Course	Course name	L-T-P-	Ye	ear Of	
code		<u>Credits</u>	Intro	oduction	
AE306	Digital Signal Processing 3	3-0-0-3	2	2016	
Prerequi	site : Nil				
Course Objective					
• 1 Syllabua	o introduce the basic concepts and techniques for proces	ssing sig	nais on a	Computer.	
Disorato	time and digital signals. DET and the EET 7 transform		tore IID	Filtor	
Filter Res	alization- Computer architectures for signal processing	- 1 IK I II	IICIS- IIIX	ritters-	
Expected	outcome	1 A	M		
• T	be students will be familiar with the most important me	thods in	DSP incl	uding	
d	igital filter design, transform-domain processing and im	portance	of Signa	1	
P	rocessors.	1007	8-1	-	
Text Boo	ks	Y			
1. C	hen, C.T., "Digital Signal Processing: Spectral Comput	tation &	Filter De	sign",	
0	xford Univ. Press, 2001			0	
2. If	eachor, E.C., & Jervis, B.W., "Digital Signal Processing	g: A Pra	ctical Ap	proach",	
2/	e, Pearson Education Asia, 2002.				
3. Pi	roakis, J.G. & Manolakis, D.G., " <i>Digital Signal Process</i>	sing: Prir	nciples, <mark>A</mark>	lgorithms,	
Å	<i>Applications</i> ", 3/e Prentice Hall of India, 1996.				
D 6					
Keferenc	e Books:	al Cierra	1 Due e ere	··· ~?	
1. Embree, P.M., & Danieli, D., "C++ Algorithms for Digital Signal Processing", 2/e,					
Prentice Hall Upper Saddle River, NJ, 1999.					
	centice Hall Upper Saddle River, NJ, 1999.	inst: 1 M	lultimodic		
2. M	centice Hall Upper Saddle River, NJ, 1999. CClellan, J.H., Schafer, R.W., & Yoder, M.A., "DSP File parageb", Prentice Hall Upper Saddle River, NL 1998	'irst: A M	lultimedic	ı	
$\begin{array}{c c} & P_{1} \\ 2. & M \\ & A_{1} \\ 3. & M \end{array}$	centice Hall Upper Saddle River, NJ, 1999. IcClellan, J.H., Schafer, R.W., & Yoder, M.A., "DSP Fi oproach", Prentice Hall Upper Saddle River, NJ, 1998 litra S.K. "Digital Signal Processing: A Computer-Bas	'irst: A M	ultimedic	l cGraw	
2. M 2. M 3. M H	Contice Hall Upper Saddle River, NJ, 1999. CClellan, J.H., Schafer, R.W., & Yoder, M.A., "DSP For pproach", Prentice Hall Upper Saddle River, NJ, 1998 Litra, S.K., "Digital Signal Processing: A Computer-Bas ill, NY, 1998	'irst: A M sed Appro	lultimedic oach", M	ı cGraw	
Pr 2. M <i>A</i> 3. M H	Course Plan	irst: A M sed Appro	ultimedic oach", M	r cGraw	
2. M A 3. M H	Course Plan	ïrst: A M sed Appro	ultimedic oach", M	r cGraw Semester	
Pr 2. M <i>A</i> 3. M H Module	Contents	irst: A M	ultimedic oach", M <mark>Hour</mark> s	cGraw Semester Exam	
Pr 2. M A 3. M H Module	rentice Hall Upper Saddle River, NJ, 1999. IcClellan, J.H., Schafer, R.W., & Yoder, M.A., "DSP Fa oproach", Prentice Hall Upper Saddle River, NJ, 1998 Iitra, S.K., "Digital Signal Processing: A Computer-Bas ill, NY, 1998 Course Plan	irst: A M	ultimedic oach", M <mark>Hours</mark>	r cGraw Semester Exam Marks	
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Pr 2. M A 3. M H Module	rentice Hall Upper Saddle River, NJ, 1999. IcClellan, J.H., Schafer, R.W., & Yoder, M.A., "DSP Fa oproach", Prentice Hall Upper Saddle River, NJ, 1998 Iitra, S.K., "Digital Signal Processing: A Computer-Bas ill, NY, 1998 Course Plan Contents Signal Processing Fundamentals: Discrete-time and o signals, A/D, D/A conversion and Nyquist rate, Freq	irst: A M sed Appro	ultimedic oach", M <mark>Hours</mark> 7	r cGraw Semester Exam Marks 15%	
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	Minimax optimal FIR filters, Design of digital				
	differentiators and Hilbert transformers, comparison of				
	design methods.				
IV	IIR Filters: Design of analogue prototype filters, Analog	7	15%		
	frequency transformations, Impulse invariance method and				
	digital frequency transformations, Bilinear transformation,				
	Analog prototype to digital transformations, Difficulties in				
	direct IIR filter design, Comparisons with FIR filters.				
SECOND INTERNAL EXAMINATION					
V	Filter Realization: Structures for FIR filters, Structures for	7	20%		
	IIR filters, State-space analysis and filter structures, Fixed	A T			
	point and floating-point representation of numbers, Errors	AL			
	resulting from rounding and truncating, Quantization effects				
	of filter coefficients, Round-off effects of digital filters.				
VI	DSP Processors: Computer architectures for signal	8	20%		
	processing – Harvard architecture and pipelining, General				
	purpose digital signal processors, Selection of DSPs,				
	Implementation of DSP algorithms on a general purpose				
	DSP, Special purpose hardware – hardware digital filters				
	and hardware FFT processors, Evaluation boards for real-				
	time DSP.				
END SEMESTER EXAMINATION					

QUESTION PAPER PATTERN:

Maximum Marks:100

Exam Duration: 3 Hours

Part A

Answer any two out of three questions uniformly covering Modules 1 and 2 together. Each question carries 15 marks and may have not more than four sub divisions.

Estd.

Part B

Answer any two out of three questions uniformly covering Modules 3 and 4 together. Each question carries 15 marks and may have not more than four sub divisions.

2014

(15 x 2 = 30 marks)

(15 x 2 = 30 marks)

Part C

Answer any two out of three questions uniformly covering Modules 5 and 6 together. Each question carries 15 marks and may have not more than four sub divisions.

(20 x 2 = 40 marks)