Course Code	ECE351
Course Name	Digital Signal Processing
Credits	4
Course Offered to	UG
Course Description	relationships; fast computation algorithms via FFT; IIR and FIR filter design techniques; filter implementation structures.

Pre-requisites

Pre-requisite (Mandatory)	**Pre-requisite (Desirable)**	**Pre-requisite(other)**
ECE250 Signals & Systems		
*Please insert more rows if required		

Post Conditions*(For suggestions on verbs please refer the second sheet)

CO1	**CO2**	**CO3**	**CO4**	**CO5**
Analyze discrete time systems in time domain, z- domain and frequency domain	Analyze and implement digital systems using DFT and FFT	Realize digital filters using different structures	Apply design techniques for digital filters according to specifications	Use MATLAB for analysis and design of DSP systems

Weekly Lecture Plan

Week Number	**Lecture Topic**	**COs Met**	**Assignment/Labs/Tutorial**
1	Introduction, Classification of Signals and Systems, Difference equations, FIR and IIR impulse response, Recursive and non-recursive systems, Matched filter	CO1	
2	z-transform, Analysis of LTI systems using z-transform, Unilateral z-transform	CO1,CO5	Assignment - Analytical + Practical
3	Frequency analysis of signals, DTFT, Power and energy density spectrum, frequency response of LTI systems, Correlation functions and Spectra	CO1,CO5	Lab exercise
4	Filtering, Inverse Systems and Deconvolution, Sampling and reconstruction	CO1, CO2,CO5	Assignment - Analytical + Practical
5	DFT, Properties		Lab exercise
6	Linear filtering using DFT, DCT, Applications such as compression	CO1,CO2,CO5	Lab exercise
7	FFT, Applications, Quantization effects	CO1,CO2,CO5	Assignment - Analytical + Practical
8&9	Structures for realization of FIR and IIR systems, Representation of numbers, Quantization effects	CO3,CO4,CO5	Assignment - Practical
10	Design of Digital filters, FIR filters	CO1,CO2, CO3,CO5	Lab exercise
11&12	Design IIR filters, Frequency transformations	CO1,CO2, CO3,CO5	Assignment - Analytical + Practical
13	Selected topics	CO2,CO4, CO5	
*Please insert more rows if required			

Weekly Lab Plan

Week Number	**Laboratory Exercise**	**COs Met**	**Platform (Hardware/Software)**
*Please insert more rows if required			

Assessment Plan

Type of Evaluation	**% Contribution in Grade**
Quiz	20
Assignment	20
Mid-sem	20
End-sem	20
Project	20
*Please insert more row for other type of Evalua	

Resource Material

Type	**Title**
Textbook	Digital Signal Processing: Principles, Algorithms, and Applications,