



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Modeling and Simulation in Biosystem Engineering							
Course Code		BSM455		Couse Level		First Cycle (Bachelor's Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To Provide Students Information on Modeling, Analysis and simulation in the Subjects of Engineering Systems.							
Course Content		Modeling Dynamic Systems with Ordinary Differential Equations. Analytical and Numerical Solutions of Differential Equations, Introduction to State Variable Methods of System Analysis. Simulation and Analysis of dynamic system. MATLAB will be used Throughout the Course for Modeling and Numeric Analysis.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	1. Modeling and Analysis of Dynamic Systems. Charles M. Close, D.H. Frederick, J.C. Newell
2	2. Mühendislik Sistemlerinin Modellenmesi ve Dinamiği. Yücel Ercan

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to Engineering System Modeling and Analysis
2	Theoretical	Modeling of Mechanical Systems
3	Theoretical	Modeling of Mechanical Systems
4	Theoretical	Modeling Hydraulic Systems
5	Theoretical	Modeling Hydraulic Systems
6	Theoretical	Analytical and Numerical Solution of System Models
7	Intermediate Exam	Midterm Exam
8	Theoretical	Analytical and Numerical Solution of System Models
9	Theoretical	Analytical and Numerical Solution of System Models
10	Theoretical	Analytical and Numerical Solution of System Models
11	Theoretical	Analytical and Numerical Solution of System Models
12	Theoretical	Analytical and Numerical Solution of System Models
13	Theoretical	Analytical and Numerical Solution of System Models
14	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112
Individual Work	13	0	1	13
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Obtain Mathematical Models of Various Engineering Systems
2	Obtain Analytical Solution for Engineering Systems
3	Obtain Numerical Solution for Dynamic Systems Using MATLAB Software
4	Analyze System Response Using MATLAB Software for This Purpose



