Course Number: 28586

Course Name: Robust Control

Course Type: Theory	Type & Max Unit: Constant 3
Prerequisite: Nothing	Corequisite: Nothing
Level: Graduate	First Presentation: 1998-1
Group: Applied Mechanics	Last Edition: 2017-2

Objectives:

The main objective of this course is the robust control of multivariable systems in the presence of uncertainties. It covers the mentioned objective through the following topics.

Topics:

1- Introduction
2- Classical Feedback Control
3- Introduction to Multivariable Control
4- Elements of Linear System Theory
5- Limitations on Performance in SISO Systems
6- Limitations on Performance in MIMO Systems
7- Uncertainty & Robustness for SISO Systems
8- Robust Stability & Performance Analysis for MIMO Systems
9- Controller Design by H_∞ method based on μ-synthesis and DK-iteration algorithm
10- Control Structure Design
11- Introduction to LMI Control Approach in Robust Control

References:

- *Multivariable Feedback Control: Analysis and Design*, S. Skogestad, I. Postlethwaite, Wiley, 2005
- *Robust Control Design with Matlab*, D. Gu, P.H. Petkov, M.M. Konstantinov, Springer, 2005
- *Essentials of Robust Control*, K. Zhou, J. C. Doyle, Prentice Hall, 1999