AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Concepts and Misconceptions in Mathematics Education								
Course Code	MTE510		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	At the end of the course the students will be able to gain knowledge about the mathematical concepts in mathematics curriculum and students' misconceptions about these mathematical concepts.								
Course Content	Mathematical concepts. Epistemological, psychological and didactic reasons of misconceptions. Misconceptions and student errors. Reasons of misconceptions. Misconceptions on numbers, misconceptions on algebra, misconceptions on measurement, misconceptions on ratio and proportion, misconceptions on probability, geometric concepts and misconceptions, misconceptions on reading and interpreting graphs								
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	40
Final Examination	1	60

Recommended or Required Reading	
1	Zembat, İ. Ö., Özmantar, M. F., Bingölbali, E., Şandır, H. Ve Delice, A. (2015). Tanımları ve Tarihsel Gelişimleriyle Matematiksel Kavramlar, Ankara: Pegem Akademi
2	Özmantar, M. F., Bingölbali, E. ve Akkoç, H. (2013) Matematiksel Kavram Yanılgıları ve Çözüm Önerileri, Ankara: Pegem Akademi

Week	Weekly Detailed Course Contents	
1	Theoretical	Mathematical Concepts
2	Theoretical	Epistemological, psychological and didactic reasons of misconceptions
3	Theoretical	Misconceptions on numbers
4	Theoretical	Misconceptions on operations with numbers
5	Theoretical	Misconceptions on fractions
6	Theoretical	Misconceptions on operations with fractions
7	Theoretical	Misconceptions on ratio and proportion
8	Intermediate Exam	Midterm
9	Theoretical	Misconceptions on probability
10	Theoretical	Geometric concepts and misconceptions
11	Theoretical	Misconceptions on reading and interpreting graphs
12	Theoretical	Misconceptions on measurement
13	Theoretical	Misconceptions on functions
14	Theoretical	Solutions for misconceptions
15	Theoretical	Using technology in mathematics education for conceptual understanding
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*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To explain the meaning of mathematical concepts
2	To explain the misconceptions about the mathematical concepts
3	To develop solutions about misconceptions
4	To determine the source of mathematical misconceptions
5	To design a research on mathematical misconceptions

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	4	4
P2	4	4	4	4	4
P3	4	4	4	4	4
P4				3	3
P5				3	3
P6	4	4	4	4	4
P7				3	3
P8				2	2
P9	3	3	3	4	4
P10	3	3	3	3	3
P11	5	5	5	5	5
P12				3	3
P13	3	3	3	3	3