

1.	Title of the Course	Digital Communication
2.	Course Number	EE3021
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Electrical Engineering
8.	To take effect from	January 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce fundamental concepts and techniques used in the design, performance analysis, and implementation of digital communication systems.	
12.	Course Content: Review of random processes and spectral analysis, elements of detection theory, optimum detection of signals in noise, coherent communication with waveforms, probability of error evaluations, baseband pulse transmission, intersymbol interference and Nyquist criterion, passband digital modulation schemes (phase shift keying, frequency shift keying, quadrature amplitude modulation, continuous phase modulation and minimum shift keying), digital modulation tradeoffs, optimum demodulation of digital signals over bandlimited channels, maximum likelihood sequence detection (Viterbi receiver), equalization techniques, synchronization and carrier recovery for digital modulation.	
13.	Text book(s): 1. Madhow U, <i>Fundamentals of Digital Communication</i> , Cambridge University Press (2008). 2. Proakis J G, <i>Digital Communications</i> , McGraw Hill (2000).	
14.	Reference(s): 1. Barry J R, Lee E A and Messerschmitt D G, <i>Digital Communication</i> , Kulwer Publications (2003). 2. Wozencraft J M and Jacobs I M, <i>Principles of Communication Engineering</i> , John Wiley (1965).	