TOROS ÜNİVERSİTESİ

Faculty Of Engıneerıng
Electrıcal And Electronıcs Engıneerıng (Englısh)

Course Information

CONTROL THEORY					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
EEE308	Spring	2	2	3	5

Prerequisites and co-requisites	
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Prof. Dr. C . Cengiz ARCASOY
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	The aim of the course is to transfer the basic knowledge required for analysis and design of real-time systems to the students.
Contents of the Course	State Space Formulation, vector spaces, matrix functions, Time of solutions, system stability, observability, controllability, state equations and transfer functions, feedback, feedback stabilizers, Pole placement, observer design, system determination, optimal control.

Learning Outcomes of Course

#	Learning Outcomes
1	They can model the system.
2	They can do matrix operations.
3	They identify the concept of time zone.
4	Identifies the concept of frequency domain.
5	They know the design of the observer.
6	They can design controllers.
7	They can analyze real systems.
8	They can control real systems.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	State Space Formulation	lecture
2	Vector spaces	lecture
3	Matrix functions	lecture
4	Time domain solutions	lecture
5	System stability	lecture
6	Observability	lecture
7	Midterm	
8	Controllability	lecture

9	State equations	lecture
10	Transfer function	lecture
11	Feed back	lecture
12	Feedback balancers	lecture
13	Observer design	lecture
14	System identification	lecture
15	Optimal control	lecture
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Roland Burns, Advanced Control Engineering, Butterworth-Heinemann; (2001).		
2	Bernard Friedland, Advanced Control System Design, Prentice-Hall, Inc.; 1st edition (1996)		

Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	They can model the system.	1	1,2
2	They can do matrix operations.	3	1,2
3	They identify the concept of time zone.	12	1,2
4	Identifies the concept of frequency domain.	10	1,2
5	They know the design of the observer.	1	1,2
6	They can design controllers.	12	1,2
7	They can analyze real systems.	3	1,2
8	They can control real systems.	10	1,2

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	4	56
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	4	56
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	0	0	0
8	Midterm Exam	0	0	0

9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	0	0	0
14	Final Exercise	0	0	0
15	Preparation for Final Exam	0	0	0
16	Final Exam	1	6	6
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