

Lesson Plan

Name of faculty : Abhey Singh
Discipline : Computer Engineering
Semester : 3rd Sem
Subject : **DATA COMMUNICATION**
Lesson Plan Duration : 15 Weeks
Work Load(Lecture/ Practical) per week (in hours): Lectures-03, Practicals – Nil

Week	Theory	
	Lecture day	Topics
1st	1st	Data Communication- Components
	2nd	Data representation
	3rd	Data flow Networks- Distributed processing,
2 nd	4 th	Network criteria
	5 th	Physical structures Network Category- LAN, WAN, MAN
	6 th	Physical structures Network Category- LAN, WAN, MAN
3rd	7 th	Analog and Digital data
	8 th	Analog and digital signals
	9 th	Periodic and Non Periodic signals
4 th	10 th	periodic analog signals Digital Signals
	11 th	Bit rate, Bit length
	12 th	Digital signal as a composite analog signal, transmission of digital signals
5 th	13 th	Transmission Impairment- Attenuation, Distortion
	14 th	noise Performance- bandwidth, throughput, latency, jitter
	15 th	Revision
6 th	16 th	Analog transmission- Digital to Analog Conversion- - Analog to digital conversion
	17 th	ASK, PSK, FSK
	18 th	Analog to Analog Conversion- AM, PM,FM(No mathematical treatment)
7 th	19 th	Digital transmission
	20 th	Digital to digital conversion- coding and schemes
	21 st	PCM and Delta Modulation (DM) Transmission modes- Serial and parallel transmission
8 th	22 nd	Multiplexing – FDM,

	23 ^d	WDM,
	24 th	TDM
9 th	25 th	Revision
	26 th	Revision
	27 th	Guided media
10 th	28 th	Twisted pair cable, Co-axial cable, fibre optics cable
	29 th	Unguided Media- radio wave, Microwave, Infrared
	30 th	Revision
11 th	31 st	Revision
	32 nd	Types of Errors
	33 ^d	redundancy, detection v/s correction
12 th	34 th	Forward error correction v/s retransmission
	35 th	Error detection through Parity bit
	36 th	Error detection through Parity bit
13 th	37 th	block parity to detect double errors and correct single errors
	38 th	block parity to detect double errors and correct single errors
	39 th	General principles of error detection and correction using cyclic redundancy check
14 th	40 th	General principles of error detection and correction using cyclic redundancy check
	41 st	Revision
	42 nd	Revision
15 th	43 ^d	Revision
	44 th	Revision
	45 th	Revision

Lesson Plan

Name of Faculty : Abhey Singh
 Discipline : Computer Engg.
 Semester : 3rd Sem
 Subject : Digital Electronics
 Lesson Plan Duration : 15 Weeks

Week	Theory		Practical	
	Lecture Day	Topic	Pr Day	Topic
1	1	Introduction a) Define digital and analog signals and systems, difference between analog and digital signals	1	Study of logic breadboard with verification of truth table for AND, OR, NOT, NAND, EX-OR, NOR gate
	2	b) Need of digitization and applications of digital systems		
	3	Number Systems a) Decimal, binary, octal, hexadecimal number systems		
2	4	b) Conversion of number from one number system to another including decimal points	2	Verification of NAND and NOR gate as universal gates
	5	c) Binary addition, subtraction, multiplication, division,		
	6	1's and 2's complement method of subtraction d) BCD code numbers and their limitations,		
3	7	addition of BCD coded numbers, conversion of BCD to decimal and vice-versa	3	Construction of half-adder and full adder circuits using EX-OR and NAND gate and verification of their operation
	8	e) Excess-3 code, gray code, binary to gray and gray to binary conversion		
	9	f) Concept of parity, single and double parity, error detection and correction using parity		
4	10	Revision	4	Verify the operation of a) multiplexer using an IC
	11	Logic Gates a) Logic gates, positive and negative logic, pulse waveform, definition,		
	12	symbols, truth tables, pulsed operation of NOT, OR, AND, NAND,		
5	13	NOR, EX-OR, EX-NOR gates	5	b) de-multiplexer

	14	b) NAND and NOR as universal logic gates		using an IC
	15	Revision		
6	16	Logic Simplification) a) Rules and laws of Boolean algebra, logic expression,	6	Revision
	17	Demorgan theorems, their proof b) Sum of products form (minterm), Product of sum form (maxterms),		
	18	simplification of Boolean expressions with the help of Rules and laws of Boolean algebra		
7	19	c) Karnaugh mapping techniques upto 4 variables and their applications for simplification of Boolean expression	7	Verify the operation of BCD to decimal decoder using an IC
	20	Arithmetic Circuits a) Half adder, full adder circuits and their operation		
	21	b) Parallel binary adder, 2-bit and 4-bit binary full adder, block diagram, working		
8	22	Revision	8	Verify the operation of BCD to 7 segment decoder using an IC
	23	Multiplexer/Demultiplexer a) Basic functions, symbols and logic diagrams of 4-inputs and 8-inputs multiplexers,		
	24	b) Function/utility of 16 and 32 inputs multiplexers,		
9	25	c) Realization of Boolean expression using multiplexer/demultiplexers	9	Verify operation of SR, JK, D-flip-flop master slave JK flip-flop using IC
	26	Revision		
	27	Decoders, Display Devices and Associated Circuits		
10	28	a) Basic Binary decoder, 4-line to 16 line decoder circuit	10	Revision

	29	b) BCD to decimal decoder, BCD to 7-segment decoder/driver, LED/LCD display		
	30	Revision		
11	31	Encoders and Comparators a) Encoder, decimal to BCD encoder,	11	Verify operation of SISO, PISO, SIPO, PIPO shift register. (universal shift register)
	32	decimal to BCD priority encoder, keyboard encoder		
	33	b) Magnitude comparators, symbols and logic diagrams of 2-bit and 4-bit, c) Comparators		
12	34	Latches and Flip-Flops a) Latch, SR-latch, D-latch, Flip-flop, difference between latch and flip-flop	12	Study of ring counter, Up/down counter
	35	b) S-R, D flip-flop their operation using waveform and truth tables, race around condition		
	36	c) JK flip-flop, master slave and their operation using waveform and truth tables		
13	37	Revision	13	Construct and verify the operation of an asynchronous binary decade counter using JK flip-flop
	38	Counters a) Asynchronous counter, 4-bit Asynchronous counter, Asynchronous decade counter		
	39	b) Asynchronous counter, 4-bit synchronous binary counter, Asynchronous decade counter		
14	40	c) Up/down Asynchronous counters, divide by N counter	14	Testing of digital ICs using IC tester
	41	MOD-3, MOD-5, MOD-7, MOD-12 counters d) Ring counter, cascaded counter, counter applications		
	42	Shift Registers a) Shift registers functions, serial-in-serial out,		
15	43	serial-in-parallel-out, parallel-in-serial-out, parallel-in-parallel out	15	Revision
	44	b) Universal shift register, shift register counter and		
	45	applications of shift registers		

Lesson Plan

Name of faculty : **Sube Singh**
Discipline : Computer Engineering
Semester : 5th
Subject : **Operating System**
Lesson Plan Duration : 15 Weeks

Work Load(Lecture/ Practical) per week (in hours): Lectures-03

Week	Theory		Practical Practical day
	Lecture Day	Topic (Including assignment/test)	
1 ST	1	Definition of Operating Systems	
	2	Types of Operating Systems,	
	3	Operating System Services	
	4	User operating system interface	
2 nd	5	System Calls	
	6	Types of System Calls	
	7	System Programs	
	8	Operating System Structure	
3 rd	9	Virtual Machine	
	10	Benefits of Virtual Machine	
	11	Revision and Test	
	12	Process concept, Process State, Process Control Block	
4 th	13	Scheduling Queues	
	14	Scheduler, Job Scheduler, Process Scheduler	
	15	Context Switch	
	16	Operations on Processes, Interprocess Communication	
5 th	17	Shared Memory Systems, Message-Passing Systems	
	18	CPU Scheduler, Scheduling Criteria	
	19	Scheduling Algorithms, Preemptive and Non Preemptive	
	20	First come first serve (FCFS), Shortest Job first (SJF), Round Robin (RR)	
6 th	21	Multiprocessor scheduling	
	22	Process Synchronization	
	23	Revision and Test	
	24	Deadlock, Conditions for Dead lock	
7 th	25	Methods for handling deadlocks	
	26	Deadlock Prevention	
	27	Deadlock Avoidance, Deadlock detection	

	28	Recovery from deadlock.	
8 th	29	Revision and Test	
	30	Definition – Logical and Physical address Space	
	31	Swapping	
	32	Memory allocation, Contiguous Memory allocation	
9 th	33	Fixed and variable partition	
	34	Internal and External fragmentation and Compaction	
	35	Paging – Principle of operation	
	36	Page allocation, Hardware support for paging	
10 th	37	Protection and sharing, Disadvantages of paging	
	38	Segmentation, Virtual Memory.	
	39	Revision and Test	
	40	Dedicated Devices, Shared Devices	
11 th	41	I/O Devices, Storage Devices	
	42	Buffering, Spooling.	
	43	Types of File System	
	44	Simple file system, Basic file system	
12 th	45	Logical file system	
	46	Physical file system	
	47	Various Methods of Allocating Disk Space	
	48	Revision and Test	
13 th	49	History of Linux and Unix	
	50	Linux Overview, Structure of Linux	
	51	Linux releases, Open Linux, Linux System Requirements	
	52	Linux Commands and Filters: mkdir, cd,rmdir,pwd, ls	
14 th	53	who, whoami, date, cat,chmod, cp, mv, rm,pg,more	
	54	pr, tail, head, cut, paste, nl, grep, wc, sort, kill	
	55	write, talk,mseg,wall, merge,mail, news	
	56	Shell: concepts of command options	
15 th	57	input, output,redirection,pipes, redirecting and piping with standard errors	
	58	Shell scripts,vi editing commands	
	59	Revision and Test	
	60	Revision and Test	

**B.K.N. Government Polytechnic
Narnaul**

Lesson Plan (Odd Semester)

Name of the Faculty : Anil Parkash
Discipline : Computer Engineering
Department : Computer Engineering
Semester : 3rd
Subject : Programming in C
Lesson Plan Duration : 16 weeks (from October, 2022)

Work load (Lecture / Practical) per week (in hours): Lectures - 03, Practicals - 06

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1 st	1	Steps in development of a program	1 st	Programming exercises on executing and editing a C program.
	2	Flow charts,		
	3	Algorithm development		
2 nd	4	Programme Debugging	2 nd	Programming exercises on defining variables and assigning values to variables
	5	I/O statements		
	6	Constants, variables		
3 rd	7	assign statements	3 rd	Programming exercises on arithmetic and relational operators
	8	data types		
	9	Operators and Expression		
4 th	10	Operators and Expression	4 th	Programming exercises on arithmetic expressions and their evaluation.
	11	Unformatted and Formatted IOS		
	12	Data Type Casting	5 th	Programming exercises on formatting input/output using printf and scanf and their return type values
5 th	13	Introduction to Control Structures	6 th	Programming exercises using if statement.
	14	Decision making with IF – statement		
	15	IF – Else	7 th	Programming exercises using if – Else.
6 th	16	Nested IF	8 th	Programming exercises on do – while, statement. Programming exercises on for – statement.
	17	While and do-while,		
	18	for loop		
7 th	19	Break. Continue, goto	9 th	Programming exercises on switch

	20	switch statements		statement.
	21	Introduction to pointers	10 th	Simple programs using pointers.
8 th	22	Address operator and pointers		
	23	Declaring pointers		
	24	Initializing Pointers		
9 th	25	Single pointer,	11 th	Simple programs using functions
	26	Introduction to functions		
	27	Global and Local Variables		
10 th	28	Function Declaration		
	29	Standard functions		
	30	Parameters and Parameter Passing		
11 th	31	Call - by value/reference	12 th	Programs on one-dimensional array.
	32	Introduction to Arrays		
	33	Array Declaration, Length of array		
12 th	34	Single Array.	13 th	Programs on two-dimensional array.
	35	Multidimensional Array		
	36	Arrays of characters		
13 th	37	Introduction of Strings	14 th	Programs for putting two strings together.
	38	String declaration and definition		
	39	String Related function i.e. strlen, strcpy		
14 th	40	String Related function i.e. strcmp	15 th	Programs for comparing two strings.
	41	Passing an array to function		
	42	Pointers to an array and strings.		
15 th	43	Pointers to an strings.	16 th	Simple programs using structures Simple programs using union.
	44	Declaration of structures		
	45	Accessing structure members		
16 th	46	Structure Initialization		
	47	Pointer to a structures,		
	48	Unions		

Lesson Plan

Name of the Faculty : ANIL Parkash
Discipline : Computer Engg.
Semester : 3rd
Subject : Multimedia Application
Lesson Plan Duration : 17 weeks (from Sept 2022)

Work Load (Lecture / Practical) per week (in hours): Lectures-03, Practical-12

Week	Theory		Practical	
	Lecture day	Topic (including assignment / test)	Practical Day/Week	Topic
1 st	1 st	Introduction to Multimedia System	1st	Prac. 1 Installation of various multimedia software like Photoshop, Flash, Director or any open source software
	2 nd	Concept of Multimedia, History of Multimedia		
	3 rd	Multi media hardware and software - various classes, components		
2 nd	4 th	Quality criteria and specifications of different capturing devices	2nd	Installation of various multimedia software like Photoshop, Flash, Director or any open source software
	5 th	Communication devices,		
	6 th	Storage devices, Display devices		
3 rd	7 th	Elements of Multimedia, different multimedia file formats	3rd	Prac. 2 Installing and use of various multimedia devices - Scanner - Digital camera, web camera - Plotter and printers
	8 th	Applications of multimedia – benefits and problems		
	9 th	Revision		
4 th	10 th	Planning steps and process, Audio encoding techniques,	4th	- Mike and speakers - Touch screen
	11 th	Concept of data compression, Text encoding,		
	12 th	Types of images, Capturing images using camera/scanner,		
5 th	13 th	coding techniques for Moving Images,	5th	- DVD - Audio CD and Video CD
	14 th	Editing , Editing of images audio		
	15 th	text, video and graphics,		
6 th	16 th	navigation and user interface designing	6th	Prac. 3 Reading and writing of different format on CD/DVD
	17 th	Revision		
	18 th	Revision		
7 th	19 th	Use of various codes like bar code, QR code in multimedia applications.	7th	Prac. 4 Transporting audio and video files
	20 th	Use of various codes like bar code, QR code in multimedia applications		
	21 st	Revision		
8 th	22 nd	Photo-shop workshop,	8th	Prac. 5 Using various features of Flash
	23 rd	image editing tools,		
	24 th	specifying and adjusting colors		
9 th	25 th	using gradient tools,	9th	Using various features of Flash
	26 th	selection and move tools,		
	27 th	transforming path drawing and		

Week	Theory		Practical	
	Lecture day	Topic (including assignment / test)	Practical Day/Week	Topic
10 th	28 th	editing tools,	10th	Prac. 6 Using various features of Photo-shop/GIMP
	29 th	using channels,		
	30 th	layers, filters and actions		
11 th	31 st	layers, filters and actions	11th	Prac. 7 Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations
	32 nd	Revision		
	33 rd	Revision		
12 th	34 th	Types of Authoring programmes	12th	Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations
	35 th	Icon based, Time based,		
	36 th	Story boarding/scripting and object oriented working in macromedia flash		
13 th	37 th	exploring interface using selection of PEN tools.	13th	Prac. 8 Generation and recognition of bar code & QR code using pre built application/mobile applications.
	38 th	Working with drawing and painting tools,		
	39 th	applying colour viewing and manipulating time line		
14 th	40 th to 42 nd	Revision	14th	Revision
15 th	43 rd to 45 th	Revision	15th	Revision
16 th	46 th to 48 th	Revision	16th	Revision
17 th	49 th	animating, processing, guiding layers,	17th	Generation and recognition of bar code & QR code using pre built application/mobile applications.
	50 th	importing and editing sound and		
	51 st	video clips in flash		