

Lecture Plan for Signals & Systems (IEC-402)

Faculty : Shrish Bajpai

Section : Second Year (EC-2)

Web Page : <http://sbajpai.yolasite.com/signals-and-systems.php>

Course Objective : Objective of this course is to give a detail of the signals & its analysis with the different systems.

Lecture	Topic	Reference Book
1.	Introduction to Signals & Systems & Classification of Signals	1
2.	Classification of Signals & Transformation of Signals	1
3.	Mathematical Problems of Classification of Signals & Transformation of Signals	1
4.	Introduction to the elementary signals & its associated mathematical problems	1
5.	Introduction to systems & its properties	1
6.	Mathematical problems on Systems-I	1
7.	Mathematical problems on Systems-II	1
8.	Introduction to LTI systems & Characterization of LTI system by differential equation	1
9.	Mathematical problems on LTI Systems	1
10.	Introduction to periodic & non periodic signal, Use of Fourier Series in the analysis of periodic signal & different form of Fourier Series.	1
11.	Properties of Fourier Series & Mathematical problems of Fourier Series.	1
12.	Introduction to Fourier transform of signals & properties of Fourier transform.	1
13.	Mathematical problems of Fourier Transform & Fourier Series.	1
14.	Mathematical problems of Fourier Transform	1
15.	Introduction to Discrete Fourier transform of signals & properties of Discrete Fourier transform.	1
16.	Mathematical problems of Discrete Fourier Transform.	1
17.	Magnitude- phase representation of Fourier Transform	1
18.	Frequency response of LTI systems, time domain properties of ideal frequency selective filters	1
19.	Time domain and frequency domain aspects of ideal and non-ideal filters	1

20.	First order and second order continuous and discrete systems	1
21.	Mathematical problem associated to Unit 3-I	1
22.	Mathematical problem associated to Unit 3-II	1
23.	Mathematical problem associated to Unit 3-III	1
24.	Mathematical problem associated to Unit 3-IV	1
25.	Introduction to Sampling & Sampling theorem	1
26.	Mathematical formation of Sampling theorem	1
27.	Reconstruction of signals from samples	1
28.	Ideal sampling, flat top sampling, natural sampling	1
29.	Aliasing effect, up-sampling and down-sampling,	1
30.	Discrete time processing of continuous time signals, sampling of band pass signals	1
31.	Mathematical problem associated to Unit 4-I	1
32.	Mathematical problem associated to Unit 4-II	1
33.	Introduction to Z- transform & it's properties	1
34.	Inverse Z- transform & ROC	1
35.	Analysis and characterization of discrete LTI systems, realization of discrete time systems	1
36.	Mathematical problem associated to Unit 5-I	1
37.	Mathematical problem associated to Unit 5-II	1
38.	Mathematical problem associated to Unit 5-III	1
39.	Mathematical problem associated to Unit 5-IV	1
40.	Mathematical problem associated to Unit 5-V	1

1. A.V.Oppenheim A.S.Willsky & S.H.Nawab, "Signal & Systems", Second Edition, PHI India