



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad – 500043

Electronics and Communication Engineering

List of Laboratory Experiments

ANALOG AND DIGITAL COMMUNICATIONS LABORATORY									
Course Code	Category	Hours / Week			Credits	Maximum Marks			
		L	T	P		C	CIA	SEE	Total
AECC13	Core	0	0	2	1	30	70	100	
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 36			Total Classes:36				
Branch: ECE	Semester: IV	Academic Year: 2021-22			Regulation: UG20				
<p>Course overview: This course provides hands-on experience on various analog, digital modulation and demodulation techniques. The objective of this course is to construct and analyze circuits of various modulations and demodulations to verify input and output waveforms to determine bandwidth, power, modulation index. This course finds applications that include AM and FM Radio broadcasting, WiFi, Bluetooth, GSM mobile communication .</p>									
<p>Course objectives:</p> <ol style="list-style-type: none"> The design and implementation of analog, digital modulations and demodulations schemes. The modulated and demodulated waveforms and determine the modulation index, bit rate, bandwidth. The time and frequency domain analysis of the signals by using MATLAB software. 									
<p>Course outcomes:</p> <p>CO1: Discriminate the generation and detection of amplitude modulated and frequency modulated signals to calculate the modulation index and frequency deviation.</p> <p>CO2: Make use of the balance modulator and synchronous detector for generating and detecting DSBSC modulated wave.</p> <p>CO3: Analyze the analog pulse modulation and demodulation methods for transmitting the information by pulses.</p> <p>CO4: Apply the concept of pulse code modulation and demodulation for encoded data in analog to digital conversion.</p> <p>CO5: Select the time division or frequency division multiplexing techniques for transmitting multiple signals at a time in the communication system.</p> <p>CO6: Examine the digital modulation techniques for convey more information, high quality and security.</p>									
WEEK NO	EXPERIMENT NAME							CO	
WEEK – I	AMPLITUDE MODULATION AND DEMODULATION							CO1	
	Generation of amplitude modulation and demodulation using hardware and MATLAB.								
WEEK – II	DSB-SC MODULATOR & DETECTOR							CO2	
	Generation of AM-Double Side Band Suppressed Carrier (DSB-SC) signal using Balanced Modulator.								
WEEK – III	FREQUENCY MODULATION AND DEMODULATION							CO1	
	Generation of frequency modulation and demodulation using hardware and MATLAB.								
WEEK – IV	SAMPLING THEOREM VERIFICATION							CO4	
	Verification of sampling theorem for under, perfect, over sampling cases using hardware and MATLAB.								
WEEK – V	PULSE WIDTH MODULATION AND DEMODULATION							CO3	
	Generation of Pulse width modulation and demodulation using hardware and MATLAB.								
WEEK – VI	PULSE POSITION MODULATION AND DEMODULATION							CO3	

	Generation of pulse position modulation and demodulation using hardware and MATLAB.	
WEEK – VII	PULSE CODE MODULATION GENERATION AND DTECTION	CO4
	Generation of pulse code modulation and demodulation using hardware and understanding the concept analog to digital conversion.	
WEEK –VIII	DIFFERENTIAL PULSE CODE MODULATION	CO4
	Generation of differential pulse code modulation and demodulation using hardware.	
WEEK - IX	DELTA MODULATION	CO4
	Generation of delta modulation and demodulation using hardware.	
WEEK - X	TIME DIVISION MULTIPLEXING & DE MULTIPLEXING	CO5
	To study the operation of Time-Division multiplexing and demultiplexing.	
WEEK - XI	FREQUENCY SHIFT KEYING GENERATION AND DETECTION	CO6
	Generation of Frequency shift keying modulation and demodulation using hardware.	
WEEK - XII	BINARY PHASE SHIFT KEYING GENERATION AND DETECTION	CO6
	Generation of Phase shift keying modulation and demodulation using hardware.	
WEEK - XIII	DIFFERENTIAL PHASE SHIFT KEYING GENERATION AND DETECTION	CO6
	Generation of Differential Phase shift keying modulation and demodulation using hardware.	
WEEK - XIV	AMPLITUDE SHIFT KEYING GENERATION AND DETECTION	CO6
	Generation of Amplitude Shift Key modulation and demodulation using hardware.	

Date:

HOD