

**Government Polytechnic Paonta Sahib**

**Lesson Planning (Theory)**

Branch : Computer Engineering                      Sem. : 3<sup>rd</sup>  
 Subject : Digital Systems and Applications        Session : Sept - Dec 2022  
 Teacher : Mukesh Bhardwaj

Sr. No.	Name of Unit	Lecture No.	Contents in Detail	Reference Resources	Remarks
1	<b>Introduction to Digital Systems</b>	1, 2,  3, 4	Analog Systems: Analog Signal and Graphical Representation of Analog Signals, Analog Systems, Examples of Analog Systems, Disadvantage of Analog Systems. Digital Systems: Digital Signal and Graphical Representation of Digital Signals, Digital Systems, Examples of the Digital System, Advantage and Limitation of Digital Systems. Comparison of Analog and Digital Systems. Introduction to Analog to Digital Converter and Digital to Analog Converter.		
2	<b>Digital Number System and their Conversion</b>	5, 6,  7, 8  9, 10,  11, 12  13, 14,  15, 16	Binary Number System: Characteristics, Binary to Decimal Conversion, Decimal to Binary Conversion. Signed Binary Numbers: Sign Magnitude Representation,  One's Compliment Representation and Two's Compliment Representation. Introduction to Octal Number System: Characteristics, Octal to Decimal Conversion, Decimal to Octal Conversion  Octal to Binary Conversion, Binary to Octal Conversion. Hexadecimal Number System: Characteristics, Hexadecimal to Decimal Conversion, Decimal to Hexadecimal Conversion,		<b>1<sup>st</sup> class Test</b>

			Hexadecimal to Binary Conversion, Binary to Hexadecimal Conversion.		
3	Binary Arithmetic	17, 18, 19, 20	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division, Addition and Subtraction using Two's Complement Representation. Octal Arithmetic:		
		21, 22	Octal Addition and Octal Subtraction. Hexadecimal Arithmetic: Hexadecimal Addition and Hexadecimal Subtraction		
4	Boolean Algebra and Logic Gate	23, 24, 25, 26	Boolean Algebra: Axioms of Boolean Algebra, Boolean Laws: Commutative law, Associative law, Distributive law, AND law, OR law and INVERSION law. De-Morgan's Theorems. Logic Gates: AND Operation, OR Operation, NOT Operation		
		27, 28	NAND Operation, NOR Operation, EX-OR Operation, Universality of NAND and NOR Gate		
5	Simplification of Boolean Functions	29, 30, 31, 32	Boolean Function: Definition, Truth Table Formation, Standard and Karnaugh-map Representation for Boolean Functions. Simplification of a Boolean Function: Simplification of a Boolean Function using Karnaugh-map (Up to three Variables),		
		33, 34	Minimization of Boolean Function specified in Min term, Maxterm and Truth Table		
6	Combinational Circuits	35, 36, 37, 38	Half Adder Circuit: Definition, Block diagram, Truth Table and Circuit Diagram. Full Adder Circuit: Definition, Block diagram, Truth Table and Circuit Diagram. Half Subtractor Circuit: Definition, Block diagram, Truth Table and Circuit Diagram. Full Subtractor Circuit: Definition, Block		

			diagram Truth Table and Circuit Diagram		
		39, 40 41, 42	Multiplexers Circuit: Definition, Block diagram, Truth Table, 2 : 1 Multiplexer, 4 : 1 Multiplexer and 16 : 1 Multiplexer. Demultiplexers Circuit: Definition, Block diagram, Truth Table, 2 : 1 Demultiplexer, 4 : 1 Demultiplexer and 16 : 1 Demultiplexer. Encoder Circuit: Definition, Block diagram, Truth Table and Circuit Diagram		
		43, 44	Priority Encoder. Decoder Circuit: Definition, Block diagram, Truth Table and Circuit Diagram, 2 to 4 Line Decoder		
7	<b>Flip Flops</b>	45, 46, 47, 48	S-R Flip Flop: Definition, Block Diagram, Circuit Diagram, Truth Table and Operation. Master Slave JK Flip Flop: Definition, Block Diagram, Circuit Diagram, Truth Table and Operation.		
		49, 50	Delay (D) Flip Flop: Definition, Block Diagram, Circuit Diagram, Truth Table and Operation. Toggle (T) Flip Flop: Definition, Block Diagram, Circuit Diagram, Truth Table and Operation.		
8	<b>Semiconductor Memory Devices</b>	51, 52, 53, 54	Random Access memory (RAM): Characteristics and Types (SRAM and DRAM), Read Only memory (ROM): Characteristics and Types (PROM, EPROM and EEPROM).		
		55, 56	Flash Memory: Characteristics and Types (Server-Flash Memory, All-Flash Array, Traditional Flash Storage and Hybrid Array)		

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**Government Polytechnic Paonta Sahib**

Branch : Computer Engg.

Sem. 3<sup>rd</sup>


Subject : Internet Technologies


Session Sept – Dec 2022

Teacher Name : Er. Mukesh Bhardwaj

Sr. No.	Name of the Unit	Lecture No.	Contents in details	Reference Resources	Remarks
1	Internet and Web Basics	1, 2	Internet and its applications, World Wide Web and its evolution, WWW vs Internet, web server,	HTML 5 Black Book by Kogent Learning Solutions Inc.	
		3, 4	webpage, web site (static and dynamic), HTTP protocol, URL, Web Browsers, Search Engine, Proxy Server		
2	Working with HTMLS	5, 6	HTML coding conventions, HTML5 structural elements: <html>, <head>, <body>;	HTML & CSS: The Complete Tata McGraw Hill Publication	
		7, 8	head elements : <title>, <meta>, <link>; body elements: <h1>..<h6>, <table>, <tr>, <td>, <div>, <span>,  , <ol>, <ul>, comments, <img>, <iframe>		
		9, 10	<form>; semantic elements: <article>, <aside>, <details>, <figcaption>, <figure>, <footer>, <header>,		
		11, 12	<main>, <mark>, <nav>, <section>, <summary>, <time>; HTML attributes: accesskey, class, data-*, id, style, tabindex, title		
3	HTML Lists and Tables	13, 14	Ordered Lists, Unordered Lists, Definition Lists, Nested Lists,	HTML 5 Black Book by Kogent Learning Solutions Inc.	
		15, 16	Table elements: <table>, <thead>, <tbody>, <tfoot>, <tr>, <th>, <td>; using rowspan and colspan attributes.		
4	HTML Forms	17, 18	Form elements: <input>, <select>, <option>, <optgroup>, <textarea>, <button>, <datalist>,	HTML 5 Black Book by Kogent Learning Solutions Inc.	
		19, 20	<fieldset>, <label>, <legend>, <submit>, action attribute.		

5	Cascaded Style Sheet (CSS)	21, 22	CSS types: inline, internal and external; CSS rule, Selectors, CSS box model,	HTML & CSS: The Complete Reference by Thomas A. Powell, Tata McGraw Hill Publication
		23, 24	CSS attributes: border, margin, padding, height, width, color, text-align, border-collapse, border-spacing, background-color, background-image	
		25, 26	background-repeat, background-attachment, background-position, text-decoration, text-transform, letter-spacing, word-spacing,	
		27, 28	font-family, font-style, font-size, font-variant, position, display, float, list styles, table styles, pseudo classes.	
6	JavaScript	29, 30	JavaScript overview, <script> element, variable, lifetime and scope of variables, operators,	JavaScript: The Definitive Guide by David Flanagan
		31, 32	control statements: if...else, switch...case; iteration: for, while, do...while;	
		33, 34	linking external JavaScript file with an HTML document, manipulating HTML	
		35, 36	DOM tree with JavaScript, arrays, object-oriented programming in JavaScript, built-in javascript functions, user-defined functions.	
7	jQuery	37, 38	Need of jQuery, Adding jQuery to a Webpage - using CDN or Local Copy; jQuery Selectors, jQuery	JavaScript: The Definitive Guide by David Flanagan
		39, 40	Effects - hide(), show(), toggle(), fadeIn(), fadeOut(), fadeTo(), fadeToggle(), animate(); jQuery	
		41	Events - blur(), click(), focus(), ready(), load(), on(), off().	

  
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## PLANNED SYLLABUS COVERAGE (THEORY)

GP Paonta Sahib		DEPARTMENT: COMP. ENGG.		SUBJECT: Operating System		
		COURSE: Diploma		DURATION: 3 Years		
SYLLABUS COVERA- -GE		TOTAL PERIODS: 52 (Theory)		THEORY: 52		
Sr. No	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recomd.	Rema rks
1.	1 to 4	Introduction	Definition of Operating System. Evolution of operating systems - simple batch systems, multi-programmed batch systems, timesharing systems. Functions of an operating system. Single user and multiuser operating systems. Open-source and closed-source operating systems	1) Operating System Concepts by Abraham Silberschatz, Peter B. Galvin, and Gerg Gagne, Wiley India Pvt. Ltd	Internet downloaded notes can be taken for reference purposes.  (for every topics of syllabus)	
2.	5-12	Process overview	Definition of process, process states, process life cycle, Process Control Block (PCB), Process Scheduling - Scheduling queues, Schedulers (short term, medium term and long term). Dispatcher. Context Switch.	2) Operating Systems - Internals and Design Principles by William Stallings, Pearson Edn.		
3.	13-23	CPU scheduling	CPU Scheduler, preemptive and non-preemptive scheduling. Scheduling criteria - CPU utilization, Throughput, Turnaround time, Waiting time, Response time. Scheduling Algorithms- First-Come-First-Serve, Shortest-Job-First, Priority Scheduling, Round-Robin.			
4.	23 to 30	Introduction to deadlocks	Normal mode of operation - Request-Use-Release sequence, Definition of deadlock, Deadlock Characterization, Necessary and sufficient conditions - Mutual exclusion, Hold and wait, No preemption and Circular wait. Introduction to methods for handling deadlocks (without algorithms).			
5	31-42	Memory Manag. Techniques	Fixed partitioning, dynamic partitioning, memory fragmentation, simple paging, simple segmentation, virtual memory with paging, virtual			

6	43-52	Storage Mangement	<p>memory with segmentation, page fault, thrashing. Page replacement policies - FIFO, Optimal, LRU.</p> <p>File concept - file attributes, file operations, file types. Access Methods - sequential access, direct access.</p> <p>Directory Structure - directory overview, single-level directory, two-level directory, tree- structured directories. Disk Storage Access ways - Host-Attached Storage, Network-Attached Storage, and Storage Area Network. Disk scheduling - FCFS, SSTF, SCAN, C-SCAN.</p>		
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**GOVERNMENT POLYTECHNIC PAONTA SAHIB**  
DHAULA KUAN, DISTT. SIRMOUR (HP) - 173021

**DEPARTMENT OF COMPUTER ENGINEERING**  
**LESSON PLAN**

Academic Year	2022-23
Semester	III
Subject Title	Data Communication and Computer Network
Name of Faculty	PARUL GUPTA(Lecturer)

**STUDY AND EVALUATION SCHEME**

Sr. No.	Name of the Subject	Th	Pr	Internal Assessment			External Assessment					Total Marks
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
1	DCCN	4	2	30	20	50	100	3	50	3	150	200

**Subject objectives:**


Day	Unit & Topic of Discussion	Topic Details
<b>Unit-1 : Fundamental of Data Communication</b>		
1	Introduction	Network, Internet, Data Communication, characteristics, Communication model
2,3	Data representation, Dataflow	text, numbers, images, audio, video. -simplex, half-duplex, full duplex
<b>Unit-2 : : Introduction to Computer Networks</b>		
4	Introduction	Definition & objectives of computer network
5	networking models -	client-server, peer-to-peer
6	Types of network -	PAN, LAN, MAN, WAN (new terms)
7,8	Network topologies	mesh, star, bus, ring.
<b>Unit-3 : ISO-OSI Model</b>		
9 to 12	OSI model	functions of physical, data link, network, transport, session, presentation, and application layers.
13	Doubt Session	Student queries and revision
<b>Unit-4 : Transmission Media</b>		
14-18	Guided and unguided transmission media	twisted pair cable - UTP Vs STP, RJ45 connector, categories of UTP, applications; coaxial cable - coaxial cable standards, connector, and applications;
19-21	optical fiber cable	construction and principle, propagation modes, connectors, applications, advantages, disadvantages
22-23	wireless transmission	radio waves, microwaves, infrared; ISM band.
<b>Unit 5 : Network Devices</b>		
24-27	Devices	Network Interface Card, repeater, hub, switch, bridge, router, gateway, modem, firewall
<b>Unit-6 : : TCP/IP Model</b>		
28-31	network layer:	classes of IP addressing, and, IPv4 header
32		CIDR



33-35		Subnet mask notation of IP addresses
36-39		Subnetting, supernetting
40-41		need of IPv6.
42	Transport layer	concept of ports, well known ports TCP, UDP
43-46	Application layer	SMTP, TELNET, FTP, DHCP

	Name of Book	Author Name	Publication
Prescribed Books	Data Communications and Networking	Forouzan,	Tata McGraw Hill

  
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## LESSON PLAN

Academic Year	2022-23
Semester	III
Subject Code	N2017- 2.4
Subject Title	COMPUTER PROGRAMMING USING C
Name of Faculty	Kush Dhiman

### STUDY AND EVALUATION SCHEME


Sr. No.	Name of the Subject	Th	Pr	Internal Assessment			External Assessment					Total Marks
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
2.4	COMPUTER PROGRAMMING USING C	2	4	30	20	50	100	3	50	3	150	200

#### Subject objectives:

Day	Unit & Topic of Discussion	Topic Details
<b>Unit-1 : Introduction to Programming</b>		
Day 1	Prerequisites	Programming, Programming Languages, C, Applications, Features of C programming, Current trends
Day 2	Algorithms, flowcharts	Algorithm:- Definition, properties, Examples Flowchart:- Definition, symbols, examples
Day 3	Evolution of Programming Languages	Brief introduction to various programming languages
Day 4	Structured Programming techniques,	Definition, types, advantages and disadvantages
Day 5	Compilation, Linking and Loading, Testing and Debugging, Documentation	Understanding definitions and purpose
<b>Unit-2 : Introduction to C language</b>		
Day 6	Character set, Identifiers, keywords, Variables	Character set- alphabets, digits, special symbols; Keywords- definition and C keywords; identifier- definition, rules, examples; Variables- definition, declaration, rules and examples
Day 7	Data Types, Constants and Literals	Datatypes- Definition, declaration, types along with their range, format specifier and storage requirements; Definition, types and examples
Day 8	Structure of c program	Structure of a C program with the help of example, compiling and running program, receiving inputs
Day 9	Basic input/output statement, formatted statements (Printf, Scanf) and unformatted statements (getchar, putchar, gets, puts	Input output function, types and examples
Day 10	Practice Questions	Revising concepts, MCQ (online), Few programming Example by pen and paper
Day 11	Doubt Session	Student Queries and discussions
<b>Unit-3 : Operators</b>		
Day 12	Operators	Definition and types along with examples
Day 13	Revision	MCQ and programming examples
<b>Unit-4 : Flow Control Statements</b>		
Day 14	Branching Statements	If statement , if else statement ( introduction, syntax, flowchart and examples)
Day 15	Branching Statements	Nested if, if else ladder, switch case( introduction,

		syntax, flowchart and examples)
Day 16	Unconditional statement	Goto, return, break, continue
Day 17	Loops	While and do-while (introduction, syntax, flowchart and examples) difference between the two
Day 18	Loops	For Loop ( introduction, syntax, flowchart and examples)
Day 19	Nested Loops, Infinite Loops	Practice of loops
Day 20	Exercise	Doubt session and practice via MCQ
<b>Unit 5:Storage Classes</b>		
Day 21	Auto, extern and static, register, volatile.	Use, scope, lifetime and code examples
<b>Unit-6 : Arrays</b>		
Day 22	One dimensional and two dimensional	Introduction, properties, advantages, declaration, initialization , accessing array, Examples
Day 23	String	Character Array, string and string functions with code examples
<b>Unit-7 : Functions</b>		
Day 24	Functions	Introduction, Use, Types with examples
Day 25	Call by value vs Call by reference	Understanding both techniques with the help of various examples, Introduction to pointers, difference between the two techniques
Day 26	Recursion	Recursion, Stack and examples of recursive functions

	Name of Book	Author Name	Publication
Prescribed Books	Let us C	Yashwant Kanetkar	BPB Publications
	The C Programming Language	B.W. Kernighan & D M Ritchie	Pearson Education

  
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