



ESOGÜ MATHEMATICS AND COMPUTER SCIENCES DEPARTMENT COURSE INFORMATION FORM

SEMESTER	SPRING
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COURSE CODE	821614003	COURSE NAME	Mathematical Physics
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Labratory	Credit	ECTS	TYPE	LANGUAG E
3	3	0		3	5	COMPULSORY () ELECTIVE (X)	TURKISH

COURSE CATAGORY

Mathematics	Computer		Social Science
X			

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	MID-TERM	1st Mid-Term	1
2nd Mid-Term			
Quiz			
Homework			
Project			
Report			
Others (.....)			
FINAL EXAM		1	60
PREREQUIEITE(S)	None		
COURSE DESCRIPTION	Vectors, velocity, acceleration, work, energy, momentum, Newton's Laws of motion, Lagrange and Hamilton equations of motion.		
COURSE OBJECTIVES	It is to give solution of physical problems .		
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Gain the ability of problem solution.		
COURSE OUTCOMES	Mathematical solutions of physical problems		
TEXTBOOK	Theory and problems of theoretical mechanics, Murray R. Spiegel		
OTHER REFERENCES	11-Mathematical methods for physicist, Arfken & Weber		
TOOLS AND EQUIPMENTS REQUIRED	None		

COURSE SYLLABUS	
WEEK	TOPICS
1	Basic definitions and terminology of vectors
2	Axiomatic foundations of mechanic
3	<i>Rotation of the Coordinate Axes</i>
4	<i>Scalar or Dot Product, Vector or Cross Product</i>
5	<i>Triple Scalar Product, Triple Vector Product</i>
6	<i>Gradient, ∇ .</i>
7	<i>Divergence, ∇</i>
8	Midterm
9	<i>Curl, $\nabla \times$, Successive Applications of ∇</i>
10	Newton's Laws of Motion
11	Work, energy, momentum
12	Lagrange equations of motion
13	Hamilton equations of motion
14	General review for exam preparation
15,16	Final exam.

NO	Preparation for Final Examination	3	2	1
1	The ability to apply knowledges of Mathematics - Computer,	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 - Computer,	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. Dr. Sait SAN

Signature:

Date: