

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Digital Signal Processing
2.	Course Number	EE2206
3.	Status of the Course	Core
4.	Structure of Credits	3-0-3-5
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 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: 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.	
12.	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.	
13.	Text book(s): 1. Oppenheim A V, Schafer R W and Buck J R, <i>Discrete-Time Signal Processing</i> , Pearson Education (2010).	
14.	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).	