



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Design Of Modern Control Systems and Manufacturing							
Course Code		MME612		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	9	Workload	229 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		It is aim to use design concepts of control systems in a manner of that students are able to carry out an application in real-time problems.							
Course Content		Introduction and basic definitions, dynamic models, linear and classic control, root-locus design, frequency response, state space presentation, linear optimal control, Kalman filter, and design of controller.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Project Based Study, Individual Study					
Name of Lecturer(s)									

Prerequisites & Co-requisites

Language Requisite	Yes
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Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Quiz	4	15
Assignment	5	5
Term Assignment	1	5

Recommended or Required Reading

1	Control Systems Engineering, Second Edition by S. K. Bhattacharya
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Week	Weekly Detailed Course Contents	
1	Theoretical	Giriş ve temel tanımlar
2	Theoretical	Root-locus design method,
3	Theoretical	Modelling of dynamic systems
4	Theoretical	Linear systems and classical control
5	Theoretical	Frequency response design method
6	Theoretical	State-space representation
7	Theoretical	Solving of the state equations
8	Intermediate Exam	Midterm Exam
9	Theoretical	Control system design in state space
10	Theoretical	Linear optimal control
11	Theoretical	Kalman filters,
12	Theoretical	Advanced topics in modern control
13	Theoretical	Design of controller
14	Theoretical	Principles and case study I
15	Theoretical	Case study II
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	5	4	144
Assignment	5	0	3	15
Project	1	15	10	25
Quiz	4	3	1	16



Midterm Examination	1	15	2	17
Final Examination	1	10	2	12
Total Workload (Hours)				229
[Total Workload (Hours) / 25*] = ECTS				9
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To have detailed knowledge on modern control systems
2	To teach mathematical concepts related to control systems
3	To enable to design controllers of control systems
4	To be able to model the control systems
5	To be able to solve control system problems

Programme Outcomes (Mechanical Engineering (English) Doctorate)

1	1. In Mathematics, natural sciences and mechanical engineering, department has the sufficient infrastructure; the ability to use the theoretical and practical information for engineering solutions
2	2. The ability to identify, define, and solve the formula for complex engineering problems; the ability to select and apply for the appropriate analytical methods and modelling techniques
3	3. To meet desired needs of a system, system component, or process, analysing and designing skill under realistic constraints; in this respect, the ability to apply the methods of modern design
4	4. The ability to use and choose modern techniques and tools for required engineering applications and; the ability to use information technology effectively
5	5. The ability to design the experiment, collect the data for the experiment and interpret to analysing results
6	6. The ability to use computer software and hardware information, access to information and other information sources
7	7. The ability to work individually and with multidisciplinary teams effectively, taking responsibility self-confidence for complex situations
8	8. The ability to communicate with foreign colleagues by having high level of foreign language knowledge in the field of engineering
9	9. Monitoring the science and technology developments and the ability to renew itself with innovative ideas constantly
10	10. Professional and ethical responsibility awareness
11	11. Having an adequate information and awareness in the subjects of occupational safety, occupational health, social security rights, quality control and management issues of environmental protection
12	12. The ability to appreciate the effects of engineering solutions and applications in universal and social dimensions
13	13. The ability to be enlightened to the experts or non-expert audience groups on the issues related with engineering problems and solutions written and oral
14	14. The ability to have adequate knowledge and skills in the project development and application, manage the activities planning, including the projects to the employees having the responsibility of the project by increasing vocational awareness

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	3	5	5	5	3
P2	4	4	4	4	4
P3	5	3	3	3	5
P4	3	3	3	3	5
P5	4	4	4	4	4
P6	5	5	5	5	3
P7	3	5	5	5	3
P8	4	4	4	4	4
P9	5	3	3	3	5
P10	5	3	3	3	5
P11	4	4	4	4	4
P12	3	3	5	5	3
P13	3	4	5	5	3
P14	4	5	4	4	4

