



UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE: ETC	SEMESTER: 3 rd Sem	NAME OF THE TEACHING FACULTY: Er.Kalakar Mohanty		
SUBJECT: CIRCUIT THEORY	No of Days/Per week class allotted: 4 Class P/W(60)	Semester From Date:15/09/2022 To Date:22/12/2022 No. Of Weeks: 15		
WEEK	CLASS DAY	THEORY TOPICS	REMARKS	
1 st	1 st	Communication Process- Concept of Elements of Communication System & its Block diagram	Date	Dean/Principal
	2 nd	Source of information & Communication Channels.		
	3 rd	Classification of Communication systems (Line & Wireless or Radio)		
	4 th	Modulation Process, Need of modulation and classify modulation process		
2 nd	1 st	Doubt clear class		
	2 nd	Analog and Digital Signals & its conversion.		
	3 rd	Basic concept of Signals & Signals classification (Analog and Digital)		
	4 th	Bandwidth limitation		
3 rd	1 st	Amplitude modulation & derive the expression for amplitude modulation signal, power relation in AM wave & find Modulation Index.		
	2 nd	Generation of Amplitude Modulation(AM)- Linear level AM modulation only		
	3 rd	Demodulation of AM waves (liner diode detector, square law detector & PLL)		

	4 th	Explain SSB signal and DSBSC signal		
4 th	1 st	Revision of last few class		
	2 nd	Methods of generating & detection SSB-SC signal (Indirect method only) 2.6 Methods of generation DSB-SC signal (Ring Modulator) and detection of DSB-SC signal (Synchronous detection)		
	3 rd	Concept of Balanced modulators		
	4 th	Vestigial Side Band Modulation		
5 th	1 st	Class Test		
	2 nd	Concept of Angle modulation & its types (PM & FM)		
	3 rd	Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.		
	4 th	Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal		
6 th	1 st	Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram		
	2 nd	Compare between AM and FM modulation (Advantages & Disadvantages)		
	3 rd	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram		
	4 th	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram		
	1 st	Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram		
	2 nd	Revision of Last class		

7 th	3 rd	Network Configurations (T & pie)., Open circuit (Z-Parameter)& Short Circuit(Y-Parameter) Parameters- Calculate open & short Circuit Parameters for Simple Circuits & its conversion		
	4 th	Classification of Radio Receivers , Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure		
8 th	1 st	AM transmitter - working principle with Block Diagram		
	2 nd	Concept of Frequency conversion, RF amplifier & IF amplifier ,Tuning, S/N ratio		
	3 rd	Working of super heterodyne radio receiver with Block diagram		
	4 th	Working of FM Transmitter & Receiver with Block Diagram		
9 th	1 st	Working of FM Transmitter & Receiver with Block Diagram		
	2 nd	Revision of Last Class		
	3 rd	Concept of Sampling Theorem , Nyquist rate & Aliasing		
	4 th	Sampling Techniques (Instantaneous, Natural, Flat Top)		
10 th	1 st	Analog Pulse Modulation - Generation and detection of PAM, PWM & PPM system with the help of Block diagram & comparison of all above.		
	2 nd	Concept of Quantization of signal & Quantization error		
	3 rd	Generation & Demodulation of PCM system with Block diagram & its applications.		
	4 th	Companding in PCM & Vocoder		
	1 st	Time Division Multiplexing & explain the operation with circuit diagram.		

11 th	2 nd	Class Test	
	3 rd	Generation & demodulation of Delta modulation with Block diagram.	
	4 th	Generation & demodulation of DPCM with Block diagram.	
12 th	1 st	Comparison between PCM, DM , ADM & DPCM	
	2 nd	Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver) & Digital modulation formats.	
	3 rd	Advantages of digital communication system over Analog system	
	4 th	Digital modulation techniques & types.	
13 th	1 st	Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MSK, GMSK.	
	2 nd	Working of T1-Carrier system	
	3 rd	Spread Spectrum & its applications	
	4 th	Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS).	
14 th	1 st	Last Class Discussion	
	2 nd	Last Class Discussion	
	3 rd	Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems) 6.9 Application of Different Modulation Schemes.	
	4 th	Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems) 6.9 Application of Different Modulation Schemes.	
	1 st	Types of Modem & its Application	

15 th	2 nd	Types of Modem & its Application	
	3 rd	Discussion Sample paper question	
	4 th	Discussion Sample paper question	

Gyotiprakash Swain

HOD

Chittaranjan Parida

DEAN

Law

PRINCIPAL