

GOVERNMENT POLYTECHNIC FOR WOMEN KANDAGHAT, DISTT. SOLAN (HP) - 173215

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING LESSON PLAN

Academic Year	2022-23	
Semester	3 rd	
Subject Code	N-2017-3.1	
Subject Title	EDC-1	
Name of Faculty	Rajeev Kumar , Lecturer ECE	
Semester Start & End Dates	01-09-2022 to 20-12-2022	

STUDY AND EVALUATION SCHEME

Sr. No.	Name of the Subject	Th	Pr	Internal Assessment			External Assessment				Total	
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	Marks
3.1	Electronic Devices & Circuits-1	4	2	30	20	50	100	3	50	3	150	200

Subject objectives:

Day	Unit & Topic of Discussion	Topic objectives	Delivery Method
	Unit-1: Concept of Voltage & Curr	ent Sources	7.20.1100
Day 1	Introduction	Review of previous learning and syllabus	Chalk and talk
Day 2	Voltage Source and current source	Concept of Voltage Source and Current Source, ideal & practical voltage & current source	Chalk and talk
Day 3	Condition for sources to act as voltage Source & Current source, Graphical representation of voltage & current source.	Condition for sources to act as voltage Source & Current source	Chalk and talk
Day 4	Conversion of voltage source into current source & vice versa.	Representation of a source both as a voltage sourc & current source.	eChalk and talk
	Unit-2: Review of Basic Electronics		
Day 5	Semiconductors	P and N type Semiconductor	Chalk and talk
Day 6	PN junction theory	Majority and minority carriers, Forward and reverse biasing	Chalk and talk
Day 7	PN junction theory	VI characteristics of PN junction	Chalk and talk
Day 8	Semiconductor diode & its characteristics	Working of diode & its characteristics (forward /reverseBias)	Chalk and talk
Day 9	Semiconductor diode	Its role in rectification	Chalk and talk
Day 10	Zener diode	Zener diode working and its characteristics	Chalk and talk
	Unit -3: Transistor	, , , , , , , , , , , , , , , , , , , ,	Chair and talk
Day 11	Transistor and working principle of transistor	Construction features of transistor (pnp & npn) and its working	Chalk and talk

A	Transistor biasing	Concept of Transistor biasing and Symbol of transistor	Chalk and talk
(3	Working of transistor as an amplifier	Transistor as an amplifier & its associated circuitry	Chalk and talk
	Configurations of Transistor: Common Base (CB)	CB configuration and its input characteristics	Chalk and talk
Day 15	CB configuration	output characteristics	Chalk and talk
Day 16	Common Emitter (CE) Configuration	CE configuration and its input and output characteristics	Chalk and talk
Day17	Common Collector (CC) Configuration	CC configuration and its input and output characteristics	Chalk and talk
Day18	Transistor as an amplifier in CE Configurations	Transistor as an amplifier in CE Configurations	Chalk and talk
Day19	DC load line and operating point	Concept of DC load line and operating point	Chalk and talk
Day20	Operating point, Need for stabilization of operating point.	selection of operating point, Need for stabilization of operating point.	Chalk and talk
Day 21	Potential divider biasing Circuit.	Voltage divider biasing method	Chalk and talk
Day22	Concept of DC load line & Operating point	Graphical representation	Chalk and talk
Day23	Performance characteristic of transistor amplifier	characteristics of transistor amplifier i.e. input resistance, output resistance, effective collector load, current gain, voltage gain & power gain	Chalk and talk
Day24	Phase reversal of o/p votage with respect to i/p voltage & graphical representation.	Phase shift of o/p voltage with respect to i/p voltage.	Chalk and talk
Day 25	AC load line	Graphical representation of AC load line	Chalk and talk
	Unit-4 : Multistage Amplifier	The second secon	
Day 26	Multistage amplifier	Multistage amplifier, Terms related with Multistage amplifier such as gain, frequency response, Bandwidth.	Chalk and talk
Day 27	Multistage amplifier and types	Need of multistage amplifier, Types and Use of amplifiers in cascading & in different applications.	Chalk and talk
Day 28	RC coupled amplifier	Circuit and operation of RC coupled amplifier	Chalk and talk
Day 29	RC coupled amplifier	Frequency response, BW, Ad. Disadvantages & applications	Chalk and talk
Day 30		Circuit and operation of RC coupled amplifier	Chalk and talk
Day 31	Transformer coupled amplifier	Frequency response, BW, Ad. Disadvantages & applications	Chalk and talk
Day 32	Direct coupled amplifier Direct coupled amplifier	Circuit and operation of RC coupled amplifier Frequency response, BW, Ad. Disadvantages &	Chalk and talk
Day 33		applications	Chalk and talk
Day 34	Comparison	Comparison of different types of coupling	Chalk and talk
Day 35	Revision Unit-5 :Large Signal Amplifiers	Revision of above topics	Chalk and talk
Day 36	Large Signal Amplifiers	Block diagram of Audio amplifier	Chalk and talk
Day 37	Voltage & Power Amplifier	Difference between Voltage & Power Amplifier	Chalk and talk
Day 38	Impedance matching	Importance of Impedance matching, Factors on which efficiency of amplifiers depend.	Chalk and talk
Day 39	Classification of Amplifiers: Class A	Circuit, output characteristics and efficiency of Class A Amplifier	Chalk and talk
Day 40	Class B and Push Pull Amplifier	Class B and Push Pull Amplifier	Chalk and talk
Day 41	Class AB Amplifier	Circuit, output characteristics and efficiency of Class	01 11 1 11

	Class C Amplifier	Circuit, output characteristics and efficiency of Class C Amplifier	
43	Complementary symmetry Push-Pull Amplifier	Complementary symmetry Push-Pull Amplifier circuit operation and limitations	Chalk and talk
1	Unit-6 Feedback in Amplifier		
Day 44	Feedback and Types	Role of feedback in amplifiers & Types and configurations of feedbacks in amplifier	Chalk and talk
ay 45	Gain of an amplifier employing negative feedback	Expression for gain in negative feedback amplifier,	Chalk and talk
ay 46	Effect of negative feedback	effect of negative feedback on gain	Chalk and talk
Day 47	Effect of negative feedback	Effect of negative feedback on Input & output impedance	Chalk and talk
Day 48	Effect of negative feedback	Effect of negative feedback on noise, distortion & bandwidth.	Chalk and talk
Day 49	RC coupled amplifier without emitter	Operation and applications of RC coupled amplifier without emitter bypass capacitor	Chalk and talk
Day 50	bypass capacitor Emitter follower	Operation and applications of Emitter follower circuit	Chalk and talk
	Unit -7 : Field Effect Transistor	onedit	
Day 51	Field Effect Transistor	FET construction, working principle, symbol and	Chalk and talk
	= 1 1 1 2 m m	types VI Characteristics of FET	Chalk and talk
Day 52 Day 53	Field Effect Transistor MOSFET	Construction, Working and Characteristics of MOSFET	Chalk and talk
	0	Comparison between BJT, FET and MOSFET	Chalk and talk
Day 54	Comparison	Construction and Working of CMOS	Chalk and talk
Day 55	Complementary MOS	Revision of above topics	Chalk and talk

	Name of Book	Author Name	Publication	
	Electronic Principles	S.K. Sahdev	Dhanpat Rai & Sons, New Delhi	
Prescribed Books	Basic Electronics and Linear Circuits	NN Bhargava	Tata McGraw Hills, New Delhi	
Reference Books	Electronic Circuit Theory	Boylestead	Pearson	
	Electronic Devices and Circuits	Millman and Halkias	McGraw Hills, New Delhi	
	Electronic Devices and Circuits	BL Theraja	S.Chand and Co Ltd. New Delhi	

Faculty in Charge
Rejler Kumar
Lecture (ECE)

HOD 22822



DEPARTMENT OF ELECTRONICS & COMM. ENGINEERING

LESSON PLAN

Academic Year	2021-22
Semester	3 rd
Subject Code	N2017-3.2
Subject Title	NFTL
Name of Faculty	Er. Swati Sharma, Lecturer
Semester Start & End Dates	01.09.2022 to 20.12.2022

STUDY AND EVALUATION SCHEME

Sr. Name of the Subject		Th Pr	Pr	Internal Assessment			External Assessment			Total	
No.	No.				Pr	Total	Th Hrs Pr	Hrs	Total	Walks	
3.5	Network Filters and Transmission Lines	4	2	30	20	50	100 3 50	3	150	200	

Subject objectives:

Day	Unit & Topic of Discussion	Topic objectives	Delivery Method
	Chapter 1 : Networks		
Day 1	Networks	Two port (four terminals) network: Basic concepts of the following terms: - Symmetrical and asymmetrical networks:	Using Chalk and Black Board
Day 2	Networks	Two port (four terminals) network: Basic concepts of the following terms: Symmetrical and asymmetrical networks:	

Day 3	Networks	Balanced and unbalanced network	Using Chalk and Black Board
Day 4	Networks	T-network, π network	Using Chalk and Black Board
Day 5	Networks	Ladder network, Lattice network	Using Chalk and Black Board
Day 6	Networks	L-network and Bridge T-network	Using Chalk and Black Board
Day 7	Networks	Symmetrical Network: -Concept and significance of the terms characteristic impedance	Using Chalk and Black Board
Day 8	Networks	propagation constant, attenuation constant	Using Chalk and Black Board
Day 9	Networks	phase shift constant and insertion last	Using Chalk and Black Board
Day 10	Networks	T-network; π-Network	Using Chalk and Black Board
Day 11	Networks	T-network; л-Network	Using Chalk and Black Board
Day 12	Networks	T-network; π-Network	Using Chalk and Black Board
Day 13	Networks	Asymmetrical Network-Concept and significance of iterative impedance	Using Chalk and Black Board
Day 14	Networks	Asymmetrical Network-Concept and significance of iterative impedance	Using Chalk and Black Board
Day 15	Networks	Asymmetrical Network-Concept and significance of iterative impedance	Using Chalk and Black Board
Day 16	Networks	Image Impedance	Using Chalk and Black Board
Day 17	Networks	Image transfer constant	Using Chalk and Black Board
Day 18	Networks	Insertion loss	Using Chalk and Black Board

	Chapter 2: Attenuators		
Day 20	Attenuators	Units of attenuation (Decibels and Nepers): General characteristics of attenuators	Using Chalk and Black Board
Day 21	Attenuators	Analysis and design of simple attenuator of following types, Symmetrical T type	Using Chalk and Black Board
Day 22	Attenuators	Analysis and design of simple attenuator of following types; Symmetrical T type	Using Chalk and Black Board
Day 23	Attenuators	Analysis and design of simple attenuator of following types; Symmetrical IT type.	Using Chalk and Black Board
Day 24	Attenuators	Analysis and design of simple attenuator of following types; Symmetrical II type.	Using Chalk and Black Board
	Chapter 3:Filters		
Day 25	Filters	Brief idea of the use of filter networks in different communication systems,	Using Chalk and Black Board
Day 26	Filters	Concept of low pass, high pass	Using Chalk and Black Board
Day 27	Filters	, band pass and band stop filters.	Using Chalk and Black Board
Day 28	Filters	Analysis of prototype Low and High pass (T) filter	Using Chalk and Black Board
Day 29	Filters	Analysis of prototype Low and High pass (T) filter	Using Chalk and Black Board
Day 30	Filters	Analysis of prototype Low and High pass (π) filter	Jsing Chalk and Black Board
Day 31	Filters	Analysis of prototype Low and High pass (π) filter	
Day 32	Filters	Impedance characteristics v/s frequency characteristics of a low and high pass filter and their significance.	Using Chalk and Black Board
Day 33	Filters	Attenuation vs. frequency	Using Chalk and Black Board

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Day 34	Filters	Phase shifts frequency	Using Chalk and Blac Board
Day 35	Filters	Characteristics impedance Vs. frequency of T and π Low and High pass filters and their significance	Using Chalk and Black Board
Day 36	Filters	Characteristics impedance Vs. frequency of T land π Low and High pass filters and their significance	Using Chalk and Black Board
Day 37	Filters	Characteristics impedance Vs. frequency of Γ and π Low and High pass filters and their significance	Using Chalk and Black Board
Day 38	Filters 11 10155	Simple design problems of prototype low & high pass section	Using Chalk and Black Board
Day 39	Filters	Limitation of prototype filters	Using Chalk and Black Board
Day 40	Filters	Need of m-derived filters.	Using Chalk and Black Board
Day 41	Filters	Brief idea of m-derived Low and High filter (Γ and π) section	Using Chalk and Black Board
Day 42	Filters	Crystal Filters; Crystal and its equivalent circuit	Using Chalk and Black Board
Day 43	Chapter 4: Transmissio	Special properties of piezoelectric filters and their use.	Using Chalk and Black Board
	44	1.19 2.00 -	
Day 44	Transmission Lines	Transmission Lines, their types and applications	Using Chalk and Black Board
Day 45	Transmission Lines	Distributed constants	Using Chalk and Black Board
Day 46	Transmission Lines	T and π representation of transmission line section	Using Chalk and Black Board
Day 47	Transmission Lines	Definition of characteristic impedance, propagation constant, attenuation constant and phase shift constant.	Using Chalk and Black Board
Day 48	Transmission Lines	Definition of characteristic impedance, propagation constant, attenuation constant and	Using Chalk and Black Board

		phase shift constant		
Day 49	Transmission Lines	Condition for minimum distortion and minimum attenuation of signal on the-line	Using Chalk and Black Board	
Day 50	Transmission Lines	Condition for minimum distortion and minimum attenuation of signal on the-line	Using Chalk and Black Board	
Day 51	Transmission Lines	Introduction to loading methods.	Using Chalk and Black Board	
Day 52	Transmission Lines	Concept of reflection and standing waves	Using Chalk and Black Board	
Day 53	Transmission Lines	Concept of reflection and standing waves.	Using Chalk and Black Board	
Day 54	Transmission Lines	Definition of reflection coefficient, SWR & V3WR and their relation (no derivation).	Using Chalk and Black Board	
Day 55	Transmission Lines	Concept of transmission lines at high frequencies	Using Chalk and Black Board	
Day 56	Transmission Lines	Concept of transmission lines at high frequencies	Using Chalk and Black Board	

	Name of Book	Author Name	Publication
Prescribed Books	Network Filters and Transmission Lines	A.K. Chakarvorty	Dhanpat Rai and Co. Publication

Faculty in Charge

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GOVERNMENT POLYTECHNIC FOR WOMEN KANDAGHAT, DISTT. SOLAN (HP) -173215

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING LESSON PLAN

Academic Year	2022-23					
Semester	III					
Subject Code	N-2017- 3.3					
Subject Title	DIGITAL ELECTRONICS					
Name of Faculty	Neha Badhan (ECE)					
Semester Start & End Dates 01.09.2022 to 20.12.2022						

STUDY AND EVALUATION SCHEME

Sr. No.	Name of the Subject	Th	Pr	Internal Assessment			External Assessment				Total	
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	Marks
3.3	Digital Electronics	4	2	30	20	50	100	3	50	3	150	200

Subject objectives:_To familiarize students with Boolean algebra, concepts of logic circuits, realization of various logic circuits using different logic gates. After this course the student will be able to design simple logic circuits, understand flip-flops, counters, registers and A/D & D/A converter circuits and their applications in electronic based control and switching circuits.

Day	Unit & Topic of Discussion	Topic objectives	Delivery Method		
Unit-1:	: Introduction				
Day 1	Analog Signal	Concepts and Understanding.	Chalk & Black Board		
Day 2	Digital Signal	Concepts and Understanding.	Chalk & Black Board		
Day 3	Difference between Analog & Digital Signal	Concepts and Understanding.	Chalk & Black Board		
Day 4	Applications & Advantages of Digital Signal	Concepts and Understanding.	Chalk & Black Board		
Unit-1:	Number System				
Day 5	Binary, Octal, & Hexadecimal number systems, Conversion from Decimal, Octal & Hexadecimal Systems to Binary System & Vice Versa.	Concepts and Understanding.	Chalk & Black Board		
Day 6		Concepts and Understanding.	Chalk & Black Board		

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Day 7	Binary, Octal, & Hexadecimal number systems, Conversion from Decimal, Octal & Hexadecimal Systems to Binary System & Vice Versa.	Concepts and Onderstanding	Chalk & Black Board
Day 8	Binary Addition, Subtraction, Multiplication, Division, 1's and 2's compliment methods of subtraction.	Concepts and Understanding.	Chalk & Black Board
Day 9	Multiplication, Division, 1's and 2's	Concepts and Understanding	Chalk & Black Board
Day 10	Multiplication, Division, 1's and 2's compliment methods of subtraction	Concepts and Understanding	Chalk & Black Board
Day 11	Concept of code: 8421, BCD, Excess 3 and Gray Code Concept of Parity	Concepts and Understanding	Chalk & Black Board
Unit-3	Concept of Parity	Concepts and Understanding	Chalk & Black Board
Day 13	Logic Gates & Families		Chair & Diach Domi
Day 14	Logic symbol, logical expression and truth table of AND, OR, NOT, NAND, NOR, EX-OR and EX-NOR gates	Concepts and Understanding	Chalk & Black Board
	truth table of AND, OR, NOT, NAND, NOR, EX- OR and EX-NOR gates	Concepts and Understanding	Chalk & Black Board
Day 15 Day 16	universal property of NAND and NOR gate.	Concepts and Understanding	Chalk & Black Board
Day 17	gate.	Concepts and Understanding	Chalk & Black Board
	of Boolean algebra, Duality theorem, De Morgan's Theorems.	r a said onderstanding	Chalk & Black Board
Day 18	of Boolean algebra, Duality theorem, De Morgan's Theorems.	Concepts and Understanding	Chalk & Black Board
Day 19	Products(SOP) and Product of Sums (POS) forms	Concepts and Understanding	Chalk & Black Board
Day 20	Boolean expressions using Sum of Products(SOP) and Product of Sums (POS) forms	Concepts and Understanding	Chalk & Black Board
Day 21	K-map representation of logical functions.	Concepts and Understanding	Chalk & Black Board
Day 22	K-map representation of logical functions.	Concepts and Understanding	Chalk & Black Board
Day 23	Minimization of logical expressions using K-map(2, 3, 4 variables)	Concepts and Understanding	Chalk & Black Board
Day 24	[VLSI, ULSI)	Concepts and Understanding	Chalk & Black Board
	Arithmetic Circuits		
	design and implementation	Concepts and Understanding	Chalk & Black Board
	Half Adder/Full Adder Circuit, their design and implementation	Concepts and Understanding	Chalk & Black Board

27	Half Adder/Full Adder Circuit, their	Consistent Industrating	Chalk & Black Board
	design and implementation	Concepts and Understanding	
Day 28	Half Subtracter /Full Subtracter Circuit,	Concepts and Understanding	Chalk & Black Board
	their design and implementation	171 Later line	Chalk & Black Board
	Half Subtracter /Full Subtracter Circuit, their design and implementation	Concepts and Understanding	
	Half Subtracter /Full Subtracter Circuit,	Concepts and Understanding	Chalk & Black Board
	their design and implementation	Concepts and officers	
	Decoder, Encoder, Multiplexer & De-	Multiplexer	Chalk & Black Board
Day 31	Basic binary decoder, Encoder-Decimal	Concepts and Understanding	Chalk & Black Board
	to BCD Encoder		Chalk & Black Board
Day 32	Basic binary decoder, Encoder-Decimal	Concepts and Understanding	
D 22	to BCD Encoder	Concepts and Understanding	Chalk & Black Board
Day 33	Block diagram, Truth table, Logical expression and logic diagram of	Concepts and	
	Multiplexers (4:1 and 8:1)		Chalk & Black Board
Day 34	Block diagram, Truth table, Logical	Concepts and Understanding	
	expression and logic diagram of		
D 25	Multiplexers (4:1 and 8:1) Block diagram, Truth table, Logical		
Day 35	expression and logic diagram of		- 1
	Multiplexers (4:1 and 8:1)	1 Inderstanding	Chalk & Black Board
Day 36	Block diagram and Truth table of	Concepts and Understanding	Bl. I. Board
Day 37	Demultiplexer (1:4 and 1:8) Block diagram and Truth table of	Concepts and Understanding	Chalk & Black Board
Day 37	Demultiplexer (1:4 and 1:8)		Chalk & Black Board
Day 38	Block diagram and Truth table of Demultiplexer (1:4 and 1:8)	Concepts and Understanding	
Unit-6	: Flip Flops, Counters, Shift-Registers		Chalk & Black Board
Day 39		Concepts and Understanding	Chalk & Black Board
Day 40	Control Contro	Concepts and Understanding	
Day 41	Difference between Latch & Flip- Flop	Concepts and Understanding	Chalk & Black Board
Day 42		Concepts and Understanding	Chalk & Black Board
Day 43	J-K Flip Flop, Master Slave Flip-Flop	Concepts and Understanding	Chalk & Black Board
Day 44	T- Flip Flop	Concepts and Understanding	Chalk & Black Board
Day 45	Asynchronous Counters	Concepts and Understanding	Chalk & Black Board
Day 46	Synchronous Counters		
	Ring Counter	Concepts and Understanding	Chalk & Black Board
Day 48	Concept of Shift registers	Concepts and Understanding	Chalk & Black Board
Day 49	Types of Shift registers	Concepts and Understanding	Chalk & Black Board
	Applications of Flip-Flops, Counters &	Concepts and Understanding	Chalk & Black Board
Day 50	Shift Registers	Concepts and Chacistanding	Chair & Diack Doald
Unit-7:	Memories		
Day 51	Classification of memories RAM, ROM, PROM, EPROM, E2PROM	Concepts and Understanding	Chalk & Black Board
Day 52		Concepts and Understanding	Chalk & Black Board

Unit-7: D/A & A/D Converters							
	Digital to Analog Converters	Concepts and Understanding	Chalk & Black Board				
The second second	Analog to Digital Converter	Concepts and Understanding	Chalk & Black Board				
	Analog to Digital Converter	Concepts and Understanding	Chalk & Black Board				
Day 56	Applications of A/D & D/A Converter	Concepts and Understanding	Chalk & Black Board				

	Name of Book	Author Name	Publication
Prescribed	Digital Electronics and Applications	Malvino Leach	Tata McGraw Hill
Books	Digital Logic Designs	Morris Mano	Prentice Hall of India
	Digital Electronics	RP Jain	Tata McGraw Hill
Reference Books	Digital Electronics	Tokheim	Tata McGraw Hill

Faculty in Charge (ECE)

HOD(ECE) 28/8/22



GOVERNMENT POLYTECHNIC FOR WOMEN KANDAGHAT, DISTT. SOLAN (HP) -173215

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING LESSON PLAN

Academic Year	2022-23
Semester	Ш
Subject Code	N-2017- 3.4
Subject Title	PRINCIPLES OF COMMUNICATION ENGINEERING
Name of Faculty	Kislaye Sharma (ECE)
Semester Start & End Dates	01.09.2022 to 20.12.2022

STUDY AND EVALUATION SCHEME

Sr. No.	Name of the Subject	Th	Pr			ternal ssment	External Assessment		Total				
					Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	Marks
3.3	Digital Electronics	4	2	30	20	50	100	3	50	3	150	200	

Subject objectives: The study of principles of communication systems leads to further specialized study of audio and video systems, line communications and microwave communication systems. Thus the diploma-holder in Electronics and Communication Engineering shall find employment in areas of R and D, production, servicing and maintenance of various communication systems. The students should understand the advantage and limitations of various analog and digital modulation systems on a comparative as calendar late to them while studying practical communication systems.

Day	Unit & Topic of Discussion	Topic objectives	Delivery Method
Unit-1	: Introduction		positivity intended
Day 1	Need for modulation and demo dilation in communication systems.	Concepts and Understanding.	Chalk & Black Board
Day 2	Basic scheme of a modern communication system	Concepts and Understanding.	Chalk & Black Board
Unit-2	: Amplitude modulation		
Day 3	Derivation of expression for an amplitude modulated wave. Carrier and side band components. Modulation index.	Concepts and Understanding.	Chalk & Black Board
Day 4	Spectrum and band width of AM Wave. Relative power distribution	Concepts and Understanding.	Chalk & Black Board

	in carrier and side ban		
Day 5	Elementary idea of DSB-SC, SSE SC, ISB and VSB modulations, their comparison, and areas of application.		Chalk & Black Boar
Day 6	Elementary idea of DSB-SC, SSE SC, ISB and VSB modulations, their comparison, and areas of application.	-Concepts and Understanding.	Chalk & Black Boar
Unit-3:	Frequency modulation		
Day 7	Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bessel function) Modulation index	Concepts and Understanding.	Chalk & Black Board
Day 8	Maximum frequency deviation and deviation ratio, BW and FM signals, Carson's rule	Concepts and Understanding.	Chalk & Black Board
Day 9	Effect of noise an FM carrier. Noise triangle, Role of limiter, Need for pre-emphasis and de- emphasis, capture effec	Concepts and Understanding	Chalk & Black Board
Day 10	Comparison of FM and AM in communication systems.	Concepts and Understanding	Chalk & Black Board
Unit-4	: Phase modulation		
Day 11	Derivation of expression for phase modulated wave	eConcepts and Understanding	Chalk & Black Board
	Modulation index, comparison with frequency modulation	Concepts and Understanding	Chalk & Black Board
	Principles of Modulators		
Day 13		Concepts and Understanding	Chalk & Black Board
Day 14		Concepts and Understanding	Chalk & Black Board
	Square Law Modulation	Concepts and Understanding	Chalk & Black Board
Day 16		Concepts and Understanding	Chalk & Black Board
Day 17		Concepts and Understanding	Chalk & Black Board
Day 18		Concepts and Understanding	Chalk & Black Board
Day 19	Balanced Modulator	Concepts and Understanding	Chalk & Black Board
Day 20	Balanced Modulator	Concepts and Understanding	Chalk & Black Board
Unit-6:	Principles of FM Modulators		
Day 21	Working principles and applications of reactance modulator	Concepts and Understanding	Chalk & Black Board
Day 22	Working principles and applications of reactance modulator	Concepts and Understanding	Chalk & Black Board
Day 23	Varactor diode modulator	Concepts and Understanding	Chalk & Black Board
	· · · · · · · · · · · · · · · · · · ·	Concepts and Understanding	Chalk & Black Board
Day 24	Varactor diode modulator	Concepts and Uniderstanding	(hall & Dlack Dag

0ay 26 A	rmstrong phase modulator	Concepts and Understanding	Chalk & Black Board
	Demodulation of AM Waves	Concepts and Onderstanding	Chark & Black Board
A STATE OF THE PARTY OF THE PAR	Principles of demodulation of AM		Cl. II & Black Board
V	wave using diode detect or circuit	Concepts and Understanding	Chalk & Black Board
Day 28	Principles of demodulation of AM wave using diode detect or circuit	Concepts and Understanding	Chalk & Black Board
Day 29	Principles of demodulation of AM wave using diode detect or circuit	Concepts and Understanding	Chalk & Black Board
Day 30	Concept of clipping and formula for RC time constant for minimum distortion	Concepts and Understanding	Chalk & Black Board
Day 31	Concept of clipping and formula for RC time constant for minimum distortion	Concepts and Understanding	Chalk & Black Board
Day 32	Concept of clipping and formula for RC time constant for minimum distortion	Concepts and Understanding	Chalk & Black Board
Day 33	Principle of demodulation of AM Wave using synchronous detection	Concepts and Understanding	Chalk & Black Board
	Principle of demodulation of AM Wave using synchronous detection	Concepts and Understanding	Chalk & Black Board
Unit-7:	Demodulation of FM Wave		
Day 35	Basic principles of FM detection using slope detector		
Day 36	Basic principles of FM detection using slope detector	Concepts and Understanding	Chalk & Black Board
Day 37	Foster-Seeley discriminator	Concepts and Understanding	Chalk & Black Board
Day 38	Foster-Seeley discriminator	Concepts and Understanding	Chalk & Black Board
Day 39	Ratio detector	Concepts and Understanding	Chalk & Black Board
Day 40	Ratio detector	Concepts and Understanding	Chalk & Black Board
Day 41	Phase locked Loop (PLL)FM demodulators	Concepts and Understanding	Chalk & Black Board
Day 42		Concepts and Understanding	Chalk & Black Board
Unit-8:	Pulse Modulation		
Day 43	Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation.	Concepts and Understanding	Chalk & Black Board
Day 44		Concepts and Understanding	Chalk & Black Board
Day 45	Basic concepts of time division multiplexing (TDM) and frequency division multiplexing(FDM).	Concepts and Understanding	Chalk & Black Board
	Basic concepts of time division multiplexing (TDM) and frequency division multiplexing(FDM).	Concepts and Understanding	Chalk & Black Board

Day 47	Basic ideas about PAM, PPM, PWM.	Concepts and Understanding	Chalk & Black Board
Day 48	Basic ideas about PAM, PPM, PWM.	Concepts and Understanding	Chalk & Black Board
Day 49	Pulse code Modulation (PCM) Basic scheme of PCM system	Concepts and Understanding	Chalk & Black Board
Day 50	Pulse code Modulation (PCM) Basic scheme of PCM system	Concepts and Understanding	Chalk & Black Board
Day 51	Pulse code Modulation (PCM) Basic scheme of PCM system. Quantization, quantization error, commanding	Concepts and Understanding	Chalk & Black Board
Day 52	Block diagram of TDMPCM communication system and function of each block	Concepts and Understanding	Chalk & Black Board
Day 53		Concepts and Understanding	Chalk & Black Board
Day 54		Concepts and Understanding	Chalk & Black Board
Day 55	Advantages of delta modulation system over PCM system	Concepts and Understanding	Chalk & Black Board
Day 56		Concepts and Understanding	Chalk & Black Board

	Name of Book	Author Name	Publication
Prescribed	Electronics Communication	Kennedy	Tata McGraw Hill
Books	Electronics Communication	K S Jamwal	Dhanpat Rai and Co
	Principles of Communication Engineering	Roody, Coolin	
Reference Books			

Faculty in Charge (ECE)

HOD(ECE) 298



GOVERNMENT POLYTECHNIC FOR WOMEN

KANDAGHAT, DISTT. SOLAN (HP) - 173215

DEPARTMENT OF ELECTRONICS & COMM. ENGINEERING LESSON PLAN

Academic Year	2022-23			
Semester	3 rd			
Subject Code	N2017-3.5			
Subject Title	Electronic Instruments and Measurement			
Name of Faculty	Er. Nishant Sharma, Lecturer ECE			
Semester Start & End Dates	01/09/2022 to 20/12/2022			

STUDY AND EVALUATION SCHEME

Sr. No.	Name of the Subject	Th	Th Pr		Internal External Assessment		External Assessment		External Assessm		External Assessment		Total Marks
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
3.5	Electronic Instruments and Measurements	4	2	30	20	50	100	3	50	3	150	200	

Subject objectives:

Day	Unit & Topic of Discussion	Topic objectives	Delivery Method
Cł	napter 1 : Basics of Measurements		
Day 1	Measurements	Definition and Methods	Using Chalk and Black Board
Day 2	Instruments	Type of Instruments with examples	Using Chalk and Black Board
Day 3	Specifications of instruments	Accuracy, precision, sensitivity, resolution, range	Using Chalk and Black Board
Day 4	Errors	errors in measurement, types	Using Chalk and Black Board
Day 5	Standards and calibration	Importance and applications of standards and calibration, loading effect,	Using Chalk and Black Board
	Chapter 2 : Transducers		
Day 6	Transducers	Transducer Definition ,Distinction between active and passive transducers with examples	Using Chalk and Black Board
Day 7	Transducers	Basic requirements of a transducer,	Using Chalk and Black Board
Day 8	Variable Resistance Type Transducers	Construction and Working Principle of strain gauge	Using Chalk and Black Board
Day 9	Variable Resistance Type Transducers	Construction and Working Principle of thermistor	Using Chalk and Black Board
Day 10	Variable Resistance Type Transducers	Construction and Working Principle of hygrometer	Using Chalk and Black Board

		- Course	Using Chalk and BI
	Variable capacitance type Transducers	Construction and Working Principle of pressure gauge	Board Using Chalk and Black
Day 11	Variable Capacitance type	Principle of dielectric	Board
Day 12	Variable capacitance type Transducers	Construction and Working Principle of dielectric gauge	Using Chalk and Black Board
Day 13	Variable inductance type Transducers	Construction and Working Principle of LVDT	Using Chalk and Black Board
Day 14	Variable inductance type Transducers	Variable inductance type Variable inductance type Construction and Working Principle of Burdon pressure gauge	
Day 15	Other types of transducer Transducers	Construction and Working Principle of solid state sensor	Board Using Chalk and Black
Day 16	Other types of transducer	Construction and Working Principle of thermocouple	Using Chalk and Black
Day 17	Other types of transducer	Construction and Working Principle of piezoelectric device	Board Using Chalk and Black
Day 18	Other types of transducer	Construction and Working Principle of	Board Using Chalk and Black
Day 19	Other types of transducer	Construction and Working Principle of proximity probe	Board
	apter 3 : Cathode Ray Oscilloscope		1.011
	Cathode Ray Oscilloscope	Introduction, Construction and working of Cathode Ray Tube(CRT)	Using Chalk and Black Board
Day 20	Cathode Ray Oscilloscope	Block diagram description of a basic CRO	Using Chalk and Black Board
Day 21	Cathode Ray Oscilloscope	triggered sweep oscilloscope	Using Chalk and Black Board
Day 22	Cathode Ray Oscilloscope	Specifications of CRO and their explanation	Using Chalk and Black Board
Day 23	Cathode Ray Oscilloscope	Measurement of current, voltage, frequency, time	Using Chalk and Black
Day 24	Cathode Ray Oscilloscope	period and phase using CRO	Board Using Chalk and Black
Day 25	DSO	Digital storage oscilloscope (DSO) : block diagram and working principle	Board
	oter 4 : Voltage, Current and Resistance		
	Measurement	Basic DC Measurement system, Principles of	Using Chalk and Black Board
Day 26		measurement of DC voltage, DC current Basic AC Measurement System , Principles of	Using Chalk and Black Board
Day 27	AC Voltage and Current Measurement	measurement of AC voltage, AC current Principles of operation and construction of	Using Chalk and Black
Day 28	PMMC instruments	permanent magnet moving coil (PMMC) instruments	Board
Day 29	pMMC instruments	Merits Demerits Errors in PMMC type	Using Chalk and Black Board
Day 30	Moving iron instruments	Principles of operation and construction of moving iron instruments	Using Chalk and Black Board

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× 31	Moving iron instruments	Merits Demerits Errors in moving iron type	Using Chalk and Blad Board
Chapter	5 : Signal Generators and Analytical Instruments		
Day 32	Signal Generators: Introduction	Introduction, Basic Sine wave signal Generator Advantages and Disadvantages	Using Chalk and Bla Board
Day 33	Signal Generators and Analytical Instruments	Explanation of block diagram specifications of low frequency signal generator	Using Chalk and Bla Board
Day 34	Signal Generators and Analytical Instruments	Explanation of block diagram of RF generators	Using Chalk and Bla Board
Day 35	Signal Generators and Analytical Instruments	specifications of RF generators	Using Chalk and Bla Board
Day 36	Pulse generator	Explanation of block diagram specifications of pulse generator	Using Chalk and Bla Board
Day 37	Function generator	Explanation of block diagram specifications of function generator	Using Chalk and Bla Board
Day 38	Distortion factor meter	Explanation of block diagram specifications of distortion factor meter	Using Chalk and Bla Board
Day 39	Spectrum Analyzer	Simplified Block Diagram	Using Chalk and Bla Board
Day 40	Instrumentation amplifiers	Working and block diagram	Using Chalk and Bla Board
Day 41	Instrumentation amplifiers	its characteristics, applications and need.	Using Chalk and Bla Board
C	hapter 6 : Digital Instruments		
Day 42	Digital instruments	Definition, Comparison of analog and digital instruments ,Basic block diagram of a digital instrument	Using Chalk and Bl Board
Day 43	Digital instruments	Definition, Comparison of analog and digital instruments ,Basic block diagram of a digital instrument	Using Chalk and Bla Board
Day 44	Digital instruments	Definition, Comparison of analog and digital instruments ,Basic block diagram of a digital instrument	Using Chalk and Bla Board
Day 45	Digital instruments	Definition, Comparison of analog and digital instruments ,Basic block diagram of a digital instrument	Using Chalk and Bla Board
Day 46	Digital Voltmeter	Block Diagram of Digital Voltmeter ,Performance Parameters of Digital Voltmeter	Using Chalk and Bla Board
Day 47	Digital Voltmeter	Block Diagram of Digital Voltmeter ,Performance Parameters of Digital Voltmeter	Using Chalk and Bla Board
Day 48	Digital Voltmeter	Block Diagram of Digital Voltmeter ,Performance Parameters of Digital Voltmeter	Using Chalk and Bla Board
Day 49	Ramp type DVM	Working principle of ramp type DVM,	Using Chalk and Bla Board
Day 50	Ramp type DVM	Working principle of ramp type DVM,	Using Chalk and Bla Board

Day 51	Ramp type DVM	Voltage to time conversion	Using Chalk and Black Board Using Chalk and Black
Day 52	Dual Slope DVM	Working principle of Dual slope DVM	Board Using Chalk and Black
Day 53	Integrating Type DVM	Working principle of Integration type DVM	Board Using Chalk and Black
Day 54	Digital Multimeter	Block diagram and working of a digital multi- meter	Board Using Chalk and Black
Day 55	Digital Multimeter	Specifications of digital multi-meter and their applications	Board
Day 56		Limitations of digital multi-meters	

	Name of Book	Author Name	Publication
Prescribed Books	Electrical and Electronic Measurements	A.K Sawhney	Dhanpat Rai & Co.

Faculty in Charge
(Nishaut Sharman)

HOD 28/8/22