

Lesson Plan (Odd Semester)

Name of the Faculty: Rakesh Gupta
Discipline: Computer Engineering
Department: Computer Engineering
Semester: 3rd
Subject: Data Communication

Lesson Plan Duration: 15 weeks (from July, 2018 to Dec., 2018)

****Work load (Lecture / Practical) per week(in hours): Lectures-04, practicals -Nil**

Week	Theory	
	Lect. day	Topic (Including assignment / test)
1st	1st	1. Introduction : Data Communication- Components
	2nd	Data representation
	3rd	Data flow Networks
	4th	Distributed processing
2nd	1st	Network criteria
	2nd	Physical structures Network Category- LAN
	3rd	WAN, MAN
	4th	2. Data and Signals : Analog and Digital data
3rd	1st	Analog and digital signals
	2nd	Periodic and Non Periodic signals
	3rd	periodic analog signals
	4th	Digital Signals- Bit rate, Bit length
4th	1st	Digital signal as a composite analog signal
	2nd	Transmission of digital signals
	3rd	Transmission Impairment- Attenuation, Distortion and noise
	4th	Performance- bandwidth, throughput
5th	1st	Latency, jitter
	2nd	Revision
	3rd	3. Digital and Analog Transmission : Analog transmission- Digital to Analog Conversion- ASK
	4th	PSK, FSK
6th	1st	Analog to Analog Conversion- AM
	2nd	PM,FM(No mathematical treatment)
	3rd	Digital transmission- Digital to digital conversion- coding and schemes
	4th	Digital transmission- Digital to digital conversion- coding and schemes
7th	1st	Analog to digital conversion- PCM
	2nd	Delta Modulation (DM)
	3rd	Transmission modes- Serial transmission
	4th	Transmission modes- parallel transmission
8th	1st	Revision
	2nd	Revision
	3rd	4. Multiplexing – FDM
	4th	FDM
9th	1st	WDM
	2nd	WDM
	3rd	TDM
	4th	TDM
10th	1st	Revision
	2nd	Revision
	3rd	5. Transmission media : Guided media
	4th	Twisted pair cable
11th	1st	Twisted pair cable
	2nd	Co-axial cable
	3rd	Co-axial cable
	4th	Fibre optics cable
12th	1st	Fibre optics cable
	2nd	Unguided Media
	3rd	Radio wave
	4th	Microwave
13th	1st	Infrared
	2nd	Revision
	3rd	6. Error Detection and Correction : Types of Errors
	4th	Redundancy

14th	1st	Detection v/s correction
	2nd	Forward error correction
	3rd	Forward error correction v/s retransmission.
	4th	Error detection through Parity bit
15th	1st	Block parity to detect double errors and correct single errors.
	2nd	General principles of error detection and correction using cyclic redundancy check
	3rd	Revision
	4th	Revision

Name of the Faculty: Rajinder Kumar
 Discipline: Computer Engineering
 Department: Computer Engineering
 Semester: 3rd
 Subject: Digital Electronics
 Lesson Plan Duration: 15 weeks (from July, 2018 to Dec., 2018)

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

Week	Theory		Practical	
	Lect. day	Topic (Including assignment / test)	Pract. Day	Topic
1st	1st	1. Introduction a) Distinction between analog and digital signal.	1st	Verification and interpretation of truth tables for AND, OR, NOT gates
	2nd	b) Applications and advantages of digital signals.	2nd	Verification and interpretation of truth tables for AND, OR, NOT gates
	3rd	2. Number System a) Binary, octal and hexadecimal number system: Conversion from decimal to binary	3rd	Verification and interpretation of truth tables for AND, OR, NOT gates
2nd	1st	Conversion from hexadecimal to binary	1st	Verification and interpretation of truth tables for NAND, NOR gates
	2nd	Conversion from binary to decimal	2nd	Verification and interpretation of truth tables for NAND, NOR gates
	3rd	Conversion from binary to hexadecimal	3rd	Verification and interpretation of truth tables for Exclusive OR (EXOR) gate
3rd	1st	b) Binary addition and subtraction including binary points. 1's and 2's complement method of addition/subtraction.	1st	Verification and interpretation of truth tables for Exclusive OR (EXOR) gate
	2nd	3. Codes and Parity a) Concept of code, weighted and non-weighted codes	2nd	Verification and interpretation of truth tables for Exclusive OR (EXOR) gate
	3rd	Examples of 8421, BCD, Excess-3 and Gray code.	3rd	Verification and interpretation of truth tables for Exclusive NOR (EXNOR) gate
4th	1st	b) Concept of parity, single and double parity, Error detection	1st	Verification and interpretation of truth tables for Exclusive NOR (EXNOR) gate
	2nd	4. Logic Gates and Families a) Concept of negative and positive logic NOT, AND, OR, NAND, NOR, EXOR Gates	2nd	Verification and interpretation of truth tables for Exclusive NOR (EXNOR) gate
	3rd	NAND & NOR as universal gates. logic families	3rd	Realisation of logic functions with the help of NAND gate
5th	1st	5. Logic Simplification a) Postulates of Boolean algebra, De Morgan's Theorems.	1st	Realisation of logic functions with the help of NAND gate
	2nd	Implementation of Boolean (logic) equation with gates	2nd	Realisation of logic functions with the help of NOR gate
	3rd	Implementation of Boolean (logic) equation with gates	3rd	Realisation of logic functions with the help of NOR gate

6th	1st	Karnaugh map (2 variables) and simple application in developing combinational logic circuits	1st	To design a half adder using XOR gate and verification of its operation
	2nd	Karnaugh map (3 variables) and simple application in developing combinational logic circuits	2nd	To design a half adder using XOR gate and verification of its operation
	3rd	Karnaugh map (4 variables) and simple application in developing combinational logic circuits	3rd	To design a half adder using NAND gate and verification of its operation
7th	1st	Karnaugh map (4 variables) and simple application in developing combinational logic circuits	1st	To design a half adder using NAND gate and verification of its operation
	2nd	6. Arithmetic circuits Half adder circuit, design and implementation.	2nd	Construction of a full adder circuit using XOR gate and verify its operation
	3rd	Full adder circuit, design and implementation.	3rd	Construction of a full adder circuit using NAND gate and verify its operation
8th	1st	4 bit adder circuit	1st	Construction of a full adder circuit using NAND gate and verify its operation
	2nd	7. Decoders, Multiplexers, De Multiplexers and Encoder a) Four bit decoder circuits for 7 segment display and decoder/driver ICs.	2nd	Verification of truth table for positive edge triggered IC flip-flops of D latch
	3rd	b) Basic functions and block diagram of MUX with different Ics	3rd	Verification of truth table for positive edge triggered IC of D flip-flop
9th	1st	b) Basic functions and block diagram of DEMUX with different Ics	1st	Verification of truth table for positive edge triggered IC of JK flip-flops.
	2nd	c) Basic functions and block diagram of Encoder	2nd	Verification of truth table for Negative edge triggered IC flip-flops of D latch
	3rd	8. Latches and flip flops a) Concept and types of latch with their working and applications	3rd	Verification of truth table for negative edge triggered IC of D flip-flop
10th	1st	b) Operation using waveforms and truth tables of RS & T flip flops.	1st	Verification of truth table for negative edge triggered IC of JK flip-flops.
	2nd	Operation using waveforms and truth tables of D & Master/Slave flip flops.	2nd	Verification of truth table for level triggered IC flip-flops of D latch
	3rd	Operation using waveforms and truth tables of JK flip flops. c) Difference between a latch and a flip flop	3rd	Verification of truth table for level triggered IC of D flip-flop
11th	1st	9. Counters a) Introduction to Asynchronous and Synchronous counters	1st	Verification of truth table for level triggered IC of JK flip-flops.
	2nd	b) Binary counters	2nd	Verification of truth table for encoder Ics
	3rd	c) Divide by N ripple counters, Decade counter	3rd	Verification of truth table for decoder ICs
12th	1st	Ring counter	1st	Verification of truth table for Mux
	2nd	10. Shift Register Introduction and basic concepts including shift left and shift right.	2nd	Verification of truth table for DeMux
	3rd	a) Serial in parallel out, serial in serial out	3rd	To design a 4 bit SISO shift registers using JK/D flip flops and verification of their operation.

13th	1st	Parallel in serial out, parallel in parallel out.	1st	To design a 4 bit SIPO shift registers using JK/D flip flops and verification of their operation.
	2nd	b) Universal shift register	2nd	To design a 4 bit PISO shift registers using JK/D flip flops and verification of their operation.
	3rd	11. A/D and D/A Converters Working principle of A/D and D/A converters	3rd	To design a 4 bit PIPO shift registers using JK/D flip flops and verification of their operation.
14th	1st	Brief idea about different techniques of A/D conversion • Stair step Ramp A/D converter	1st	To design a 4 bit ring counter and verify its operation.
	2nd	• Dual Slope A/D converter • Successive Approximation A/D Converter	2nd	To design a 4 bit ring counter and verify its operation.
	3rd	Detail study of : • Binary Weighted D/A converter • R/2R ladder D/A converter	3rd	To design a 4 bit ring counter and verify its operation.
15th	1st	• R/2R ladder D/A converter Applications of A/D and D/A converter.	1st	Use of Asynchronous Counter ICs (7490 or 7493)
	2nd	12. Semiconductor Memories Memory organization, classification of semiconductor memories (RAM, ROM, PROM, EPROM, EEPROM)	2nd	Use of Asynchronous Counter ICs (7490 or 7493)
	3rd	Static and dynamic RAM, Introduction to 74181 ALU IC	3rd	Use of Asynchronous Counter ICs (7490 or 7493)

LESSON PLAN

Faculty	Dharmveer Saini			
Discipline	Computer Engineering			
Semester	3rd			
Subject	Operating System			
Duration	16 WEEKS(From July 2018 to December 2018)			
Work Load	Lecture	4(Lecture) per week (in hours)		
	Practical	3 hours Lab per week		
Week	Theory		Practical	
	Day	Topic	Day	Topic
1st	Overview of Operating Systems			
	1st	Definition of Operating Systems	1st	Demonstration of all the controls provided in windows control panel
	2nd	Types of Operating Systems: Batch Systems, Multi-Programming OS	2nd	N/A
	3rd	Types of Operating Systems: Time Sharing Systems, Real Time Systems	3rd	N/A
2nd	4th	Class Test of Topics Covered	4th	N/A
	1st	Operating System Services, User operating system interface	1st	Exercise on Basics of windows
	2nd	System Calls, Types of System Calls	2nd	N/A
	3rd	System Programs	3rd	N/A
3rd	4th	Class Test of Topics Covered	4th	N/A
	1st	Operating System Structure	1st	Installation of Linux Operating System
	2nd	Virtual Machine, Benefits of Virtual Machine	2nd	N/A
	3rd	Revision of the unit	3rd	N/A
4th	4th	Class Test of Unit I	4th	N/A
	Process Management (Principles and Brief Concept)			
	1st	Process concept, Process State, Process Control Block,	1st	Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir
	2nd	Scheduling Queues, Scheduler, Job Scheduler, Process Scheduler	2nd	N/A
5th	3rd	Context Switch, Operations on Processes	3rd	N/A
	4th	Class Test of Topics Covered	4th	N/A
	1st	Interprocess Communication	1st	Usage of File Management commands of Linux: cat, chmod, cp, mv, rm, pg, more, find
	2nd	Shared Memory Systems, Message-Passing Systems	2nd	N/A
6th	3rd	CPU Scheduler, Scheduling Criteria, Process Synchronization.	3rd	N/A
	4th	Class Test of Topics Covered	4th	N/A
	1st	Scheduling Algorithms, Preemptive and Non Preemptive	1st	Use the general purpose commands of Linux: wc, od, lp, cal, date, who, whoami
	2nd	First come first serve (FCFS), Shortest Job first (SJF)Round Robin (RR), Multiprocessor scheduling	2nd	N/A
3rd	3rd	Revision of the Unit II	3rd	N/A
	4th	Class Test of Unit I	4th	N/A

7th	Deadlocks (Principles and Brief Concept)			
	1st	Deadlock, Conditions for Dead lock	1st	Using the simple filters: pr, head, tail, cut, paste, nl, sort
	2nd	Methods for handling deadlocks	2nd	N/A
	3rd	Dead Prevention, Deadlock Avoidance	3rd	N/A
8th	Memory Management Function (Principles and Brief Concept)			
	1st	Definition – Logical and Physical address Space	1st	Communication Commands: news, write, talk, mseg, mail, wall
	2nd	Swapping, Memory allocation	2nd	N/A
	3rd	Contiguous Memory allocation, Fixed and variable partition	3rd	N/A
9th	Class Test of Topics Covered		4th	N/A
	1st	Internal and External fragmentation and Compaction	1st	Write a shell program that finds the factorial of a number
	2nd	Paging – Principle of operation, Page allocation	2nd	N/A
	3rd	Hardware support for paging, Disadvantages of paging	3rd	N/A
10th	Class Test of Topics Covered		4th	N/A
	1st	Protection and sharing	1st	Write a shell program that finds whether a given number is prime or not
	2nd	Segmentation, Virtual Memory	2nd	N/A
	3rd	Revision of the Unit III	3rd	N/A
11th	Class Test of Unit III		4th	N/A
	I/O Management Functions (Principles and Brief Concept)			
	1st	Dedicated Devices, Shared Devices,	1st	Write a shell program to find the average of three numbers
	2nd	I/O Devices, Storage Devices,	2nd	N/A
12th	Class Test of Unit IV		3rd	N/A
	File Management (Principles and Brief Concept)			
	1st	Types of File System; Simple file system	1st	Write a shell program that will convert all the text of the file from lowercase to uppercase
	2nd	Basic file system, Logical file system	2nd	N/A
13th	Linux Operating System			
	1st	History of Linux and Unix, Linux Overview	1st	Practice the general purpose commands of Linux
	2nd	Structure of Linux, Linux releases, Open Linux, Linux System Requirements	2nd	N/A
	3rd	Linux Commands and Filters: mkdir, cd, rmdir	3rd	N/A
14th	Class Test of Unit IV		4th	N/A
	1st	Linux Commands and Filters: pwd, ls, who, whoami, date, cat, chmod	1st	Practice Shell Programming
	2nd	cp, mv, rm, pg, more, pr, tail	2nd	N/A
	3rd	head, cut, paste, nl	3rd	N/A
15th	Class Test of Unit IV		4th	N/A
	1st	grep, wc, sort, kill, write, talk, mseg	1st	Practice Shell Programming
	2nd	Shell: concepts of command options	2nd	N/A
	3rd	input, output, redirection, pipes	3rd	N/A
16th	Class Test of Unit IV		4th	N/A
	1st	redirecting and piping with standard errors	1st	Practice Shell Programming
	2nd	Shell scripts	2nd	N/A
	3rd	Shell scripts	3rd	N/A
16th	Class Test of Unit VII		4th	N/A
	1st	vi editing commands	1st	Practice Vi editor Programs
	2nd	Revision of Linux Commands	2nd	N/A
	3rd	Revision of Shell Script and vi editor	3rd	N/A
16th	Class Test of Unit VII		4th	N/A
	1st	Class Test of Unit VII	1st	Practice Vi editor Programs
	2nd	Revision of Linux Commands	2nd	N/A
	3rd	Revision of Shell Script and vi editor	3rd	N/A

Name of the Faculty : Munish Gupta
Discipline : Computer Engineering
Department : Computer Engineering
Semester : 3rd
Subject : Programming in C
Lesson Plan Duration : 15 weeks (from July, 2018 to Dec., 2018)
****Work load (Lecture / Practical) per week(in hours): Lectures-04, practicals -06**

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1st	Algorithm and Programming Development: Introduction	1st	Programming exercises on executing and editing a C program
	2nd	Steps in development of a program		
	3rd	Flow charts, Algorithm development	2nd	Programming exercises on executing and editing a C program
	4th	Programme Debugging		
2nd	5th	Algorithm and Flowchart writing for practical .	3rd	Programming exercises on executing and editing a C program
	6th	Algorithm and Flowchart writing for practical .		
	7th	Practice of error detection and corrections in examples.		
	8th	Program Structure : Introduction to structure of C program		
3rd	9th	Keywords, assign statements	5th	Programming exercises on executing and editing a C program
	10th	I/O statements: Printf and Scanf		
	11th	Constants, variables and data types		
	12th	Operators and Expressions		
3rd	Class Test of Unit VII		6th	Programming exercises on defining variables and assigning values to
	1st	Class Test of Unit VII		
	2nd	Revision of Linux Commands		
	3rd	Revision of Shell Script and vi editor		

4th	13th	Unformatted and Formatted IOS	7th	Programming exercises on arithmetic and relational operators
	14th	Data Type Casting		
	15th	Basic Program writing and practice	8th	Programming exercises on arithmetic expressions and their evaluation
	16th	Revision of Unit II		
5th	17th	Control Structures :Introduction and use	9th	Programming exercises on formatting input/output using printf and scanf and
	18th	Decision making with IF – statement		
	19th	Practice of IF statement with examples	10th	Programming exercises using if statement, if – Else
	20th	IF – Else and Nested IF		
6th	21st	While and do-while, for loop	11th	Programming exercises on do – while, statement.
	22nd	Loop Practice and revision		
	23rd	Break. Continue statements	12th	Programming exercises on switch statement.
	24th	goto and switch statements		
7th	25th	Revision of Unit III	13th	Programming exercises on for – statement
	26th	Practice of Control structures using examples.		
	27th	Class Test of III	14th	Programming exercises on do – while, statement and for statement
	28th	Pointers :Introduction to pointers		
8th	29th	Address operator and pointers , Declaring and initializing pointers	15th	Simple programs using pointers
	30th	Single pointer		
	31st	Revision of Unit IV	16th	Simple programs using pointers
	32nd	Practice of Pointers using examples and programs		
9th	33rd	Functions:Introduction to functions Global and Local Variables	17th	Simple programs using functions
	34th	Function Declaration, Standard functions		
	35th	Parameters and Parameter Passing	18th	Simple programs using functions
	36th	Call - by value/reference		
10th	37th	Revision of functions and Parameter Passing	19th	Programs on one-dimensional array. Programs on two-dimensional array.
	38th	Arrays and Strings:Introduction to Arrays, Array Declaration, Length of array		
	39th	Single and Multidimensional Array,Arrays of characters	20th	Programs on one-dimensional array. Programs on two-dimensional array.
	40th	Revision of Arrays and functions.		
11th	41st .	Examples of programs and Practice of array and functions	21st	(i) Programs for putting two strings together. (ii) Programs for comparing two strings
	42nd	Introduction of Strings: String declaration and definition, String Related function i.e. strlen, strcpy, strcmp		
	43rd	Passing an array to function	22nd	Programs on functions using array as parameters
	44th	Programming examples of array passing as argument to a function		
12th	45th	Revision of arrays and functions with examples	23rd	Programs on functions using array as parameters
	46th	Pointers to an array and strings		
	47th	Pointers to an array and strings detailed	24th	Programs on functions ,Strings and parameter passing by reference
	48th	Class Test of Pointers and Functions		
13th	49th	Structures and Unions : Introduction ,Declaration of structures	25th	Simple programs using structures
	50th	Accessing structure members		
	51st	Structure Initialization	26th	Simple programs using structures
	52nd	Pointer to a structures		
14th	53rd	Unions: Introduction	27th	Simple programs using union
	54th	Difference between Structures and unions		
	55th	Program examples of structures and unions	28th	Simple programs using union
	56th	Revision of Structure and unions		
15th	57th	Revision of Pointers	29th	Programming exercises on do – while, statement and for statement
	58th	Revision of Loops and Control Structures.		
	59th	Class Test of Loops, Pointers and Control Structures	30th	Programming exercises on do – while, statement and for statement
	60th	Revision of Structure and unions		