Course Syllabus

Code - Course Title	**MAT445 - Problem Solving and Modeling in Mathematics Teaching**
Course Type	VII. SEMESTER
Laboratory + Practice	3+0
ECTS	**5.0**
Language of Instruction	Türkçe
Course Type	Required Courses
Course Instructor(s)	PROF. DR. HÜSEYİN BAHADIR YANIK, PROF. DR. TUBA ADA

Mode of Delivery	Face to face
Prerequisites	No prerequisites and co-requisites
Courses Recomended	None
Recommended Resources	Matematik Eğitiminde Matematiksel Modelleme, Editör: Prof. Dr. Esra Bukova Güzel
Work Placement	in-class problem-solving practices

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Introduction to Problem Solving	
Week - 2		Problem and Types of Problems	
Week - 3		Cognitively Demanding Tasks	
Week - 4		Problem and Reasoning; Problem and Mathematical Literacy	
Week - 5		Problem Solving Approaches; Problem Solving Strategies	
Week - 6		Problem-Based Instruction: Sample applications, Evaluation in problem-based teaching	
Week - 7		Examination	
Week - 8		Introduction to Modeling: Fundamentals of modelling in mathematics education, Learning and modelling	
Week - 9		Introduction to Modeling: Modeling in traditional mathematics education, Modeling in different learning and teaching approaches	
Week - 10		Analysis of Model Eliciting Activities	
Week - 11		Model Development Stages	
Week - 12		Designing Model Eliciting Tasks	
Week - 13		Modeling Process; Modelling-based Instruction	

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 14		Final Examination	

Learning Outcomes

#	Learning Outcome
1	Explains problem and non-problem situations
2	Explains the role and importance of problem solving in mathematics education
3	Explains and compares types of problems
4	Classifies cognitively demanding tasks
5	Explains and compares problem-based teaching approaches.
6	Recognizes and uses problem solving strategies
7	Explains and applies the problem solving process
8	Design a problem-based lesson plan
9	Explains models and modeling approach.
10	Compares traditional problem solving and modeling approach.
11	Explains model development stages.
12	Explains the characteristics of model-eliciting tasks.
13	Designs model-eliciting tasks.

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	30
Final Exam	1	40
Homework	1	30
	Sum (%)	**100**