RECOMMENDED BOOKS

1. Internet and Web Technologies by Rajkamal, Tata McGraw Hill Education Pvt Ltd , New Delhi
2. Internet 6-in-1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd., New Delhi
3. Using the Internet IV edition by Kasser, Prentice Hall of India Pvt. Ltd., New Delhi
4. Web Technology by Tanweer Alam; Khanna Book Publishing Co. (P) Ltd., New Delhi

5. Using the World Wide Web, (IInd edition) by Wall, Prentice Hall of India Pvt. Ltd., New Delhi
6. Internet for Everyone by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., New Delhi
7. Practical Guide and Internet by AB Tiwana; Galgotia Publications Pvt. Ltd., New Delhi
8. HTML – 4 for World Wide Web by Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi
9. Principles of Web Designing Joel Sklar, Web Warrior Series Available with Vikas Publishing House Pvt. Ltd., New Delhi
10. HTML 4.0 Unleashed by Rick Dranell; Tech Media Publications
11. Teach Yourself HTML 4.0 with XML, DHTML and Java Script by Stephanie, Cottrell, Bryant; IDG Books India Pvt. Ltd., New Delhi
12. Dynamic Web Publishing – Unleashed Tech Media
13. Using Active Server Pages by Johnson et.al. Prentice Hall of India, New Delhi
14. Web Development with Visual Basic with CD ROM by Chapman; Prentice Hall of India, New Delhi
15. Java Server Pages (JSP) by Pekowsky Addison Wesley (Singapore) Pvt. Ltd., New Delhi
16. Active Server Pages (ASP) by Keith Morneau Jill Batistick Web Warrior Series Available with Vikas Publishing House Pvt. Ltd., New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	10	20
2	04	10
3	10	20
4	16	34
5	8	16
Total	48	100

ENERGY CONSERVATION AWARENESS CAMP

A diploma holder must have knowledge of various tips of energy conservation. Energy conservation has attained priority as it is regarded as additional energy resource. Energy saved is energy produced. This camp covers the basic concepts of energy management and its conservation. It gives the insight to energy conservation opportunities in household appliances and star rating. Lectures will be delivered on following broad topics. There will be no exam for this camp.

1. Classification of energy- primary and secondary energy, commercial and non-commercial energy, non-renewable and renewable energy with special reference to solar energy
2. Introduction to energy management, energy conservation, energy efficiency and its need
3. Salient features of Energy Conservation Act 2001 & The Energy Conservation (Amendment) Act, 2010 and its importance
4. Standards and Labeling
 - Concept of star rating and its importance
 - Types of product available for star rating
5. Salient Features of Punjab Energy Conservation Building Code (ECBC)
6. General Energy Saving Tips in:
 - Lighting System
 - Room Air Conditioners
 - Refrigerators
 - Water Heater
 - Computers
 - Fans, Heaters, Blowers and Washing Machines
 - Colour Television
 - Water Pumps
 - Kitchens
 - Transport

DRUGS USE AND ABUSE AWARENESS CAMP

Unit 1 Drugs Use and Abuse in Society

- a. Concept and overview
- b. Extent of the problem
- c. Drug use as a social problem
- d. Causes of Drug Use: Biological, Socio-cultural, psychological

Unit 2 Types of Drugs and identification of Abuse

- a. Familiar drugs: Tobacco, Caffeine, over the counter drugs
- b. Restricted Drugs: Opiates, Hallucinogens, Marijuana
- c. Performance enhancing drugs
- d. Uppers and Downers: Stimulants and Depressants

Unit 3 Impact of drug Abuse

- a. Individual level biological and psychological
- b. Family social, National

Unit 4 Management and prevention of Drug Abuse

- a. Medical and psychological
- b. Role of family School, Media and Legislation