

COURSE CODE	COURSE TITLE	L	T	P	C
1152AE141	Data Analysis and System Identification	3	0	0	3

Course Category:

Programme Elective

a. Preamble :

This course aims to prepare graduates for system identification.

b. Prerequisite Courses:

Linear system analysis and control

c. Related Courses:

Non linear system analysis

d. Course Educational Objectives :

- To understand the fundamental principles of data gathering
- To provide exposure to basic concepts in system identification

e. 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)
CO1	Explain the concepts of random variables	K2
CO2	Select the suitable estimation theory	K3
CO3	Explain frequency and time domain analysis	K3
CO4	Apply estimation theory for system identification	K3
CO5	Explain filter techniques and its augmentation	K3

f. Correlation of COs with POs:

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

H- High; M-Medium; L-Low

UNIT I Introduction

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1. Introduction to System Identification
2. Application of system identification in aeronautical engineering
3. Introduction to Estimation techniques
4. Flight vehicle modelling
5. Introduction to Flight Test
6. Flight test manures

Text Book:

1. Ravindra V. Jategaonkar, Flight Vehicle System Identification: A Time Domain Methodology, volume 216 progress in astronautics and aeronautics

References:

1. Goodwin, "Dynamic System Identification: Experiment Design and Data Analysis"
Academic Press
2. Minh Q. Phan, Jer-Nan Juang, "Identification and Control of Mechanical Systems"
Cambridge University Press