COURSE CODE: **1153EE127**	COURSE TITLE: **SIGNALS AND SYSTEMS**	L	T	P	C
		3	**0**	**0**	**3**

COURSE CATEGORY:

Allied Elective

PREAMBLE :

This course becomes the basis of introducing the students to the concept of signals, systems and its types, also the method of handling the signals by various mathematical tools. This course is designed pedagogically and uncovers the concepts of continuous and discrete time signals and the systems.

PREREQUISITE COURSES:

Engineering Mathematics

COURSE EDUCATIONAL OBJECTIVES:

The objectives of the course are to make the students,

- Introduce signals(Continuous and discrete), systems(Continuous and discrete), its types and operation on signals
- Provide an intuitive understanding of the application of Fourier Series, Fourier Transforms(Including DFT) and Z-transforms
- Show the applications of these mathematical tools in networks

COURSE OUTCOMES :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
C01	Classify the various types of signal and systems and operate on the signals(like shifting ,scaling etc)	K2
C02	Apply Fourier series and Fourier transforms in the analysis of signals	K3
C03	Identify the significance of Laplace Transforms and apply the same to some basic circuits	K3
C04	Understand the concept of sampling	K2
C05	Apply the Z-Transforms technique to DT signal	K2

CORRELATION OF COs AND POs

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2	H							H		M	H	
CO3	H			H				H		M	H	
CO4		M	M	L		M		M		M		
CO5										H		

COURSE CONTENT:

UNIT I	CLASSIFICATION OF SIGNALS AND SYSTEMS	9

Introduction to Continuous and Discrete Time Signals- Continuous to Discrete transformation- sampling-Classifications of Continuous and Discrete time signal-Introduction to Continuous and Discrete Time systems and its Classification- LTI System- Impulse

response		
UNIT II	**FOURIER SERIES ANALYSIS**	**9**
Introduction to Fourier Series-Trigonometric Coefficients- Evaluation of Fourier Coeffificients-Symmetry Conditions – Discrete time Fourier Series-Application of Fourier Series to networks		
UNIT III	**FOURIER TRANSFORMS**	**9**
Representation of Aperiodic signals- Continuous time Fourier Transform-Proper ties of Fourier Transforms-Discrete Time Fourier Transforms¬-Properties of DTFT-Duality- Fourier Series and Transform Pairs		
UNIT IV	**LAPLACE TRANSFORMS**	**9**
Fourier to Laplace and Motivation-Region of Convergence - Properties of Laplace transforms-Inverse Laplace Transforms- Application to Circuits		
UNIT V	**Z- TRANSFORMS**	**9**
Introduction-Region of Convergence- Relation Between s and z Plane- Z-transform Pairs-Application of Z-transforms to Discrete time systems-		
		TOTAL: 45 PERIODS
TEXT BOOKS:		
1. 1. B. P. Lathi, “Principles of Linear Systems and Signals”, Second Edition, Oxford, 2009. 2. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, “Signals and Systems”, Pearson, 2007.		
REFERENCE BOOKS:		
1. R.E.Zeimer, W.H.Tranter and R.D.Fannin, “Signals & Systems - Continuous and Discrete”, Pearson, 2007. 2. John Alan Stuller, “An Introduction to Signals and Systems”, Thomson, 2007. 3. M.J.Roberts, “Signals & Systems Analysis using Transform Methods & MATLAB”, Tata McGraw Hill, 2007.		