VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
ACCREDITED BY NAAC WITH 'A++' GRADE
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Introduction to Signals and Systems

(General Pool: Open Elective - I)

SYLLABUS FOR B.E. III – SEMESTER (CSE, AI&ML & IT branches)

L:T:P (Hrs./week) : 2:0:0	SEE Marks : 60	Course Code: **U23OE320EC**
Credits : 2	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. Define and classify continuous and discrete time signals and systems. 2. Determine frequency domain characteristics of continuous and discrete time signals.	On completion of the course, students will be able to 1. Analyze basic signals and systems in continuous time domain. 2. Apply the properties of Fourier transformation techniques to analyze continuous time domain signals and systems in frequency domain. 3. Apply Laplace Transform, analyze the LTI systems. 4. Analyze basic signals and systems in discrete time domain

CO-PO-PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2												2
CO2	3	3	2												2
CO3	3	3	2												2
CO4	3	2	1												2

UNIT - I

Continuous time signals: types of signals, representation of signals, basic elementary signals, operations on signals.
Continuous time systems: classification of systems - static and dynamic, linear and non linear, time invariant and time variant.

UNIT - II

Continuous time Fourier Series: Introduction, existence, properties, magnitude and phase spectrums
Continuous time Fourier transforms: Introduction, existence, properties, magnitude and phase spectrums.

UNIT – III

Laplace transforms: Introduction, existence, Laplace transform of basic elementary signals, properties, inverse Laplace transforms, Analysis of LTI systems using Laplace Transform.

UNIT - IV

Discrete time signals: types of signals, representation of signals, basic elementary signals, operations on signals.
Discrete time systems: classification of systems - static and dynamic, linear and non linear, time invariant and time variant.

Learning Resources:

1. P. Ramakrishna Rao, Signals and Systems, Mc Graw Hill, 2008.
2. Alan V. Oppenheim, Alan S. Wilsky and S. Hamid Nawab, Signals and Systems, 2nd ed., PHI, 2009.
3. Nagoor kani , Signals and Systems McGraw Hill, 2013
4. https://onlinecourses.nptel.ac.in/noc19_ee07/preview (Principle of Signals and Systems by Prof. Aditya K Jagannatham
5. https://www.edx.org/course/signals-and-systems-part-1-1
6. https://www.edx.org/course/signals-systems-part-2-iitbombayx-ee210-2x-3

The break-up of CIE : Internal Tests + Assignments + Quizzes

1. No. of Internal Tests   :   2   Max. Marks for each Internal Tests : 30
2. No. of Assignments   :   2   Max. Marks for each Assignment : 5
3. No. of Quizzes   :   2   Max. Marks for each Quiz Test : 5

Duration of Internal Tests: 90 Minutes