SCHEME OFCOURSEWORK

CourseDetails:

CourseTitle	:PRINCIPLESOFDIGITALSIG NALPROCESSING(PE-IV)		
CourseCode	:15IT1104	L T P C	: 3 0 0 3
Program:	: B.Tech		
Specialization:	:InformationTechnology		
Semester	:VI		
Prerequisites	:DMS		

CourseOutcomes(COs):

At the end ofthe coursethestudent will be able to

1	Discuss role ofsignals and systems in engineering.
2	Designfilteringmethods based on DFTandFFT.
3	Describedifferentdesignprocedures ofIIRfilters
4	DesignFIRfilters usingwindowingtechniques
5	Identifyapplications of digitalsignalprocessing.

CourseOutcome versusProgramOutcomes:

Course outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3		3		3										
CO2			3	3											
CO3				2											
CO4															
CO5															

S -Stronglycorrelated,M-Moderatelycorrelated,Blank-No correlation

AssessmentMethods:	Assignment/ Quiz /Seminar/ Case Study / Mid-Test / EndExam

Teaching-LearningandEvaluation

Week	Topic/Contents	Course Outcomes	SampleQuestions	Teaching-Learning Strategy	Assessment Method&Sc hedule

1	UNITI:SIGNALSANDSYSTEMS: Introductiontosubject, Basicelements ofDSP, concepts offrequencyin AnalogandDigital Signals	CO1	1. ListbasicelementsofDSP? 2. BrieflyexplainaboutthefrequencyesofAnalogand Digital	=Lecture =Discussion	Assignment-1 Quiz1Mid-1
2	samplingtheorem,Discrete time signals,	CO1	1Explainsamplingtheoremindetail 2.Analyzeandtestthe variousofdiscrete-time linear time invariantdiscretetimesystems.	=Lecture =Discussion	Assignment-1 Quiz1Mid-
3	systems–Analysisof discrete timeLTIsystemsZtransform,Convolution(linearand circular),Correlation.	CO1	1. IllustratewithanexamplediscreateteimeLTIsystems. 2. DiscussaboutCorrelations	=Lecture =Working Examples	Quiz1Mid-1 Assignement-1
4	systems–Analysisof discrete timeLTIsystemsZtransform,Convolution(linearand circular),Correlation cont….	CO1	1Analyzetheroleof Ztransforms 2.Explain convolution theorem		Quiz1Mid-1 Assignement-
5	UNIT-II:FREQUENCYTRANSFORMATIONS: Introduction to DFT,Properties ofDFT,	CO2		=Lecture =Working Examples	Quiz1 -1Mid-1 Assignement-
6	Filteringmethods based on DFTFFT Algorithms,Decimation in timeAlgorithms	CO2	1. DescribeDFTrepresentation 2. ExplainDFTFFTalgorithmwithsuitableexample.	=Lecture =Working Examples	Quiz1Mid-1

7	Decimation, in frequency Algorithms, UseofFFT inLinearFiltering, DCT	CO2	1. DiscusstheuseofFFTinLinearfiltering? 2. AnalyzetheDecimationandinterpolation methods	=Lecture =Working Examples	Quiz1Mid-1
8	UNIT-III:IIRFILTER DESIGN:Structuresof IIR,Analogfilterdesign,Discrete timeIIRfilter fromanalogfilter	CO3	1.DescribethebasicstructuresofIIRfilters 2.ExplainhowtochangediscretetimeIIRfilter from analogfilter	=Lecture =Working Examples	Quiz1Mid-1 Assignment-
8	MIDTEST-1	CO1,co2 andC03			
10	IIRfilter designbyImpulseInvariance,Bilineartransformation	CO3	1.ExplaintheconceptImpulseInvariance,andBilineartransformation	=Lecture =Discussion =Working Examples	Quiz2Mid-2 Assignment-2
11	Approximation ofderivatives(HPF,BPF,BRF),filterdesign using frequencytranslation	CO3	1DistingushbetweenHPF,BPFandBRFfilters	=Discussion =Lecture =Working Examples	Quiz2Mid-2 Assignment-2

12	UNIT-IV:FIRFILTER DESIGN:Structureso f FIR,Linear phaseFIRfilter,Filter design usingwindowing techniques	CO4	1.DefineLinearPhasefilter	=Lecture =Discussion =Working Examples	Quiz2Mid-2 Assignment-2
13	Frequencysampling techniques, Finiteword lengtheffects indigitalFilters	CO4	2. DiscussabouttheFrequencys amplingtechniques 3. Brieflyexplainhowtoeffectfinitew ordlengthindigitalfilter?	=Lecture =Working Examples	Quiz2Mid-2
14	UNIT-V: PPLICATIONS: Multi ratesignalprocessin g,Speechcompressi on	CO5	1. ExplainaboutMultiratesignals 2. Explainhowtouseadaptivefilterinm usicalsound 3. Discussaboutimageenhancementt echniques.	=Lecture =Working Examples	Quiz2Mid-2 Assignment-
15	Adaptive filter,Musical soundprocessing,I mageenhancemen t.	CO5		=Lecture =Working Examples	Quiz2Mid-2 Assignment-
16	MIDTEST-2	Co3,c04, andco5			
19/20	ENDEXAM				