SIRDA POLYTECHNIC
Lesson Plan

Branch : **Computer Engg.**   Sem : **3rd**

Subject Name : **Digital System and Application**   **Session :** *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**INTRODUCTION TO DIGITAL SYSTEM**	Analog systems(Representation,Examples,Advantages,Disadvantages)	
2			Digital systems(Representation,Examples,Advantages,Disadvantages)	
3			Analog to Digital Converter	
4			Digital to Analog Converter	
5		**DIGITAL NUMBER SYSTEM & CONVERSION**	Binary Number System & Conversion	
6			Binary Number System & Conversion	
7			Decimal Number System & Conversion	
8			Decimal Number System & Conversion	
9			Octal Number System & Conversion	
10			Octal Number System & Conversion	
11			Hexadecimal Number System & Conversion	
12			Hexadecimal Number System & Conversion	
13			One's Compliment Representation	
14			One's Compliment Representation	
15			Two's Compliment Representation	
16			Two's Compliment Representation	
17		**Binary Arithmetic**	Binary Addition,Binary Subtraction	
18			Binary Multiplication,Binary Division	
19			Addition using Two's Compliment	
20			Subtraction using Two's Compliment	
21			Octal Arithmatic (Addition,Subtraction)	
22			Hexadecimal Arithmatic (Addition,Subtraction)	
23		**Boolean Algebra and Logic Gates**	Boolean Laws	
24			Commutative,Associative,Distributive,AND,OR,INVERTER Laws	
25			De Morgan's Theorem	
26			Logic Gates	
27			Universal Properties of NAND Gate	
28			Universal Properties of NOR Gate	
29		**Simplification of Boolean Functions**	Boolean Functions(Definition,Truth Table,Representation)	
30			K- Map	
31			K- Map	
32			Simplification of Boolean Function using K -Map	
33			Minimization of Boolean Functions in Minterm & Truth Table	
34			Minimization of Boolean Functions in Maxterm& Truth Table	
35		**COMBINATIONAL CIRCUITS**	Half Adder	
36			Full Adder	
37			Half Subtractor,Full Subtractor	
38			2:1 Multiplexer,4:1 MUX	
39			16:1 Mux, Demultiplexer	
40			1:16 Demux	
41			Encoder (Definition,Truth bTable & Circuit Diagram)	
42			Priority Encoder	
43			Decoder (Definition,Truth bTable & Circuit Diagram)	
44			2 to 4 Line Decoder	
45		**FLIP FLOPS**	SR Flip Flop	
46			JK Flip Flop	
47			Master Slave JK Flip Flop	
48			Master Slave JK Flip Flop	
49			Delay Flip Flop	
50			Toggle Flip Flop	
51		**Semiconductor Memory Devices**	RAM (Characteristics)	
52			Types of RAM	
53			ROM (Characteristics)	
54			Types of ROM	
55			Flash Memory Characteristics	
56			Types of Flash Memory	

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Branch : **Computer Engg.**   Sem : **3rd**

Subject Name **: Internet Technologies**   **Session :** *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Internet and Web Basics**	Internet and its applications, World Wide Web and its evolution	
2			WWW vs Internet, web server, webpage, web site (static and dynamic),	
3			HTTP protocol, URL, Web Browsers,	
4			Search Engine, Proxy Server.	
5		**Working with HTMLS**	HTML coding conventions, HTML5 structural elements	
6			head elements :<title>, <meta>, <link>; body elements: <h1>..<h6>,	
7			, ,	
8			comments, <img>, <iframe>, <form>	
9			semantic elements: <article>, <aside>, <details>	
10			<figcaption>, <figure>, <footer>, <header>, <main>, <mark>	
11			<nav>, <section>, <summary>,<time>;	
12			HTML attributes: accesskey, class, data-*, id, style, tabindex,	
13		**HTML Lists and Tables**	Ordered Lists, Unordered Lists, Definition Lists	
14			Nested Lists	
15			Table elements: <table>, <thead>,<tbody>, <tfoot>,	
16			<tr>, <th>, <td>; using rowspan and colspan attributes.	
17		**HTML Forms**	Form elements: <input>, <select>,	
18			<option>, <optgroup>, <textarea>,	
19			<button>, <datalist>,<fieldset>, <label>	
20			<legend>, <submit>, action attribu	
21		**Cascaded Style Sheet (CSS)**	CSS types: inline, internal and external; CSS rule,	
22			Selectors, CSS box model, CSS attributes: border,	
23			margin, padding, height, width, color, text-align,	
24			border-collapse, border-spacing	
25			background-color,background-image, background-repeat,	
26			background-attachment, background-position,textdecoration,text-transform,	
27			letter-spacing, word-spacing, font-family,font-style, font-size,font-variant,	
28			position, display, float, list styles, table styles, pseudo classes	
29		**JavaScript**	JavaScript overview, <script> element	
30			variable, lifetime and scope of variables,	
31			operators	
32			controlstatements: if...else,	
33			switch...case; iteration: for, while, do...while;	
34			linking external JavaScript filewith an HTML document	
35			manipulating HTML DOM tree with JavaScript, arrays,	
36			object-orientedprogramming in JavaScript	
37			built-in javascript functions, user-defind functions	
38		**jQuery**	Need of jQuery, Adding jQuery to a Webpage - using CDN or Local Copy	
39			jQuery Selectors, jQueryEffects - hide(),	
40			show(), toggle(), fadeIn(), fadeOut(), fadeTo(),	
41			fadeToggle(), animate()	
42			jQueryEvents - blur(), click(), focus(), ready(), load(), on(), off().	

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Lesson Plan

Branch : **Computer Engg.**   Sem : **5th**

Subject Name : **Operating System**   **Session :**   *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Introduction to operating system**	Definition of Operating System. Evolution of operating systems - simple batch systems	
2			multi- programmed batch systems, timesharing systems	
3			Functions of an operating system. Single user andmultiuser operating systems.	
4			Open-source and closed-source operating systems.	
5		**Process Overview**	Definition of process, process states,	
6			process life cycle	
7			Process Control Block (PCB)	
8			ProcessScheduling - Scheduling queues	
9			Schedulers short term	
10			Schedulers medium term and long term)	
11			Dispatcher	
12			Context Switch.	
13		**CPU Scheduling**	CPU Scheduler,	
14			preemptive and non-preemptive scheduling.	
15			Scheduling criteria - CPU utilization,	
16			Throughput,	
17			Turnaround time,	
18			Waiting time,	
19			Response time	
20			Scheduling Algorithms-	
21			First-Come-First-Serve,	
22			Shortest-Job-First,	
23			Priority Scheduling	
24			Round-Robin.	
25		**Introduction to Deadlocks**	Normal mode of operation - Request-Use-Release sequence	
26			Definition of deadlock	
27			Deadlock Characterization	
28			Necessary and sufficient conditions - Mutual exclusion,	
29			Hold and wait	
30			No preemption and Circular wait	
31			Introduction to methods for handling deadlocks (without algorithms).	
32			Introduction to methods for handling deadlocks (without algorithms).	
33		**Memory Management Techniques**	Fixed partitioning	
34			dynamic partitioning	
35			memory fragmentation	
36			simple paging,	
37			simple segmentation	
38			virtual memory with paging	
39			virtual memory with segmentation	
40			page fault,	
41			thrashing.	
42			Page replacement policies - FIFO	
43			Page replacement policies -Optimal, LRU.	
44			Page replacement policies - LRU.	
45			File concept - file attributes, file operations, file types.	
46			Access Methods - sequential access, directaccess.	
47		**Storage Management**	Directory Structure - directory overview, single-level directory	
48			two-level directory,	
49			tree- structured directories	
50			Disk Storage Access ways - Host-Attached Storage	
51			Network-AttachedStorage, and .	
52			Storage Area Network.	
53			Disk scheduling - FCFS,	
54			SSTF,	
55			SCAN,	
56			C-SCAN	

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SIRDA POLYTECHNIC
Lesson Plan

Branch : **Computer Engg.**   Sem : **3rd**

Subject Name **: Advanced Programming in 'C' Language**   Session :   *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		Introduction to Programming	Algorithm, Flowchart, Evolution of Programming Languages, Structured Programming	
2			Compiling,Linking, Testing and Debugging a program. Syntax Error, Semantic Error.	
3		Introductions to 'C' Language	Character set, identifier, keywords, variables	
4			data types, constants and literals	
5			Structure of a 'C'program, unformatted 1/0 functions - getchar(), putchar(),	
6			gets(), puts(); formatted 1/0 functions - printf(), scanf().	
7		Operators	Arithmetic operators, relational operators	
8			logical operators, bit-wise operators,	
9			assignmentoperators, conditional operators, special operators.	
10			Associativity and order of precedence ofoperators.	
11		Flow Control Statements	Branching statements: Conditional - if	
12			if...else, nested if	
13			if...else if ladder	
14			switch...case	
15			Unconditional - goto, break,	
16			continue , return	
17			Loops - while, do...while, for;	
18			Nested loops, Infiniteloops.	
19		Storage Classes	Scope and lifetime of variables	
20			local and global variables	
21			storage classes - auto, extern	
22			static,register.	
23		Arrays	Definition of array,	
24			memory representation of arrays	
25			one-dimensional arrays: declaration andinitialization;	
26			two-dimensional arrays: declaration	
27			two-dimensional arrays: initialization,	
28			strings	
29			standard string functions-srtlen(), strrev()	
30			strcmp(), srtcpy(), strcat().	
31		Functions	Definition,	
32			function prototype	
33			formal parameters,	
34			function call	
35			call by reference	
36			call by value	
37			recursive Functions	
38			arrays as function arguments.	
39		Structures and Unions	Definition of structure and union	
40			difference between structure and union, declaring structures	
41			unions	
42			initializing a structure	
43			structure assignment	
44			arrays of structures.	
45		Pointers	Definition of pointer	
46			address and dereferencing operators	
47			address and dereferencing operators	
48			pointer type declaration,	
49			pointer assignment	
50			pointer initialization	
51			pointer arithmetic.	
52			program	
53		File Handling	Definition of file, file opening modes, create a new file,open an existing file	
54			read/ write in a file,moving file pointer within an opened file,close an opened file	
55			File handling functions - fopen(),fclose(), getc(), putc(), fprintf(), fscanf()	
56			fgets(), fputs(), feof(), fseek(), rewind().	

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Branch : **Computer Engg.**   Sem : **3rd**

Subject Name **: Data Communication & Computer Networks**   **Session :** *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Fundamentals of Data Communicatio ns**	Definition of data communication	
2			fundamental characteristics of data communication - delivery, accuracy, timeliness, jitter.	
3			Components of data communication - message, sender, receiver,	
4			transmission medium, and protocol	
5			Data representation - text, numbers, images, audio, video	
6			Dataflow -simplex, half-duplex, full duplex.	
7		**Introduction to Computer Networks**	Definition & objectives of computer network,	
8			networking models - client-server, peer-to-peer;	
9			typesof network - PAN,LAN,	
10			MAN, WAN	
11			network topologies - mesh,	
12			network topologies - star	
13			network topologies - bus	
14			network topologies - , ring	
15		**ISO-OSI Model**	ISO-OSI Model Seven layers of OSI model	
16			Physical layer	
17			functions of physical	
18			Data link layer	
19			Function of Data link	
20			Network layer	
21			Function of Network Layer	
22			Transport Layer	
23			Function of Transport layer	
24			Session layer	
25			Function of Session layer	
26			Presenation layer	
27			Function of presenation layer	
28			Application layer	
29			Function of Application layer	
30		**Transmission Media**	Guided and unguided transmission media; twisted pair cable - UTP Vs STP	
31			RJ45 connector, categories of UTP, applications	
32			coaxial cable - coaxial cable standards, connector, and applications	
33			optical fiber cable - construction and principle, propagation modes, connectors	
34			applications,advantages, disadvantages; wireless transmission -radio waves	
35			microwaves, infrared; ISM band.	
36		**Network Devices**	Network Interface Card, repeater	
37			hub, switch	
38			bridge,	
39			router	
40			gateway	
41			modem, firewall.	
42		**TCP/IP Model**	Layers of TCP/IP - network layer :classes of IP addressing	1
43			CIDR	
44			subnet mask notation of IPaddresses,	
45			Subnetting	
46			supernetting	
47			IPv4 header	
48			need of IPv6	
49			Transport layer	
50			TCP	
51			UDP	
52			conceptof ports ,well known ports	
53			Application layer: SMTP,	
54			TELNET	
55			FTP,	
56			DHCP	

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Branch : **Computer Engg.**   Sem : **5th**

Subject Name : **PROGRAMMING USING JAVA**   Session : *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Introduction to Object-Oriented Programming**	Limitations of procedure-oriented programming paradigm, object-oriented programming (OOP) –	
2			advantages of OOP, objects and classes; Essential characteristics of OOP languages	
3			data abstraction, encapsulation,	
4			inheritance, polymorphism, dynamic binding.	
5		**Overview of Java Language**	Brief history of Java, features of Java language, Java editions	
6			Java programming terminology – JVM, JRE, JDK, JNI, WORA,	
7			Java compiler, Java interpreter, source code, bytecode;	
8			Setting CLASSPATH, JAVA_HOME	
9			PATH environment variables, coding conventions.	
10			coding conventions.	
11		**Fundamentals of Java Programming**	Structure of a typical Java program, comments – single-line, multi-line and documenation	
12			main() method, Java tokens – identifiers,	
13			operators, keywords, constants, strings,	
14			Java statements,	
15			variables – local, instance and static;	
16			scope and lifetime of variables,	
17			literals,	
18			type casting – widening and narrowing;	
19		**Operators and Java I/O**	Operators - Arithmetic, Logical, Relational, Bit-wise	
20			Operators,	
21			Operator precedence and associativity,	
22			Console based IO using System.in and System.out objects	
23		**Control Statements**	Selection control structures – if, if...else,	
24			if...else if ladder, nested if	
25			switch...case;	
26			structures – while loop	
27			do...while loop, for loop,	
28			for each loop; Jump statements – break,	
29			break	
30			continue, return	
31		**Arrays and Strings**	Array definition, one dimensional array – declaring, initializing	
32			Multi-dimensional arrays,	
33			irregular arrays, String	
34			string literals, escape sequence	
35			charAt(), indexOf(), length(),	
36			substring(), toLowerCase(), toUpperCase(), replace(), trim().	
37		**Object-oriented Programming in Java**	Basic OOP concepts – class, instance variables,	
38			methods, object, constructor; creating objects,	
39			members, final variables and methods,	
40			final classes, garbage collection	
41			finalizer method,	
42			packages	
43			access modifiers,	
44			wrapper classes	
45		**Polymorphism and Inheritance**	Compile time versus runtime polymorphism	
46			method overloading	
47			inheritance,	
48			inheritance,	
49			method overriding,	
50			abstract methods	
51			abstract class	
52			multiple inheritance using interfaces.	
53		**Exception Handling and Multithreading**	Concept of exceptions, checked and unchecked exceptions, built-in exceptions,	
54			exception handling – try, catch and finally blocks, using multiple catch statements,	
55			exceptions, throw statement, throws clause, multithreading	
56			thread lifecycle, creating threads by extending Thread class and implimenting Runnable interface.	

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Branch : **Computer Engg.**   Sem : **5th**

Subject Name : **COMPUTER HARDWARE AND PERIPHERALS**   Session : *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Computer Hardware Devices**	PC components, features and system design	
2			processor types and their features,	
3			processor specification,	
4			overview of motherboards,	
5			Bus system – data I/O bus, address bus, Internal Data bus,	
6			comparing processor performance	
7			BIOS, BIOS setup menus	
8			Limitation of BIOS,	
9			UEFI	
10			overviewof Mobile devices hardware.	
11		**Input/ Output Devices and Ports**	Objective of I/O Devices, Types of input devices,	
12			Types of input devices,	
13			Different printing devices and their use,	
14			Display types– CRT Monitor, LCD,	
15			LED, Plasma,	
16			OLED, HDTV, data projector;	
17			Video connector types –VGA, DVI	
18			HDMI, S-Video,	
19			Characteristics of display devices – Resolution ,refresh rate,	
20			response time, color quality, USB port	
21		**Memory**	Memory basics – ROM, RAM	
22			Types of RAM,	
23			Differentiate between DDR and GDDR	
24			Memory Module – Registered Modules	
25			SDR DIMM , DDR DIMM	
26			DDR2 DIMM	
27			DDR3 DIMM	
28			DDR4 DIMM	
29			Concept of cache – internal cache,	
30			External Cache (L1, L2, L3 cache)	
31		**Storage Devices**	Type of storage devices, benefits and features of storage devices	
32			Principle and operation of HDD	
33			Basic HDD components	
34			HDD cables and connectors	
35			Optical Storage – CD/DVD construction technology	
36			DVD format and standards, Concept of HD-DVD,	
37			Optical drive performance specifications – data transfer rate,	
38			drive speed, access time	
39			Flash and removable devices – USB flash drive, SSD	
40			Flash card readers; Concept of cloud based storage.	
41		**Power Supply**	Power supply rating, form factors	
42			power supply connectors,	
43			Block diagram and working of SMPS,	
44			Block diagram and working of SMPS,	
45			UPS – online and offline UPS	
46			UPS Rating, comparison of UPS and inverter	
47		**Networking Devices**	Different types of networking devices – NIC, Repeaters	
48			Switch, Hub,	
49			router, gateways	
50			bridge, modem,	
51			Access point, Bluetooth,Firewall	
52			Internet connectivity technologies – Dial-up,	
53			ISDN, broadband	
54			Wi-Max, leased line	
55			Networking cables and their comparison,	
56			Networking tools.	

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Branch : **Computer Engg.**   Sem : **5th**

Subject Name : **DATA WAREHOUSING AND DATA MINING**   Session :   *2022*

Sr. No	Date	Chapter	Topic Name	Remarks
1		**Introduction to Data Warehousing**	Data Warehouse, OLTP, OLAP, comparison of OLTP and OLAP systems	
2			three-tier data warehouse architecture	
3			Data Warehouse Models: Enterprise warehouse, Data mart,	
4			Virtual warehouse	
5			Types of OLAP Servers: Relational OLAP (ROLAP)	
6			Multidimensional OLAP (MOLAP),Hybrid OLAP(HOLAP).	
7		**Multidimensional Data Models**	Multidimensional database,	
8			data cube,	
9			concept hierarchy	
10			concept hierarchy	
11			OLAP Operations: Roll-up, Drill-down	
12			Slice and dice, Pivot (rotate)	
13			Schemas for multidimensional databases	
14			Stars schema	
15			Snowflakes schema	
16			Fact Constellations	
17		**Data Mining & KDD Process**	Data Mining, Importance of data mining,	
18			KDD process: Data prepocessing, Data cleaning,	
19			Data integration, Data selection	
20			Data transformation, Data mining,	
21			Pattern evaluation, Knowledge presentation	
22			Kind of data for data mining,	
23			Interestingness of patterns,	
24			Classification of data mining systems,	
25			Technologies used in data mining,	
26			Major issues in Data Mining.	
27		**Building Data Warehouse**	Top-down approach	
28			Bottom-up approach	
29			Steps for Data warehouse design	
30			choosing a business process to model	
31			choosing the grain of the business process	
32			choosing the dimensions,	
33			choosing the measures	
34			Recommended approach for data warehouse development	
35			Recommended approach for data warehouse development	
36			Recommended approach for data warehouse development	
37		**Mining Frequent Patterns**	Mining Frequent patterns	
38			Frequent patterns	
39			itemsets,	
40			sub-sequences	
41			sub-structures;	
42			Finding frequent itemsets using candidate generation	
43			Finding frequent itemsets using candidate generation	
44			(Apriori algorithm).	
45			(Apriori algorithm) Example	
46			(Apriori algorithm) Example	
47		**Applications & Trends in Data Mining**	Data Mining Architecture	
48			Data Mining Applications	
49			Data Mining for Financial Data Analysis	
50			Retails and Telecommunication Industries	
51			Retails and Telecommunication Industries	
52			Science and Engineering	
53			Intrusion Detection and Protection	
54			Intrusion Detection and Protection	
55			Recommendation System,	
56			recent trends in data mining	

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