A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OW			National Institute of Technology Meghalaya An Institute of National Importance											CURRICULUM				
P	rogramm	ne I	Bachelor of Technology in Electronics and Communication En						ngineering Year of Regulat			Regulatior	ion 2018-19		9			
D	epartme	et Electronics and Communication Engineering						Semester			ester	V						
	urse			Course Name				Credit Structure			CON	Marks D CONTINOUS		Distribution				
Code								L	Т	Р	С	EVAL	UATION			Total		
EC	351	Analog and Digital Communication Systems LaboratoryTo develop the student's ability to analyse and design Analog							0	1	227030Able to develop Analog Communication Systems up					100		
C	-	Commu	ommunication systems simulation tools/hardware									ardware k	it	-				
	urse ctives	To develop the student's ability to analyse and design Digital Communication systems							Course Outcomes	CO2	Able to develop Digital Communication Syster simulation tools/hardware kit					e		
		To understand and analyze the signal flow digital data transmission in the presence of AWGN channel								CO3				o plan and execute the creation of nunication systems				
No.	COs		Mapping with Program Outco					omes (POs)							g with PSOs			
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO	
1 2	CO1 CO2	2	2 3	3	3	-	1	-	-	-	-	-	2	-	-	3	-	
2	CO2	3	2	1	1	-	3	-	-	-	-	-	1	2	2	2	1	
								SYL	LABUS									
No.		Content												Hours			COs	
	 Generation and demodulation of SSB signal. Generation and demodulation of FM signal. To calculate the SNR for the AM, DSB-SC, SSB-SC signal with AWGN channel. To observe the pre-emphasis and de-emphasis of a signal. Signal generation and reconstruction based on sampling theorem and Nyquist criteria To generate and demodulate amplitude shift keyed (ASK) signal To generate and demodulate binary phase shift keyed (BPSK) signal and Quadrature Phase shift keying technique (QPSK) signal To generate and demodulate frequency shift keyed (FSK) signal To generate and demodulate quadrature amplitude modulation (QAM) signal Transmission of signals using digital modulation techniques: M-ary FSK, M-ary QAM and Error performance of M-ary signalling schemes in AWGN channels Assume BPSK modulation is used for SNR range of 0-15 dB with a step of 2 dB. Length=1000 bits. Simulate: i) BER 																	
1.	A A A A A A A	To calc To obs Signal To gen (QPSK To gen To gen Transm signalli	culate the SN erve the pre-o generation an erate and der erate and der) signal erate and der erate and der nission of sig ing schemes i	R for the A emphasis a nd reconstr nodulate a nodulate b nodulate f nodulate Q nals using in AWGN	AM, DSB- and de-emp ruction bas umplitude s binary phas requency s Quadrature digital mo channels	SC, SSB-S phasis of a ed on sam hift keyed e shift keyed amplitude dulation te	signal. pling theo (ASK) sig red (BPSK (FSK) sig modulatio echniques:	rem and Ng gnal () signal and gnal on (QAM) M-ary FSI	yquist criteria d Quadrature I signal K, M-ary QAN	Phase shi M and Er	ror perform	nance of I	M-ary	1	8		1, CO2 CO3	
1.	A A A A A A A	To calc To obs Signal To gen (QPSK To gen To gen Transm signalli Assum of syste	culate the SN erve the pre-o generation an erate and der erate and der) signal erate and der erate and der nission of sig ing schemes i	R for the A emphasis a nd reconstr nodulate a nodulate b nodulate f nodulate Q nals using in AWGN lulation is ER vs SNH	AM, DSB- and de-emp ruction bas umplitude s binary phas requency s Quadrature digital mo channels used for SI R performa	SC, SSB-S ohasis of a sed on sam shift keyed se shift key shift keyed amplitude odulation te NR range o unce for sir	signal. pling theo (ASK) sig ed (BPSK (FSK) sig modulation echniques: of 0-15 dB nulated res	rem and Ny gnal () signal and gnal on (QAM) M-ary FSI 6 with a step sults	yquist criteria d Quadrature I signal K, M-ary QAM p of 2 dB. Len	Phase shi M and Er	ror perform	nance of I	M-ary	1	8			

Total Hours	18								
Essential Readings									
1. Bernard Sklar, "Digital Communications - Fundamentals and Applications," Pearson Education, 2nd Edition, 2001.									
2. B.P. Lathi and Ding Zhu, "Modern Digital and Analog Communication Systems", Oxford University Press, 4th Edition, 2010.									
3. Simon. Haykin, Michael Moher, "An Introduction to Analog and Digital Communications", John Wiley & Sons, 2 nd Edition, 2007.									
4. John G. Proakis and Masoud Salehi, "Contemporary Communication Systems using Matlab", Cengage learning, 3rd edition, 2011.									
Supplementary Readings									
1. John G. Proakis and Masoud Salehi, "Digital Communications", McGraw-Hill, 5th Edition 2008.									
2. Leon W. Couch, II, "Digital and Analog Communication Systems," Pearson Education, 6th Edition, 2004.									
3. K. Sam Shanmugam, "Digital and Analog Communication Systems", Wiley India Pvt Ltd, 2006.									