

1.	Title of the course	Digital Signal Processing
2.	Course number	EE204M
3.	Structure of credits	3-1-2-5
4.	Offered to	UG
5.	New course/modification to	Modification To EE2206/8
6.	To be offered by	Department of Electrical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To understand the analysis and characterization of discrete-time signals and systems. To get familiarized with different frequency domain approaches for analysis of signals and system transfer functions	
10.	Course Content: Review of discrete time signals and systems; Properties of LTI systems; DTFT, Z-Transforms; Frequency domain analysis of LTI systems; Minimum phase all-pass decomposition, Generalized linear phase; DFS, Frequency sampling, and Time aliasing; DFT, Periodic & Circular convolutions; FFT computations using DIT and DIF algorithms; Digital filter design: IIR and FIR filters; FIR filter design by windowing; Filter structures and realization: direct form I & II, cascade and parallel forms; Introduction to multi-rate signal processing: fractional sampling rate conversion.	
11.	Textbook(s): 1. Oppenheim A V, Schafer R W and Buck J R, <i>Discrete-Time Signal Processing</i> , Pearson Education (2010).	
12.	Reference(s): 1. Mitra S K, <i>Digital Signal Processing: A Computer-Based Approach</i> , Mcgraw Hill (2010). 2. Proakis J G and Manolakis D K, <i>Digital Signal Processing: Principles, Algorithms and Applications</i> , Pearson (2007).	