

Lesson Plan

Name of faculty: SUNIL KUMAR DAHIYA, AP-ECE

Discipline: ECE

Semester: 5th Sem

Subject: Digital Signal Processing

Lesson Plan Duration: 15 weeks

Work Load (Lecture/Practical) per week (in hours): Lectures: 03 hours.

Week	Theory (ECE-302N)	
	Lecture day	Topic (Including assignment/ test)
1 st	1.	Z- transform and its properties
	2.	Z- transform and its properties
	3.	Inversion of Z-transform
2 nd	4.	One sided Z-transform and solution of differential equations
	5.	One sided Z-transform and solution of differential equations
	6.	Analysis of LTI systems in Z-domain, causality, stability, schur-cohn stability test
3 rd	7.	Analysis of LTI systems in Z-domain, causality, stability, schur-cohn stability test
	8.	Relationship between Z-transform and Fourier transform
	9.	All pass filters
4 th	10.	minimum-phase, maximum-phase and mixed-phase systems
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	12.	Goertzel algorithm
5 th	13.	Chirp Z-transform
	14.	Properties of DFT
	15.	Linear filtering using DFT
6 th	16.	Frequency analysis of signals using DFT
	17.	radix 2, radix-4,
	18.	computation of DFT of real sequences
7 th	19.	Direct form, cascade form
	20.	frequency sampling and lattice structures for FIR systems
	21.	Direct forms, transposed form
8 th	22.	cascade form parallel form
	23.	Lattice and lattice ladder structures for IIR systems
	24.	Lattice and lattice ladder structures for IIR systems
9 th	25.	Characteristics of practical frequency selective filters
	26.	Filters design specifications peak pass band ripple
	27.	minimum stop band attenuation
10 th	28.	Four types of FIR filters
	29.	alternation theorem

	30.	Design of FIR filters using windows
11 th	31.	Kaiser window method comparison of design methods for FIR filters,
	32.	Kaiser window method comparison of design methods for FIR filters,
	33.	Gibbs phenomenon
12 th	34.	design of FIR filters by frequency sampling method
	35.	design of FIR filters by frequency sampling method
	36.	design of optimum equi-ripple FIR filters
13 th	37.	Design of IIR filters from analog filters
	38.	Design of IIR filters from analog filters
	39.	Design by approximation of derivatives
14 th	40.	Impulse Invariance Method
	41.	Bilinear Transformation Method
	42.	Least Square Methods
15 th	43.	Characteristics of Butterworth, Chebyshev and Elliptical analog filters
	44.	Design of IIR filters, Frequency transformation
	45.	design of IIR filters in frequency domain.