MODELING IN MATHEMATICS TEACHING

1	Course Title:	MODELING IN MATHEMATICS TEACHING	
2	Course Code:	İMÖ4004	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	8	
7	ECTS Credits Allocated:	4.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Dr. Ögr. Üyesi BAHTİYAR BAYRAKTAR	
15	Course Lecturers:	Y.Doç.Dr. Bahtiyar Bayraktar	
16	Contact information of the Course Coordinator:	E-mail: bbayraktar@uludag.edu.tr, İş Tel: +90(224) 294 22 98. Adres: UÜ, Eğitim Fakültesi, İlköğretim Bölümü, Matematik Eğitimi Anabilim Dalı, 16059 Görükle / BURSA	
17	Website:		
18	Objective of the Course:	Know the bases of algorithm concept and apply it in computer environment. To produce the algorithms of applications in mathematics courses. To understand the basics of software languages.	
19	Contribution of the Course to Professional Development:	Creates and develops the knowledge base of the prospective teacher. Comprehends the concepts related to the field and the relations between concepts based on the competencies gained in secondary education. Have defines and analyzes problems related to his field, and develops solutions based on evidence and research.	
20	Learning Outcomes:		
		1	To be able to analyze the problem in terms of establishing a mathematical model.
		2	To be able to create a mathematical model of some problems in our daily life and to apply solution methods.
		3	Simple linear mat. Be able to create models
		4	To be able to introduce the concept of Algorithm and Algorithm. Know the features that should be in the algorithm.
		5	To be able to draw the flow diagram and know how to test the algorithm.
		6	To be able to develop algorithms software on arrays and matrices
		7	To be able to produce algorithms and software of numerical methods he / she has seen in mathematics courses.
		8	
		9	

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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Modeling concept. Model types and classification.	
2	Model types and classification. Classification of mathematical models. Principles of creating a mathematical model.	
3	Principles of creating a mathematical model. Linear mathematical model. Business problems and mathematical model. A mathematical model of an enterprise.	
4	A mathematical model of an enterprise. Analysis of linear mathematical models. Examples.	
5	A mathematical model of an enterprise. Analysis of linear mathematical models. Examples.	
6	Examples. Nonlinear mathematical models and solution methods.	
7	Nonlinear mathematical models and solution methods. Sample mathematical models and solution methods.	
8	algorithm. Features that should be in the algorithm. Algorithm design.	
9	Flowchart diagrams and basic structures of algorithms Complex algorithms and functions.	
10	Algorithm applications. Software languages. The structure of a	
11	expressions, rules, appearance). Software Applications.	
12	Software Applications. Algorithms and software on arrays and matrices.	
13	Algorithms and software on arrays and matrices. Approximate solution of nonlinear equations (Algebra, Simple iteration and Newton method (tangent method) algorithms and software.	
14	Algorithms and software on arrays and matrices. Approximate solution of nonlinear equations (Algebra, Simple iteration and Newton method (tangent method) algorithms and software.	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	10	3.00	30.00
Homeworks	4	5.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm Exams	1	20.00	20.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			138.00
Total work load/ 30 hr			3.93
ECTS Credit of the Course			4.00

22	Textbooks, References and/or Other Materials:	1. http://www.matematiktutkusu.com/forum/matematik-ogretmenleri-dokumanlari/112-matematik-ogretiminde-modelleme-matematiksel-modelleme-nedir.html 2. http://www.bilkent.edu.tr/~kadiri/mat/mat.donem.odev/aykutaydin.matematiksekmodelleme.pdf 3. http://web.firat.edu.tr/kimmuh/eskiweb/kimya/model.htm 4. http://www.hakankör.com.tr/Algoritma.pdf 5. Genel Matematik. Editör Prof. Dr. Orban ÖZER 6. Prof. Dr. Ahmet A. KARADENİZ Yüksek Matematik. Cilt 1, 2. 4. Baskı, 1985. 7. Ders notları.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Techniques such as lecture, discussion, question-answer, 3E are used in the teaching of the course. Midterm and final exams are taken into consideration in the measurement and evaluation of the course.

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	4	3	3	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**