Discipline :-	Semester:-	
		Name of the Teaching Faculty:
ETC	5 <sup>th</sup>	SASMITA DAS
Subject:-	No of Days/per	Semester From:- 15 09,2022 To:- 22 12 2022
Analog And	Week Class Allotted	Semester From:- <u>15 09.2022</u> To:- <u>22.12.2022</u>
Digital	ţ-	
communication		
(Th. 3)	05	
Week	Class Day	Theory
1 <sup>st</sup>	1 <sup>st</sup>	Elements of Communication Systems.
	2 <sup>nd</sup>	Communication Process- Concept of Elements of Communication System of
	prd	its Block diagram
	3 <sup>rd</sup>	Source of information & Communication Channels.
	4 <sup>th</sup>	Classification of Communication systems (Line & Wireless or Radio)
	5 <sup>th</sup>	Modulation Process, Need of modulation
	1 <sup>st</sup>	classify modulation process
2 <sup>nd</sup>	2 <sup>nd</sup>	Analog and Digital Signals & its conversion
2	3 <sup>rd</sup> 4 <sup>th</sup>	
		Basic concept of Signals & Signals classification (Analog and Digital)
	5 <sup>th</sup>	Bandwidth limitation
	2 <sup>nd</sup>	Amplitude (linear) Modulation System
3 <sup>rd</sup>	2	Amplitude modulation & derive the expression for amplitude modulation
3	3 <sup>rd</sup>	signal derive the expression for power relation in AM wave
	4 <sup>th</sup>	derive the expression for Modulation Index and simple problems
	5 <sup>th</sup>	Generation of Amplitude Modulation(AM)- Linear level AM modulation
		only
*	1 <sup>st</sup>	Demodulation of AM waves (liner diode detector)
4 <sup>th</sup>	2 <sup>nd</sup>	Demodulation of AM waves (square law detector & PLL)
	3 <sup>rd</sup>	Explain SSB signal and DSBSC signal
	4 <sup>th</sup>	
	5 <sup>th</sup>	Methods of generating & detection SSB-SC signal (Indirect method only)
	1 <sup>st</sup>	Methods of generation DSB-SC signal (Ring Modulator)
5 <sup>th</sup>	2 <sup>nd</sup>	Detection of DSB-SC signal (Synchronous detection)
	4 <sup>th</sup>	Concept of Balanced modulators
	5 <sup>th</sup>	Vestigial Side Band Modulation
	1 <sup>st</sup>	Angle Modulation Systems.
	2 <sup>nd</sup>	Concept of Angle modulation & its types (PM & FM)
	3 <sup>rd</sup>	Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
	4 <sup>th</sup>	Expression for Frequency Modulated Signal & Modulation Index and
	5 <sup>th</sup>	sideband of FM signal
7 <sup>th</sup>	1 <sup>st</sup>	Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram
	2 <sup>nd</sup>	Compare between AM and FM modulation (Advantages & Disadvantages)
	3 <sup>rd</sup>	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
	4 <sup>th</sup>	Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)-
	5 <sup>th</sup>	working principle with Block Diagram
8 <sup>th</sup>	1 <sup>st</sup>	AM & FM TRANSMITTER & RECEIVER  Classification of Radio Receivers
	2 <sup>nd</sup> 3 <sup>rd</sup>	Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	4 <sup>th</sup>	AM transmitter - working principle with Block Diagram
	5 <sup>th</sup>	Concept of Frequency conversion, RF amplifier & IF amplifier , Tuning, S/N ratio
	1 <sup>st</sup>	Working of super heterodyne radio receiver with Block diagram
	2 <sup>nd</sup>	

Working of FM Transmitter & Receiver with Block Diagram  ANALOG TO DIGITAL CONVERSION & PULSE MODULATION  SYSTEM  Concept of Sampling Theorem, Nyquist rate & Aliasing Sampling Techniques (Instantaneous, Natural, Flat Top)  Analog Pulse Modulation - Generation and detection of PAM  PWM & PPM system with the help of Block diagram & comparison above.  Concept of Quantization of signal & Quantization error.  Generation & Demodulation of PCM system with Block diagram applications.  Companding in PCM & Vocoder	9 <sup>th</sup>		
Sth	9		Working of FM Transmitter & Receiver with Dis
10th Sampling Techniques (Instantaneous, Natural, Flat Top) 2 mil Sampling Techniques (Instantaneous, Natural, Flat Top) 4 m			CVCTEM
10th 2cm / Annalog Pulse Modulation - Generation and detection of PAM / Annalog Pulse Modulation - Generation and detection of PAM / Annalog Pulse Modulation - Generation and detection of PAM / Annalog Pulse Modulation - Generation and detection of PAM / Annalog Pulse Modulation of PCM system with the help of Block diagram & comparison above.  11th 2cm / Generation & Demodulation of PCM system with Block diagram a paplications.  11th 2cm / Generation & Demodulation of PCM system with Block diagram a paplications.  12th 2cm / Generation & demodulation of Delta modulation with Block diagram.  12th 2cm / Generation & demodulation of Delta modulation with Block diagram.  12th 2cm / Generation & demodulation of DPCM with Block diagram.  12th 2cm / Generation & demodulation of DPCM with Block diagram.  13th 2cm / Generation & demodulation of DPCM with Block diagram.  13th 2cm / Generation & demodulation of DPCM with Block diagram.  13th 2cm / Generation & DIGITALMODULATION TECHNIQUES.  13th Advantages of digital communication system over Analog system Receiver) & Digital modulation techniques & types  14th 3cm / Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MS GMSK.  15th Working of T1-Carrier system.  15th Spread Spectrum & its applications  Working operation of Spread Spectrum Modulation Techniques (DS-SS & SS).  Define bit, Baud, symbol & channel capacity formula.(Shannon Theorer Application of Different Modulation Schemes		The state of the s	Concept of Sampling Theorem. Nydnigt rate & Att
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13 <sup>th</sup> 3 <sup>rd</sup> Concept of Multiplexing (FDM & TDM)- (Basic concept, Transmitten Receiver) & Digital modulation formats  15 <sup>th</sup> Advantages of digital communication system over Analog system  2 <sup>nd</sup> Digital modulation techniques & types  14 <sup>th</sup> 3 <sup>rd</sup> Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MS  4 <sup>th</sup> GMSK.  15 <sup>th</sup> Working of T1-Carrier system.  Spread Spectrum & its applications  2 <sup>nd</sup> Working operation of Spread Spectrum Modulation Techniques (DS-SS & SS).  Define bit, Baud, symbol & channel capacity formula. (Shannon Theorem Application of Different Modulation Schemes)			Comparison between PCM DAY ARIS STOCK diagram.
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4 <sup>th</sup> Application of Different Modulation Schemes			working operation of Spread Spectrum Modulation To
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Types of Modem & its Application		5 <sup>th</sup>	Application of Different Modulation Schemes
7, 33 5. Modern & its Application			Types of Modem 9: its Act II
			A modern & its Application

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