Lesson Plan

Discipline : Computer Engg.

Semester : 3rd

Subject : **PIC**

Lesson Plan Duration : 15 weeks (from July 2019 to Nov 2019)

Workload (Lecture / Practical) per week (in hours): Lectures-03, Practical-06

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

Week	Theory		Practical	
	Lecture day	**Topic (including assignment / test)**	**Practical Day**	**Topic**
	20th	Address operator and pointers		switch statement.
	21st	Declaring and initializing pointers,		
8th	22nd	Single pointer,	15 & 16	Programming exercises on do – while, statement.
	23rd	Revision		
	24th	Revision		
9th	25th	Introduction to functions	17 & 18	Programming exercises on for – statement.
	26th	Global and Local Variables		
	27th	Function Declaration Standard functions		
10th	28th	Parameters and Parameter Passing	19 & 20	Simple programs using pointers.
	29th	Call - by value/reference		
	30th	Revision		
11th	31st	Array Declaration, Length of array Single and Multidimensional Array.	21 & 22	Programs on one-dimensional array. Programs on two-dimensional array.
	32nd	Arrays of characters		
	33rd	Revision		
12th	34th	Introduction of Strings	23 & 24	(i) Programs for putting two strings together. (ii) Programs for comparing two strings.
	35th	String declaration and definition		
	36th	Revision		
13th	37th	String Related function i.e. strlen, strcpy, strcmp	25 & 26	Simple programs using functions
	38th	Passing an array to function		
	39th	Pointers to an array and strings.		
14th	40th	Revision	27 & 28	Simple programs using structures.
	41st	Declaration of structures Accessing structure members		
	42nd	Unions		
15th	43rd	Revision	29 & 30	Simple programs using union.
	44th	Revision		
	45th	Revision		

Lesson Plan

Discipline	: Computer Engg.
Semester	: 3rd
Subject	: **Operating System**
Lesson Plan Duration	: 15 weeks (from July 2019 to Nov 2019)

Workload (Lecture / Practical) per week (in hours): Lectures-03, Practical-03

Week	Theory		Practical	
	Lecture day	Topic (including assignment / test)	Practical Day	Topic
1st	**1st**	Definition of Operating Systems, Types of Operating Systems, ,	1st	Prac. 1 Demonstration of all the controls provided on Control Panel
	2nd	Operating System Services		
	3rd	User operating system interface,		
2nd	**4th**	System Calls, Types of System Calls	2nd	Demonstration of all the controls provided on Control Panel
	5th	System Program		
	6th	Operating System Structure,		
3rd	**7th**	Virtual Machine, Benefits of Virtual Machine	3rd	Prac. 2 Exercise on Basics of windows.
	8th	Revision		
	9th	Revision		
4th	**10th**	Process concept, Process State, Process Control Block,	4th	Prac. 3 Installation of Linux Operating System
	11th	Process Scheduler, Context Switch,		
	12th	Operations on Processes, Interprocess Communication,		
5th	**13th**	Scheduling Queues, Scheduler, Job Scheduler, ,	5th	Prac. 4 Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir
	14th	Shared Memory Systems, Message-Passing Systems		
	15th	CPU Scheduler, Scheduling Criteria, Scheduling Algorithms,		
6th	**16th**	Preemptive and Non-Preemptive, First come first serve (FCFS), Shortest Job first	6th	Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir
	17th	(SJF), Round Robin (RR), Multiprocessor scheduling,		
	18th	Process Synchronization.		
7th	**19th**	Deadlock, Conditions for Dead	7th	Prac. 5 Usage of File Management commands of Linux: cat,
	20th	, Methods for handling deadlocks, Dead Prevention,		

Week	Lecture day	Topic (including assignment / test)	Practical Day	Topic
	21st	Lock Deadlock Avoidance, Deadlock detection, Recovery from deadlock.		chmod,cp, mv, rm, pg, more, find
8th	22nd	Definition – Logical and Physical address Space, Swapping, ,	8th	Usage of File Management commands of Linux: cat, chmod,cp, mv, rm, pg, more, find
	23rd	Memory allocation, Contiguous Memory allocation, Fixed and variable partition,		
	24th	Internal and External fragmentation and Compaction		
9th	25th	Paging – Principle of operation, Page allocation,	9th	Prac. 6 Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami
	26th	Hardware support for paging, Protection and sharing, Disadvantages of paging,		
	27th	Segmentation, Virtual Memory.		
10th	28th	Revision	10th	Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami
	29th	Dedicated Devices, Shared Devices, I/O Devices, Storage Devices,		
	30th	Buffering, Spooling.		
11th	31st	Types of File System; Simple file system, Basic file system,	11th	Prac. 7 Using the simple filters: pr, head, tail, cut, paste, nl, sort
	32nd	Logical file system, Physical file system,		
	33rd	Various Methods of Allocating Disk Space		
12th	34th	History of Linux and Unix, Linux Overview, Structure of Linux, Linux releases,	12th	Prac. 8 Communication Commands: news, write, talk, mseg, mail, wall
	35th	Open Linux, Linux System Requirements,		
	36th	Linux Commands and Filters: mkdir, cd,rmdir,pwd, ls, who, whoami, date, cat,chmod,		
13th	37th	, cp, mv, rm,pg,more, pr, tail, head, cut, paste, nl, grep	13th	Prac. 9 Write a shell program that finds the factorial of a number.
	38th	wc, sort, kill, write, talk,mseg,wall, merge,mail, news		
	39th	Shell: concepts of command options, input, output,redirection,pipes,		
14th	40th	redirecting and piping with standard errors,	14th	Prac 10 Write a shell program that finds whether a given number is prime or not.
	41st	Shell scripts,vi editing commands		
	42nd	Shell scripts,vi editing commands		
15th	43rd	Revision	15th	
	44th	Revision		
	45th	Revision		

Lesson Plan

Discipline : Computer Engg
Semester : 3rd
Subject : Digital Electronics-I
Lesson Plan Duration : 15 Weeks (From July 2019 to November 2019)

Week	Theory			Practical	
	Lecture Day	Topic (including assignment/test)		Pr Day	Topic
1	1	Introduction a) Define digital and analog signals and systems, difference between analog and digital signals		1	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	Revision			
	4	Number Systems a) Decimal, binary, octal, hexadecimal number systems			
2	5	b) Conversion of number from one number system to another including decimal points		2	2. Verification of NAND and NOR gate as universal gates
	6	c) Binary addition, subtraction, multiplication, division,			
	7	1's and 2's complement method of subtraction			
	8	d) BCD code numbers and their limitations,			
3	9	addition of BCD coded numbers, conversion of BCD to decimal and vice-versa		3	3. Construction of half-adder and full adder circuits using EX-OR and NAND gate and verification of their operation
	10	e) Excess-3 code, gray code,			
	11	binary to gray and gray to binary conversion			
	12	f) Concept of parity, single and double parity, error detection and correction using parity			
4	13	Revision		4	4. Verify the operation of a) multiplexer using an IC
	14	Revision			
	15	Logic Gates a) Logic gates, positive and negative logic, pulse waveform, definition,			

	16	symbols, truth tables, pulsed operation of NOT, OR, AND, NAND,		
5	17	NOR, EX-OR, EX-NOR gates	5	4. b) de-multiplexer using an IC
	18	b) NAND and NOR as universal logic gates		
	19	Revision		
	20	Revision		
6	21	Logic Simplification) a) Rules and laws of Boolean algebra, logic expression,	6	Revision
	22	Demorgan theorems, their proof b) Sum of products form (minterm), Product of sum form (maxterms),		
	23	simplification of Boolean expressions with the help of Rules and laws of Boolean algebra		
	24	c) Karnaugh mapping techniques upto 4 variables and their applications for simplification of Boolean expression		
7	25	Revision	7	5. a) Verify the operation of BCD to decimal decoder using an IC
	26	Revision		
	27	Arithmetic Circuits a) Half adder, full adder circuits and their operation		
	28	b) Parallel binary adder, 2-bit and 4-bit binary full adder, block diagram, working		
8	29	Revision	8	5. b) Verify the operation of BCD to 7 segment decoder using an IC
	30	Revision		
	31	Multiplexer/Demultiplexer a) Basic functions, symbols and logic diagrams of 4-inputs and 8-inputs multiplexers,		
	32	b) Function/utility of 16 and 32 inputs multiplexers,		
9	33	c) Realization of Boolean expression using multiplexer/demultiplexers	9	6. Verify operation of SR, JK, D-flip-

	34	Revision		flop master slave JK filp-flop using IC
	35	Revision		
	36	Decoders, Display Devices and Associated Circuits		
10	37	a) Basic Binary decoder, 4-line to 16 line decoder circuit	10	Revision
	38	b) BCD to decimal decoder, BCD to 7-segment decoder/driver, LED/LCD display		
	39	Revision		
	40	Revision		
11	41	Encoders and Comparators a) Encoder, decimal to BCD encoder,	11	7. Verify operation of SISO, PISO, SIPO, PIPO shift register. (universal shift register)
	41	decimal to BCD priority encoder, keyboard encoder		
	43	b) Magnitude comparators, symbols and logic diagrams of 2-bit and 4-bit, c) Comparators		
	44	Revision		
12	45	Revision	12	8. Study of ring counter, Up/down counter
	46	Latches and Flip-Flops a) Latch, SR-latch, D-latch, Flip-flop, difference between latch and flip-flop		
	47	b) S-R, D flip-flop their operation using waveform and truth tables, race around condition		
	48	c) JK flip-flop, master slave and their operation using waveform and truth tables		
13	49	Revision	13	9. Construct and verify the operation of an asynchronous binary decade counter using JK flip-flop
	50	Revision		
	51	Counters a) Asynchronous counter, 4-bit Asynchronous counter, Asynchronous decade counter		
	52	b) Asynchronous counter, 4-bit synchronous binary counter, Asynchronous decade counter		
14	53	c) Up/down Asynchronous counters, divide by N counter	14	10. Testing of digital ICs using IC tester

	54	MOD-3,MOD-5, MOD-7, MOD-12 counters		
	55	d) Ring counter, cascaded counter, counter applications		
	56	Shift Registers a) Shift registers functions, serial-in-serial out,		
15	57	serial-in-parallel-out, parallel-in-serial-out, parallel-in-parallel out	15	Revision
	58	b) Universal shift register, shift register counter and		
	59	applications of shift registers		
	60	Revision		

Lesson Plan

Discipline : Computer Engg.

Semester : 3rd

Subject : **Multimedia Applications**

Lesson Plan Duration : 15 weeks (from July 2019 to Nov 2019)

Workload (Lecture / Practical) per week (in hours): Lectures-03, Practical-03

Week	Theory		Practical	
	Lecture day	**Topic (including assignment / test)**	**Practical Day**	**Topic**
1st	1st	Concept of Multimedia, History of Multimedia	1st	Prac. 1 Installation of various multimedia software like Photoshop, Flash, Director or any open source software
	2nd	Multimedia hardware and software		
	3rd	-various classes, components		
2nd	4th	Quality criteria and specifications of different capturing devices	2nd	Installation of various multimedia software like Photoshop, Flash, Director or any open source software
	5th	Communication devices,		
	6th	Storage devices, Display devices		
3rd	7th	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 -
	8th	Applications of multimedia – benefits and problems		
	9th	Revision		
4th	10th	Planning steps and process, Audio encoding techniques, ,	4th	- Mike and speakers - Touch screen
	11th	Concept of data compression, Text encoding,		
	12th	Types of images, capturing images using camera/scanner,		
5th	13th	coding techniques for Moving Images,	5th	- DVD - Audio CD and Video CD
	14th	Editing, Editing of images audio		
	15th	text, video and graphics,		
6th	16th	Revision	6th	Prac. 3 Reading and writing of different format on CD/DVD
	17th	Revision		
	18th	navigation and user interface designing,		

Week	Theory		Practical	
	Lecture day	Topic (including assignment / test)	Practical Day	Topic
7th	19th	Use of various codes like bar code, QR code in multimedia applications.	7th	Prac. 4 Transporting audio and video files
	20th	Use of various codes like bar code, QR code in multimedia applications		
	21st	Revision		
8th	22nd	Photo-shop workshop,	8th	Prac. 5 Using various features of Flash
	23rd	, image editing tools,		
	24th	specifying and adjusting colors		
9th	25th	using gradient tools,	9th	Using various features of Flash
	26th	selection and move tools,		
	27th	transforming path drawing and		
10th	28th	editing tools,	10th	Prac. 6 Using various features of Photo-shop/GIMP
	29th	using channels,		
	30th	layers, filters and actions		
11th	31st	layers, filters and actions	11th	Prac. 7 Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations
	32nd	Revision		
	33rd	Revision		
12th	34th	Types of Authoring programs	12th	Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations
	35th	Icon based, Time based,		
	36th	Story boarding/scripting and object-oriented working in macromedia flash,		
13th	37th	exploring interface using selection of PEN tools.	13th	Prac. 8 Generation and recognition of bar code & QR code using prebuilt application/mobile applications.
	38th	Working with drawing and painting tools,		
	39th	, applying colour viewing and manipulating timeline		
14th	40th	animating, processing, guiding layers,	14th	Generation and recognition of bar code & QR code using prebuilt application/mobile applications.
	41st	importing and editing sound and		
	42nd	video clips in flash		
15th	43rd	Revision	15th	
	44th	Revision		
	45th	Revision		

Lesson Plan

Discipline	:	Computer Engineering
Semester	:	3rd
Subject	:	**DATA COMMUNICATION**
Lesson Plan Duration	:	15 Weeks (from JULY 2019 to NOV. 2019)

Workload (Lecture/ Practical) per week (in hours): Lectures-03, Practical – **Nil**

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

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