



## ESOGÜ Mathematics and Computer Sciences COURSE INFORMATION FORM

<b>SEMESTER</b>	Fall
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<b>COURSE CODE</b>	821615003	<b>COURSE NAME</b>	Symbolic Computations I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Labratory	Credit	ECTS	TYPE	LANGUAGE
5	3	0	0	3	5	COMPULSORY ( x ) ELECTIVE ( )	Turkish

### COURSE CATAGORY

<b>Mathematics</b>	<b>Computer</b>	<b>Social Science</b>
	x	

### ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	<b>MID-TERM</b>	1st Mid-Term	1
2nd Mid-Term			
Quiz			
Homework			
Project			
Report			
Others (.....)			
<b>FINAL EXAM</b>		1	50

<b>PREREQUIEITE(S)</b>	None.
<b>COURSE DESCRIPTION</b>	Getting started, Maple as Calculator, High School Algebra, Data types, Calculus, Graphics, Differential equations, Linear Algebra, Multivariable and Vector Calculus, Maple Programming.
<b>COURSE OBJECTIVES</b>	The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of mathematical problems.
<b>ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION</b>	Gain the ability of problem solution by using Maple programming.
<b>COURSE OUTCOMES</b>	Gain sufficient knowledge of Mathematics subject such as Calculus, Linerar Algebra, Differential equations etc.
<b>TEXTBOOK</b>	The Maple Book, Frank Garvan.
<b>OTHER REFERENCES</b>	1) Maple by example , Martha I. Abell and James B. Braselton. 2) Maple lecture notes on internet.
<b>TOOLS AND EQUIPMENTS REQUIRED</b>	Computers and Maple software.

## COURSE SYLLABUS

WEEK	TOPICS
1	Getting Started, Maple as Calculator
2	Polynomials and rational functions, Equations, fun with integers
3	Unit conversion, Trigonometry, Data Types
4	Defining functions, Limits,
5	Differentiation, Extrema, Integration, Graphics
6	Differential Equations, Linear Algebra
7	Problem solving
8	Midterm
9	Conditional statements
10	For loop, While loop
11	Problem solving
12	Maple procedures, Local and global variables
13	Problem solving
14	Multivariable and Vector Calculus
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	The ability to apply knowledges of Mathematics and Computer Sciences,	X		
2	To have sufficient theoretical and practical knowledge of Mathematics at international level,	X		
3	The ability of describing, modelling and solving of mathematical problems at Mathematics and related subjects,	X		
4	The skill to solve and design a problem process in accordance with a defined target,	X		
5	Skills to analyze data, interpret and apply to other datum and using these data on computer,	X		
6	The skill to use the modern techniques and computational tools needed for mathematical applications,	X		
7	The skill to make team work within the discipline and interdisciplinary,			X
8	The ability to improve oneself by following the developments on other modern, scientific and technological subjects as well as Mathematics and Computer Sciences,		X	
9	The skill to communicate orally and in written way, in a clear and concise manner by having individual work skills and ability to independently decide and analytical thinking,		X	
10	The skill to have professional and ethical responsibility,		X	
11	The skill to have consciousness for quality issues and scientific research,		X	
12	The skill to be sensitive to environmental issues related with problems and development of living area and consistent in the social relations,			X
13	Ability to solve problems in the working life faced to find an appropriate algorithms via mathematical modeling and to write computer programs,	X		
14	The skill to developed design of software systems at different complex levels,	X		
15	The credence of necessity of life-long learning and ability to apply the formation long-life learning.		X	

1:None. 2:Partially contribution. 3: Completely contribution.

**Instructor(s):** Assoc. Prof. Ahmet Faruk ASLAN

**Signature:**

**Date:**