



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Applications of Mathematica in Mathematics Education							
Course Code		MTK565		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		MATHEMATICA is used by scientists and engineers in disciplines ranging from astronomy to zoology; typical applications include computational number theory, ecosystem modeling, financial derivatives pricing, quantum computation, statistical analysis, and hundreds more.							
Course Content		Introduction to MATHEMATICA, Simple calculations for different subjects, multivariable calculus and linear algebra with mathematica							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading

1	http://www.wolfram.com
2	The Student's Introduction to Mathematica : A Handbook for Precalculus, Calculus, and Linear Algebra (Paperback), B. F. Torrence, Eve. A. Torrence, Camb. Univ. Press, 1999.S
3	The Mathematica book, 3rd Edition, S, Wolfram, Camb. Univ. Press, 1999
4	http://www.wolframalpha.com

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to MATHEMATICA
2	Theoretical	Common errors and suggestions
3	Theoretical	MATHEMATICA commands
4	Theoretical	Application of MATHEMATICA
5	Theoretical	Simple calculations for different subjects
6	Theoretical	Plotting functions
7	Theoretical	Combining two or more plots
8	Theoretical	Project I
9	Theoretical	Algebra, Calculus
10	Intermediate Exam	Midterm Exam
11	Theoretical	Multivariable calculus and linear algebra with mathematica
12	Theoretical	Derivatives and integrals
13	Theoretical	Special functions with MATHEMATICA
14	Theoretical	Programming with MATHEMATICA
15	Theoretical	MATHEMATICA in various subjects
16	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42



Final Examination	1	50	2	52
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To be able to acquire MATHEMATICA commands
2	To be able to solve various equations
3	To be able to write programming with MATHEMATICA
4	To be able to gain Derivatives and integrals
5	To be able to use concepts in solving certain types of problems

Programme Outcomes (Mathematics Master)

1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary 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	3	4	4	4	4
P2	3	4	4		
P3	3	4	4	4	4
P4	3	4	4		
P5		4	4		
P7		4	4		
P12	3			5	5
P15	4	4	4	3	

