Lesson Plan

Name of Faculty : Dinesh Arya

Discipline : Electronics & Communication Engg.

Semester : 3rd

Subject : **DIGITAL ELECTRONICS**

Lesson Plan Duration : 15Weeks

Work Load (Lecture /Practical) per week in hours : Lecture : 3 Practical : 3

Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including assignment/test)**	**Practical**	**Topic**
1st	1st	Introduction Distinction between analog and digital signal. Applications and advantages of digital		
	2nd	Number System		
	3rd	conversion from decimal and hexadecimal to binary and vice-versa.		
			1st	Verification and interpretation of truth tables for AND, OR, NOT NAND,NOR and Exclusive OR (EXOR) and Exclusive
2nd	4th	Binary addition and subtraction		
	5th	1's and 2's complement method of addition/subtraction.		

	6th	Codes and Parity		
			2nd	Realisation of logic functions with the help of NAND or NOR gates
3rd	7th	Concept of code, weighted and non-weighted codes, examples of 8421, BCD, excess-3 and Gray code.		

	8th	Concept of parity, single and double parity and error detection		
	9th	Logic Gates and Families		
			3rd	To design a half adder using XOR and NAND gates and verification of its operation
4th	10th	Concept of negative and positive logic Definition, symbols and truth tables of NOT, AND, OR,		
	11th	NAND, NOR, EXOR Gates, NAND and NOR as universal gates.		
	12th	Introduction to TTL		
			4th	Construction of a full adder circuit using XOR and NAND gates and verify its operation
5th	13th	CMOS logic families		
	14th	Logic Simplification, Postulates of Boolean algebra, De Morgan's Theorems. Implementation of Boolean		
	15th	Karnaugh map (upto 4 variables)		
			5th	Verification of truth table for positive edge triggered, negative edge triggered, level triggered IC flip-flops (At least one IC each of D latch , D flip-flop, JK flip-flops).
6th	16th	Karnaugh map (upto 4 variables)		
	17th	simple application in developing combinational logic circuits		
	18th	Arithmetic circuits, Half adder and Full adder circuit, design and		
			6th	Verification of truth table for encoder and decoder ICs, Mux and DeMux

7th	19th	4 bit adder circuit		
	20th	Decoders, Multiplexeres, Multiplexeres and Encoder		
	21th	Four bit decoder circuits for 7 segment display and decoder/driver ICs.		
			7th	To design a 4 bit SISO, SIPO, PISO, PIPO shift registers using JK/D flip flops and verification of their operation.
8th	22th	Basic functions and block diagram of MUX and DEMUX with different ICs		
	23th	Basic functions and block diagram of Encoder		
	24th	Latches and flip flops, Concept and types of latch with their working and applications		
			8th	To design a 4 bit ring counter and verify its operation.
9th	25th	Operation using waveforms and truth tables of RS, T, D		
	26th	Master/Slave JK flip flops. Difference between a latch and a flip flop		
	27th	Counters, Introduction to Asynchronous and Synchronous		
		Binary counters	9th	Use of Asynchronous Counter ICs (7490 or 7493)
10th	28th	Divide by N ripple counters, Decade counter, Ring counter		
	29th	Shift Register Introduction and basic concepts including shift left and shift		
	30th	Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out		
			10th	

11th	31th	Universal shift register		
	32th	A/D and D/A Converters		
	33th	Working principle of A/D and D/A converters		
			11th	
12th	34th	Brief idea about different techniques of A/D conversion and study of : Stair step Ramp A/D converter		
	35th	Dual Slope A/D converter Successive Approximation A/D		
	36th	Detail study of : Binary Weighted D/A converter		
			12th	
13th	37th	R/2R ladder D/A converter Applications of A/D and D/A converter.		
	38th	Semiconductor Memories		
	39th	Memory organization		
			13th	
14th	40th	classification of semiconductor memories (RAM, ROM, PROM, EPROM, EEPROM),		
	41th	static and dynamic RAM		
	42th	introduction to 74181 ALU IC		
			14th	
15th	43th	Assignments		
	44th	Previous year question paper solution		

Lesson Plan

Name of Faculty : Umesh Saroj (Theory)/ Kavita Choudhary (Practical)
Discipline : Electronics & Comm. Engg.
Semester : 3rd
Subject : Computer Programming using C
Lesson Plan Duration : 15 weeks
Work load (Lecture /Practical) per week (in hours): Lectures—04, Practical—03

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/ Test)	Practical Day	Topic
1st	1	Introduction to Algorithm	1	Programming exercises on executing and editing a C program
	2	Introduction to Programming Development		
	3	Steps in development of a program		
	4	Flow charts and Revision		
2nd	5	Algorithm development	2	Programming exercises on defining variables and assigning values to variables.
	6	Programme Debugging		
	7	Assignment / Problem Taking and Revision		
	8	Introduction to Program Structure		
3rd	9	I/O statements,	3	Programming exercises on arithmetic and relational operators.
	10	Assign statements		
	11	Constants, variables		
	12	Data types and Revision		
4th	13	Operators and Expressions	4	Programming exercises on arithmetic expressions and their evaluation.
	14	Standards and Formatted IOS		
	15	Data Type Casting		
	16	Assignment and Revision		
5th	17	Problem Solving	5	Programming exercises on formatting input/output using printf and scanf and their return type values.
	18	Control Structures Introduction		
	19	Decision making with IF – statement		
	20	IF – Else a		
6th	21	Nested IF	6	Programming exercises using if statement
	22	While		
	23	do-while		
	24	for loop		
7th	25	Break. Continue Statement	7	Programming exercises using if – Else
	26	Got and switch statements		
	27	Assignment and Revision		
	28	Class Test		
8th	29	Problem Taking	8	
	30	Introduction to Pointers		

	31	Address operator and pointers		Programming exercises on switch
	32	Declaring Pointers		
9th	33	Initializing pointers	9	Programming exercises on do – while, statement.
	34	Single pointer		
	35	Assignment and Revision		
	36	Class Test		
10th	37	Problem Taking	10	Programming exercises on for – statement.
	38	Introduction to functions		
	39	Global and Local Variables		
	40	Function Declaration		
11th	41	Standard functions	11	Programs on one- dimensional array.
	42	Parameters and Parameter Passing		
	43	Call - by value		
	44	Call - by Reference		
12th	45	Assignment and Revision	12	Programs on two- dimensional array
	46	Class Test		
	47	Problem Taking		
	48	Introduction to Arrays		
13th	49	Array Declaration, Length of array	13	i) Programs for putting two strings together.
	50	Single Array		
	51	Multidimensional Array		
	52	Arrays of characters		
14th	53	Passing an array to function	14	(ii) Programs for comparing two strings.
	54	Pointers to an array		
	55	Assignment and Revision		
	56	Class Test		
15th	57	Problem Taking	15	Simple programs using structures,
	58	Revision of Chapter 1		
	59	Revision of Chapter 2		
	60	Revision of Chapter 3		
16th	61	Revision of Chapter 4	16	Repeat
	62	Revision of Chapter 5		
	63	Revision of Any Topic		
	64	Test		

- All the students are required to submit the assignments on the time i.e. within 3days.
- The practical notebooks complete in all respect be got checked on the next practical period.
- Students are directed to go through the web contents and lab manual developed for the subject.

Lesson Plan

Name of Faculty : Suresh Rani

Discipline : Electronics & Communication Engg

Semester : 3rd

Subject : Principles Of Communication Engineering

Lesson Plan Duration : 15weeks

Work Load (Lecture /Practical) per week in hours : Lecture :3 Practical : 2

Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including assignment/test)**	**Practical Day**	**Topic**
1st	1st	Introduction	1st (G1)	Introduction
	2nd	Need for modulation, frequency translation	2nd (G2)	Introduction
	3rd	demodulation in communication systems		
2nd	4th	Basic scheme of a modern communication system.	3rd (G1)	a)To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation.
	5th	Derivation of expression for an amplitude modulated wave	4th (G2)	a)To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation.
	6th	Carrier and side band components		
3rd	7th	Modulation index. Spectrum and BW of AM Wave	5th (G1)	To measure the modulation index of the wave obtained in above practical.
	8th	Relative power distribution in carrier and side bands.	6th (G2)	To measure the modulation index of the wave obtained in above practical.
	9th	Elementary idea of DSB-SC, SSB-SC		
4th	10th	ISB and VSB modulations, their comparison, and areas of applications & Revision	7th (G1)	a)To obtain an AM wave from a square law modulator circuit and observe waveforms.

	11th	Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bassel function)	8th (G2)	a)To obtain an AM wave from a square law modulator circuit and observe waveforms.
	12th	Modulation index, maximum frequency deviation and deviation ratio		
5th	13th	BW of FM signals, Carson's rule	9th (G1)	b)To measure the modulation index of the obtained AM wave form
	14th	Effect of noise on FM carrier. Noise triangle	10th (G2)	b)To measure the modulation index of the obtained AM wave form
	15th	Role of limiter, Need for pre-emphasis and de-emphasis		
6th	16th	capture effect	11th (G1)	To obtain an FM wave and measure the frequency deviation for different modulating signals
	17th	Comparison of FM and AM in communication systems	12th (G2)	To obtain an FM wave and measure the frequency deviation for different modulating signals
	18th	Revision		
7th	19th	Revision + Test	13th (G1)	Revision, Related Small Projects
	20th	Derivation of expression for phase modulated wave	14th (G2)	Revision, Related Small Projects
	21st	modulation index, comparison with frequency modulation.		
8th	22nd	Circuit Diagram and working operation of: Collector Modulator	15th (G1)	To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value for least distortion
	23rd	Circuit Diagram and working operation of: Base Modulator	16th (G2)	To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value for least distortion
	24th	Circuit Diagram and working operation of: Square Low Modulator		
9th	25th	Circuit Diagram and working operation of: Balanced Modulator	17th (G1)	To obtain modulating signal from FM detector
	26th	Working principles and applications of reactance modulator	18th (G2)	To obtain modulating signal from FM detector
	27th	Working principles and applications of varactor diode modulator		
10th	28th	Working principles and applications VCO	19th (G1)	Revision

	29th	Working principles and applications Armstrong phase modulator	20th (G2)	Revision
	30th	Stabilization of carrier using AFC (Block diagram approach)		
11th	31th	Revision	21st (G1)	To observe the sampled signal and compare it with the analog input signal. Note the effect of varying the sampling pulse width and frequency on the sampled output.
	32th	Revision	22nd (G2)	To observe the sampled signal and compare it with the analog input signal. Note the effect of varying the sampling pulse width and frequency on the sampled output.
	33th	Principles of demodulation of AM wave using diode detector circuit		
12th	34th	concept of Clipping	23rd (G1)	To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal
	35th	formula for RC time constant for	24th (G2)	To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal

	36th	Basic principles of FM detection using slope detector		
13th	37th	Principle of working of the Foster-Seeley discriminator	25th (G1)	To observe PPM and PWM signal and compare it with the analog input signal
	38th	Foster-Seeley discriminator	26th (G2)	To observe PPM and PWM signal and compare it with the analog input signal
	39th	Ratio detector		
14th	40th	Block diagram of Phase locked Loop (PLL) FM demodulators (No Derivation)	27th (G1)	Revision
	41th	Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation	28th (G2)	Revision
	42th	Basic concepts of time division multiplexing (TDM) and frequency division multiplexing (FDM)		
15th	43th	Pulse Amplitude Modulation (PAM), Pulse Position Modulation (PPM), Pulse Width Modulation (PWM).	29th (G1)	Viva
	44th	Revision	30th (G2)	Viva
	45th	Revision		

Lesson Plan

Name of the Faculty : BUNTY
Discipline : Electronics and Communication Engg.
Semester : 3rd
Subject : NFTL
Lesson Plan Duration : 15Weeks

Work Load (Lecture /Practical) per week in hours: Lecture :3 Practical : 2

Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including assignment/test)**	**Practical Day**	**Topic**
1st	1st	Introduction	G 1	To measure the characteristic impedance of symmetrical T and Л networks
	2nd	Two port (four terminals) network:	G 2	To measure the characteristic impedance of symmetrical T and Л networks
	3rd	Symmetrical and asymmetrical networks Balanced and unbalanced network;		
2nd	4th	Basic concepts of the following terms:- Л network, T-network , Ladder network; lattice network	G 1	To measure the image impedance of a given asymmetrical T and Л networks
	5th	L-network and Bridge, Symmetrical Network:- Concept and significance of the termscharacteristic impedance,	G 2	To measure the image impedance of a given asymmetrical T and Л networks
	6th	propagation constant, attenuation constant, phase shift constant		
3rd	7th	insertion lossof T-network and Л Network, Asymmetrical Network:- Concept and significance of iterativeimpedance	G 1	For a prototype low pass filter: a)Determine the characteristic impedance experimentally b)Plot the attenuation characteristic
	8th	Image impedance, image transfer constant and insertion loss.	G 2	For a prototype low pass filter: a)Determine the characteristic impedance experimentally b)Plot the attenuation characteristic
	9th	The half section (L-section); symmetrical T and Л sections into half sections		

4th	10th	Revision & Assignment	G 1	To design and measure the attenuation of a symmetrical T/ Л type attenuator
	11th	**Attenuators** Introduction, Units of attenuation (Decibels andNepers)	G 2	To design and measure the attenuation of a symmetrical T/ Л type attenuator
		General characteristics of attenuators		
	12th	Analysis and design of simple attenuator of following types Symmetrical T and Л type,		
5th	13th	Analysis and design of simple attenuator of following types L type.	G 1	For a prototype high pass filter: a)Determine the characteristic impedance experimentally b)To plot the attenuation characteristic
	14th	Revision & Assignment	G 2	For a prototype high pass filter: a)Determine the characteristic impedance experimentally b)To plot the attenuation characteristic
	15th	**Filters** Introduction		
6th	16th	Sessional 1	G1	Revision and viva
	17th	Sessional 1	G 2	Revision and viva
	18th	Sessional 1		
7th	19th	Brief idea of the use of filter networks in different communication systems.	G 1	a) To plot the Impedance characteristic of a prototype band-pass filter b) To plot the attenuation characteristic of a prototype band pass filter
	20th	Concept of low pass, high pass, band pass and band stop filters	G 2	a) To plot the Impedance characteristic of a prototype band-pass filter b) To plot the attenuation characteristic of a prototype band pass filter
	21th	Revision and Problem		
8th	22th	Impedance characteristics vs Frequency characteristics of a low and high pass filter and their significance.	G 1	To plot the impedance characteristics of m –derived low pass filter
	23th	Attenuation Vs frequency, Phase shift Vs frequency,	G 2	To plot the impedance characteristics of m –derived low pass filter

	24th	Characteristics impedance vs frequency of T and Л filters and their significance.		
9th	25th	Simple design problems of prototype low pass filter.	G 1	To plot the impedance characteristics of m –derived high pass filter
	26th	M-Derived Filter Sections Limitation of prototype filters, need of m-derived filters	G 2	To plot the impedance characteristics of m –derived high pass filter
	27th	Crystal Filters Crystal and its equivalent circuits, special properties of piezoelectric filters and their use.		
10th	28th	Active Filters Basic concept of active filters and their comparison with passive filters	G 1	To observe the information of standing waves on a transmission line and measurement of SWR of the line
	29th	Revision &Assignment	G 2	To observe the information of standing waves on a transmission line and measurement of SWR of the line
	30th	Sessional 2		
11th	31th	Sessional 2	G 1	Revision and viva
	32th	Sessional 2	G 2	Revision and viva
	33th	**Transmission Lines** Introduction: Transmission Lines, their types andapplications.		
12th	34th	Distributed constants, T representation of transmission line section	G 1	To observe the information of standing waves on a transmission line and measurement of characteristic impedance of the line
	35th	Distributed constants, Л representation of transmission line section	G 2	To observe the information of standing waves on a transmission line and measurement of characteristic impedance of the line
	36th	Definition of propagation constant and detail, Definition of attenuation constantand detail		
13th	37th	Definition of phase shift constant. Concept of infinite line	G 1	Revision
	38th	Condition for minimum distortion of signal on-the-line	G 2	Revision

	39th	Revision , problem discussion & Assignment		
14th	40th	Condition for minimum attenuationof signal on-the-line, Introduction to loading methods.	G 1	Revision and viva
	41th	Concept of reflection and standing waves, definition of reflection coefficient, SWR	G2	Revision and viva
	42th	Definition of VSWR and their elation (noderivation). Transmission line equation, expression for voltage, current andimpedance at a point on the line.		
15th	43th	Concept of transmission lines at highfrequencies, Introduction to stubs. (Single, openand short stubs).	G 1	Revision and viva
	44th	HVDC high voltage DC transmission Concept, Advantage Disadvantage and areas of application., Revision	G2	Revision and viva
	45th	Revision, class test		