

**SK DAV GOVT POLYTECHNIC,ROURKELA**

**Semester: 6th**

**LESSON PLAN**

**Subject: Digital signal processing**

**Branch: ETC**

**Name of the Faculty Member: Balaram Tripathy**

<b>Period</b>	<b>Module/ Unit Number</b>	<b>Topic to be covered</b>
	<b>UNIT-1</b>	<b>Introduction</b>
1		Discuss signals ,systems and signal processing
2		Explain basic element of a digital signal processing system and advantage of DSP over asp
3		Discuss multi channel and multi dimensional signal, continuous time vs. discrete time signal, ,continuous valued vs discrete valued signal
4		Discuss continues time sinusoidal signals ,discrete time sinusoidal signals
5		Harmonically related complex exponential
6		Discuss analog to digital conversion with block diagram
7		Explain sampling theorem
8		Quantization of continuous amplitude signals ,coding of quantized sample
9		Solved numerical on sampling and quantization
10		Digital to analog conversion
11	<b>Omr test</b>	
	<b>UNIT-2</b>	<b>Discrete time signals and systems</b>
12		State and explain discrete time signals
13		<b>Discuss some elementary discrete time signals</b>
14		Classify discrete time signals and discuss simple manipulation of discrete time signals
15		Discuss discrete time system
16		Describe input output of system
17		Draw block diagram of discrete time system
18		Classify discrete time system ,discuss interconnection of discrete time system
19		Discuss different technique for the analysis of linear system, discuss the resolution of discrete time signal into impulse
20		Discuss the response of LTI system to i/p signal using convolution theorem
21		Explain the properties of convolution and interconnection of LTI system
22		Study systems with finite duration and infinite duration impulse response
23		<b>Explain</b> recursive and non recursive discrete time system
24		Determine the impulse response of LTI recursive system
25	OMR Test	
	<b>UNIT-3</b>	<b>The Z-transform &amp;its application to the analysis of LTI system</b>
26		Discuss Z-transform & its application
27		State and explain direct Z-transform
28		Discuss problems on Z-transform
29		State and explain inverse Z-transform
30		Discuss various properties of Z-transform
31		<b>Solved</b> numerical based on properties of Z-transform
32	Discuss rational Z-transform ,explain poles and zero	

33		Determine pole location time domain behavior of causal signals
34		Describe the system function of a LTI system
35		Discuss inverse Z-transform by partial fraction expansion
36		OMR test
37	<b>UNIT-4</b>	<b>Discuss Fourier transform</b>
38		Discuss discrete Fourier transform
39		Determine frequency domain sampling and reconstruction of discrete time signal
40		State and explain DTFT
41		Solved basic numerical on DTFT
42		State and explain DFT
43		Solved numerical on DFT
44		<b>Compute DFT as a linear transformation</b>
45		Discuss properties of DFT
46		Solved numerical based on properties of DFT
47		Discuss circular convolution
48		Explain multiplication of two DFT and solved numerical on circular convolution
49		Relate DFT to other transforms
50		Revision of DTFT,Z-transform
51		OMR Test
	<b>UNIT-5</b>	<b>Fast Fourier transform algorithm &amp; Digital filters</b>
52		Compute DFT algorithm
53		Compute FFT algorithm
54		Discuss the radix-2 algorithms
55		Solved numerical
56		Introduction to digital filters
57		Difference between FIR and IIR filters
58		Introduction to DSP architecture
59		Familiarization of different types of processor
60		Revision

*Balaram Tripathy*

**Signature of faculty Member:**

*Smratiika Sundar Ray*

**Counter signature of H.O.D**