

GOPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY

GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: DIGITAL SIGNAL PROCESSING

Name of the Faculty: Subrat Prasad Rath

Semester: 5th Semester

Branch: ETC

Semester From:

No. of Weeks: 15 Weeks

Week	Day	Theory/ Practical Topics	Classes
		UNIT 1 -Signals	6
1	1.	Representation of signals on orthogonal basis	1
	2.	sampling and reconstruction of signals	1
	3.	Discrete time signals/sequences	1
	4.	Discrete time systems	1
2	5.	Analysis and response (convolution sum) of discrete - time linear LTI system	1
	6.	Correlation of discrete time Signal. The z-transform, Analysis of LTI systems using z-transform, Properties of z-transform	1
		UNIT 2- Inverse Z-Traansformer	6
	7.	Inverse Z-Transform	1
3	8.	Inversion Z-Transform by Power Series Expansion	1
	9.	Inversion of the Z-Transform by Partial-Fraction Expansion	1
	10.	Analysis of Linear Time-Invariant Systems in the z-Domain	1
	11.	Frequency analysis of LTI systems: Discrete Fourier transform (DFT)	1
4	12.	frequency domain sampling, Properties of DFT, Frequency	1
		UNIT 3- Efficient computation of DFT	6
	13.	circular convolution	1
	14.	circular correlation	1
	15.	linear filtering methods based on DFT	1
5	16.	Fast Fourier transform (FFT): Decimation in time (DIT) algorithm	1
	17.	Decimation in frequency (DIF) algorithm	1
	18.	Application of FFT	1
		UNIT 4- Realization of FIR and IIR	8
6	19.	systems using direct forms and cascaded forms	1
	20.	Design of Digital filters	1
	21.	General considerations	1
	22.	Design of FIR filters: window method	1
	23.	Design of IIR filters	

7	24.	Impulse invariance method	1
	25.	bilinear transformation method for analog filters	2
	26.		
		UNIT 5- Basic adaptive filter	4
	27.	Structure of Adaptive FIR filter	1
8	28.	System Modeling and Inverse Modeling	2
	29.		
	30.	Application of DSP	1
	31.		1

Books Recommended:

1. Digital Signal Processing – Principles, Algorithms and Applications by J. G. Proakis and D. G. Manolakis, Pearson Education, Samuel Y. Liao, Pearson Education
2. Digital Signal Processing - Dr. Shalini D. Apte, Wiley Publication
3. Digital Signal Processing: Tarun Kumar Rawat, Oxford University Press.
4. Digital Signal Processing – S. Salivahan, A. Valavraj and C. Gnanapriya, Tata McGrawHill
5. Digital Signal Processing – Manson H. Hayes (Schaum's Outlines) Adapted by Subrata Bhattacharya, Tata McGraw Hill.