<u>Lecture Plan</u> B.Tech Electronics and Instrumentation Engineering 8th Semester

Subject Name: Digital Signal Processing

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Unit	Topic	Lecture	Reference		
Introduction	Introduction of DSP, its	Lecture 1	1.Digital Signal Processing: Proakis and		
(1 hour)	advantages over analog		Manolakis; PHI		
	signal processing,		2. Digital Signal Processing: Salivahanan,		
	Application of DSP		Vallavaraj and Gnanapriya;TMH		
UNIT1:	Signal classifications,	Lecture 2	1.Digital Signal Processing: Proakis and		
DISCRETE-	frequency and time		Manolakis; PHI		
TIME	domain representation of		2. Digital Signal Processing: Salivahanan,		
SIGNALS	signals, Representation of		Vallavaraj and Gnanapriya;TMH		
(5 hours)	sequences by Fourier				
	transform				
	Properties of Fourier	Lecture 3,4	Digital Signal Processing: Salivahanan,		
	transform with numerical		Vallavaraj and Gnanapriya;TMH		
	practice				
	Discrete time random	Lecture 5,6	Digital Signal Processing: Salivahanan,		
	signals, Energy and power		Vallavaraj and Gnanapriya;TMH		
	theorems with numerical				
	practice	1 1 7 0	D: 1.10: 1D 1: 1		
UNIT2.	Classification of systems,	Lecture 7,8	Digital Signal Processing: Proakis and		
DISCRETE-	Properties of systems	Looture O	Manolakis; PHI		
TIME SYSTEMS	Time invariant system	Lecture 9	Digital Signal Processing: Proakis and		
(4 hours)	Einite immeles Deserves	Looturo 10	Manolakis; PHI		
(4 Hours)	Finite impulse Response	Lecture 10	1.Digital Signal Processing: Proakis and		
	(FIR) system, Infinite impulse response(IIR)		Manolakis; PHI 2. Digital Signal Processing: Salivahanan,		
			Vallavaraj and Gnanapriya;TMH		
UNIT3.	system. Sampling theorem and its	Lecture 10	Digital Signal Processing: Proakis and		
SAMPLING	Application	Lecture 10	Manolakis; PHI		
OF TIME	Frequency domain	Lecture 11	Digital Signal Processing : Proakis and		
SIGNALS	representation of sampled	Lecture 11	Manolakis; PHI		
(4 hours)	signal, Reconstruction of		Wanolakis, 1111		
(11100110)	band limited signal				
	from its samples				
	Discrete time processing	Lecture 12	Digital Signal Processing: Proakis and		
	of continuous time signals		Manolakis; PHI		
	Changing the sampling	Lecture 13	Digital Signal Processing: Proakis and		
	rate using discrete		Manolakis; PHI		
	time processing.		,		
UNIT4.	Introduction, Properties of	Lecture	Digital Signal Processing: Salivahanan,		
Z-	the region of convergence	14,15	Vallavaraj and Gnanapriya;TMH		
TRANSFORM	with numerical practice				
(7 hours)	Properties of the Z-	Lecture	Digital Signal Processing: Salivahanan,		
	transform	16,17	Vallavaraj and Gnanapriya;TMH		
	Inversion of the Z-	Lecture18,19	Digital Signal Processing: Salivahanan,		

	transform,		Vallavaraj and Gnanapriya;TMH
	Applications of Z-		,
	transform.		
	Numerical practice and	Lecture 20	TEXT BOOKS:
	queries		Digital Signal Processing : Proakis and Manolakis; PHI
			2. Digital Signal Processing: Salivahanan,
			Vallavaraj and Gnanapriya;TMH
			REFERENCE BOOKS:
			1. Digital Signal Processing: Alon V.
			Oppenhelm;PHI
			2. Digital Signal processing(II-Edition): Mitra,
			TMH
			Previous year question papers of competitive and
			university exams
UNIT5.	Fundamentals of digital	Lecture 21	1. Digital Signal Processing: Salivahanan,
BASICS OF	filtering, various types of		Vallavaraj and Gnanapriya;TMH 2. Digital
DIGITAL	digital filters		Signal Processing: Alon V. Oppenhelm;PHI
FILTERS	Design techniques of	Lecture 22	1. Digital Signal Processing: Salivahanan,
(9 hours)	digital filters : window		Vallavaraj and Gnanapriya;TMH 2. Digital
	technique for FIR		Signal Processing: Alon V. Oppenhelm;PHI
	Bi-linear transformation	Lecture	1. Digital Signal Processing: Salivahanan,
	and backward difference	23,24	Vallavaraj and Gnanapriya; TMH 2. Digital
	methods for IIR filter		Signal Processing: Alon V. Oppenhelm;PHI
	design analysis of finite	Lecture25	Digital Signal Processing: Saliyahanan
	word length effects in DSP	Lecture25	Digital Signal Processing: Salivahanan, Vallavaraj and Gnanapriya; TMH
	FIR &IIR Filter structure-	Lecture26,27	Digital Signal Processing: Salivahanan,
	direct1,direct2,cascadeand	200101020,21	Vallavaraj and Gnanapriya; TMH
	parallel,		Tana Tana Shahapirja, 117211
	Application of DSP.		
	Numerical practice and	Lecture	TEXT BOOKS:
	queries	28,29	1. Digital Signal Processing: Proakis and
			Manolakis; PHI
			2. Digital Signal Processing: Salivahanan,
			Vallavaraj and Gnanapriya;TMH
			REFERENCE BOOKS:
			1. Digital Signal Processing: Alon V.
			Oppenhelm;PHI
			2. Digital Signal processing(II-Edition): Mitra,
			TMH Drawing year question papers of competitive and
			Previous year question papers of competitive and university exams
UNIT6.	Introduction to multirate	Lecture 30	Digital Signal Processing: Salivahanan,
MULTIRATE	digital signal processing	Locidio 30	Vallavaraj and Gnanapriya;TMH
DIGITAL	Sampling rate conversion	Lecture 31	1.Digital Signal Processing: Proakis and
SIGNAL			Manolakis; PHI
PROCESSING			2. Digital Signal Processing: Salivahanan,
(8 hours)			Vallavaraj and Gnanapriya; TMH
	Filter structures	Lecture	Digital Signal Processing: Salivahanan,
		32,33	Vallavaraj and Gnanapriya;TMH
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Multistage decimator and interpolators	Lecture 34	Digital Signal Processing: Salivahanan, Vallavaraj and Gnanapriya;TMH
Digital filter banks	Lecture 35	Digital Signal Processing: Salivahanan, Vallavaraj and Gnanapriya;TMH
Numerical practice	Lecture 36,37	TEXT BOOKS: 1. Digital Signal Processing: Proakis and Manolakis; PHI 2. Digital Signal Processing: Salivahanan, Vallavaraj and Gnanapriya; TMH REFERENCE BOOKS: 1. Digital Signal Processing: Alon V. Oppenhelm; PHI 2. Digital Signal processing(II-Edition): Mitra, TMH Previous year question papers of competitive and university exams
Queries, revision, quiz and class test of full syllabus	Lecture 38,39	
Discussion of the solution of class tests	Lecture 40	