



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Test Development in Mathematics Education							
Course Code		MTE516		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Teaching of basic terms and concepts about measurement and evaluation used in mathematics education, alternative measurement methods, and basic terms and concepts as reliability, validity, item and test parameters, development of a non-physiological test used in mathematics education							
Course Content		Basic terms and concepts about measurement and evaluation, measurement tools used in mathematics education, test development and its steps, development and implementation of test, evaluating of application results, item and test parameters, item and test parameters, reliability, validity and affecting factors, chance success							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study					
Name of Lecturer(s)									

### Assessment Methods and Criteria

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

### Recommended or Required Reading

1	Baykul, Y. (2000). Eğitimde ve Psikolojide Ölçme: Klasik Test Teorisi ve Uygulaması. Ankara: ÖSYM Yayınları
2	Kutlu, Ö., Doğan, C.D. & Karakaya İ. (2009). Öğrenci Başarısının Belirlenmesi: Performansa ve Portfolyoya Dayalı Durum Belirleme, İkinci Baskı. Ankara: Pegem Akademi
3	DeVellis, R.F. (2003). Scale Development Theory and Applications, Second Edition. California, USA: Sage Publications Inc
4	Haladyna, T.M. (1997) Writing Test Items to Evaluate Higher Order Thinking. USA: Allyn & Bacon Inc
5	McDonald, R.P. (1999). Test Theory. New Jersey, London: Lawrence Erlbaum Associates Inc

Week	Weekly Detailed Course Contents	
1	Theoretical	Teaching of basic terms and concepts about measurement and evaluation (measurement, evaluation, unit and scale)
2	Theoretical	Evaluations types and measurement tools in mathematics education
3	Theoretical	Basic terms and definitions (test, test development, test development steps), determining the aim of test, determining the content of test
4	Theoretical	Writing of items
5	Theoretical	Writing of items, reviewing of items
6	Theoretical	Preparing of pilot form, piloting
7	Theoretical	Evaluating and scoring of pilot version
8	Intermediate Exam	Midterm
9	Theoretical	Item analysis, item parameters (item difficulty, item variance standard deviation, item skewness and kurtosis, item discrimination, item reliability coefficient)
10	Theoretical	Item selection
11	Theoretical	Final version of test, test parameters (mean, mean of difficulty, test variance, test skewness and kurtosis)
12	Theoretical	Performance evaluation and portfolio, rubric
13	Theoretical	Validity and reliability
14	Theoretical	Validity and reliability
15	Theoretical	Validity and reliability
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	Explain the basic concepts related to the measurement and evaluation
2	Explain the steps of test development
3	Calculate the item and test parameters
4	Explain reliability and validity
5	Develop a valid and reliable test

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

