

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING **COURSE INFORMATION**

Course Details									
Code						ear	Semester		
PHY 103							1		
Title	Т	Α	L	ECTS					
Modern Physics				3	1	1	6		
Language	German	German							
Level	Undergraduate	х	Graduate		F	Postgra	duate		
Department / Program	Electrical and Electr	onics Engine	eering						
Forms of Teaching and Learning	Face to face								
Course Type	Compulsory		х	Ele	ctive				
Objectives	To present the stud	ents fundam	nentals of mod	ern physic	s.				
Content	Oscillations, waves, mechanics	Oscillations, waves, interference and diffraction, special theory of relativity, quantum mechanics							
Prerequisites	-								
Coordinator	-								
Lecturer(s)	Asst. Prof. A. Kazım Çamlıbel								
Assistant(s)	Salih Nişancı, Cihan Katar								
Work Placement	-								
Recommended or Required Reading									
Books / Lecture Notes	- Physik: Lehr- und Übungsbuch, Douglas C. Giancoli, 2019 - Halliday Physik, David Halliday, Robert Resnick, Jearl Walker, 2017								
Other Sources	-								
Additional Course Material									
Documents	-								
Assignments	5 laboratory reports								
Exams	1 midterm exam, 1 final exam								
Course Composition									
Mathematics und Basic Sciences	50%								
Engineering	10%								
Engineering Design							%		
Social Sciences							%		
Educational Sciences							%		
Natural Sciences	40%								



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Health Sciences		%					
Expert Knowledge		%					
Assessment							
Activity	Cou	nt	Percentage (%)				
Midterm Exam	1	30					
Quiz							
Assignments	5	20					
Attendance							
Recitations							
Projects							
Final Exam	1	50					
		Total	100				
ECTS Points and Work Load							
Activity	Count	Duration	Work Load (Hours)				
Lectures	14	3	42				
Self-Study	14	4	56				

Assignments	5	4	20
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14 1		14
Laboratory	5	6	30
Projects			
Final Exam	2		
	166		
	6		

ECTS Points (Total Work Load / Hour)

Learning Outco	omes			
1	Students learn the main concepts in modern physics.			
2	Students learn the main laws in modern physics.			
3	Students can solve complicated problems.			
4	Students can conduct fundamental experiments of modern physics and report their results.			
5				
6				
7				
8				



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9	
10	
11	
12	
Weekly Conte	int
1	Introduction to modern physics
2	Oscillations
3	Waves and wave propagation
4	Sound waves
5	Kinetic theory of gases
6	Ray optics: reflection and refraction
7	Wave nature of light; interference
8	Diffraction und polarization
9	Midterm exam
10	Special theory of relativity
11	Special theory of relativity: energy and mass
12	Early quantum theory and atom models
13	Quantum mechanics
14	Atoms, molecules and solids
15	Nuclear physics and elementary particles

Contribution of Learning Outcomes to Program Objectives (1-5)												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	5											
2	5											
3		5										
4			5									
5												
6												
7												
8												
9												
10												
11												
12												



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COURSE INFORMATION

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High					
Compiled by:	Asst. Prof. A. Kazım Çamlıbel					
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