



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Mathematical Modelling							
Course Code		MTE512		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is to have an ability to solve and pose modelling problems and gain knowledge about							
Course Content		Solving and posing problems related to mathematical modelling, preparing modelling activities related to national mathematics program.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	70

### Recommended or Required Reading

1	Altun, M. (2002). İlköğretim ikinci kademedede (6, 7 ve 8. sınıflarda) matematik öğretimi. Alfa Basım Yayım Dağıtım, İstanbul
2	Baki, A. (2006). Kuramdan uygulamaya matematik eğitimi. Derya Kitabevi
3	Erbaş, A. K., Çetinkaya, B. (2016). Lise Matematik Konuları İçin Günlük Hayattan Modelleme Soruları. TÜBA, Ankara
4	Altun, M. (2015). Efemat 5- 6 Matematik Uygulamaları, Sıradışı Problemler, Matematik Okuryazarlığı soruları, Alfa Aktüel Yayıncılık, İstanbul
5	Altun, M. (2015). Efemat 7- 8 Matematik Uygulamaları, Sıradışı Problemler, Matematik Okuryazarlığı soruları, Alfa Aktüel Yayıncılık, İstanbul
6	Lesh, R. A., & Doerr, H. (2002). Beyond constructivism: A models and modelling perspective on teaching, learning, and problem solving in mathematics education, Routledge: NY

Week	Weekly Detailed Course Contents	
1	Theoretical	What is mathematical modelling?
2	Theoretical	What is mathematical modelling ability/competency?
3	Theoretical	What is the factors effect on modelling competency?
4	Theoretical	The epistemological and pedagogical structure of modelling
5	Theoretical	Solving mathematical modelling problems
6	Theoretical	Solving mathematical modelling problems
7	Theoretical	Solving mathematical modelling problems
8	Intermediate Exam	Midterm
9	Theoretical	Solving mathematical modelling problems
10	Theoretical	Designing activities for teaching mathematical concepts and relations
11	Theoretical	Designing activities for teaching mathematical concepts and relations
12	Theoretical	Designing activities for teaching mathematical concepts and relations
13	Theoretical	Designing modelling activities related to the subjects in national mathematics curriculum
14	Theoretical	Designing modelling activities related to the subjects in national mathematics curriculum
15	Theoretical	Designing modelling activities related to the subjects in national mathematics curriculum
16	Final Exam	Final Exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112
Midterm Examination	1	38	2	40



Final Examination	1	46	2	48
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = <b>ECTS</b>				8
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	To gain knowledge about mathematical modelling
2	To solve problems related to mathematical modelling
3	To pose problems related to mathematical modelling
4	To learn how to teach mathematical modelling problems
5	To design a research on mathematical modeling

### Programme Outcomes (*Mathematics Education Master*)

1	Learns sufficient theoretical knowledge in the field of mathematics education
2	Uses theoretical knowledge in educational settings
3	Integrates mathematics education knowledge with the other disciplines and products functional knowledge
4	Uses information and communication technologies efficiently in conceptual learning
5	Finds scientific solutions to the problems in the field of mathematics education
6	Evaluates the knowledge critically in the field
7	Participates team projects in the mathematics education field
8	Shares national and international data in the field of mathematics education
9	Comprehends and evaluates science-technology-society and mathematics interactions
10	Comprehends mathematics under the ethical values and takes account of ethical considerations
11	Follows the current development in the mathematics education field
12	Develops strategical plans and evaluates them in the context of quality processes
13	Adopts lifelong learning strategies to his/her studies

### 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	5	5	5	5	4
P2	5	5	5	5	4
P3	4	4	4	4	5
P4	4	4	4	4	4
P5					4
P6	5	5	5	5	5
P7	3	3	3	3	5
P8	3	3	3	3	4
P9	4	4	4	4	4
P10					4
P11	5	5	5	5	5
P12					4
P13	3	3	3	3	3

