Course Information								
Course Code	**T**	**P**	**L**	**C**	**ECTS**	**Type** C/E	**Language** TR/ENG etc.	**Year/Semester**
FİZ2009	**3**	**0**	**0**	**3**	**5**	**E**	**TR**	**2/FALL**
Course Name (Turkish**)**	**Fizikte Deneysel Teknikler**							
Course Name (English**)**	**Experimental Techniques in Physics**							

Unit/Program	Physics Department/Undergraduate Program
Course Prerequisite	No
Course Objectives	To be able to explain basic information about experimental techniques in physics
Course Outline	Sample Preparation Methods, Crystal Growth Techniques, Properties of Solids at Low Temperatures, Measurement of properties of solids at low temperatures
Textbook/ Material / Resources	Methods of Experımental Physıcs: L. Marton, Editor-in-Chief, Claire Marton, Assistant Editor
Internship Status	No

Course Precedents

University Name	**Program Name**	**Course Name**	**T-P-L-C; ECTS**	**Type**
Gebze Technical University	**Physics**	**Experimental Techniques in Physics**	**3-0-0-3; 5**	**E**
Izmir University of Economics	**Physics**	**Experimental Methods in Physics**	**2-2-0-3; 5**	**E**

The instructor who proposed the course (Title, Name and Surname)	*Signature*
Instructors who can teach the course (Title, Name and Surname)	*Signature*

Academic justification for the opening of the course? (The effect of course outcomes on program outcomes, etc.)

Brief explanation of the course (theoretical lecture, applications, laboratory, studio, off-campus activity, using software, etc.)

Face-to-face courses will be taught under the supervision of the relevant faculty member.

External Stakeholder Opinions About the Course (It is expected that the opinions to be obtained from the business world that will employ your graduates or from real or legal persons outside the University who have expertise on the subject of the course will be specified. Proof documents must be attached to this form.)

Stakeholder Name	**Opinion** (It should be given as a summary, it should not exceed two lines.)

Weekly Course Content Distribution		
Week	**Theory**	**Application/Laboratory**
1	Sample Preparation Methods,	
2	Crystal Enlargement Techniques,	
3	Cryofluids,	
4	Properties of solids at low temperatures	
5	Heat Transfer and Thermal Insulation	
6	Cooling below 0.3 K	
7	Cryogenic Devices, Vacuum Systems	
8	Measuring the properties of solids at low temperatures	
9	Midterm Exam	
10	Infrared Spectroscopy,	
11	Electrical Conductivity Measurements (AC and DC),	
12	Xrd Technique,	
13	Thermal analysis methods (DTA, TGA and DSC),	
14	Electron Microscopy (SEM and TEM)	
15	Final Exam	
16		

Assessment			
Evaluation Criteria	**Activity**	**Custom**	**Contribution to Success Grade (%)**
	Midterm Exams	1	40
	Quizzes		
	Assignments		
	Projects		
	Term Paper		
	Laboratory		
	Other		
	Final Exam	1	60
		Sum:	100
Remarks			

Content Design and Subject Weight (%)	Mathematics and Basic Sciences	60
	Engineering Sciences	40
	Social Sciences	
	Health Sciences	
	Educational Sciences	
	Culture and Art Sciences	
	Design Information	

Workload (ECTS) Calculation			
Events	**Number**	**Duration (Hours)**	**Total workload (Hours)**
Fieldwork			
Midterm Exam Application	1	2	2
Self-Study (including pre-class and exam preparation)	14	2	28
Make-up Exam	1	2	2
Experiment and Observation			
Class Participation (Theory)	14	3	42
Homework			
Final Exam Practice	1	2	2
Laboratory			
Article Review			
Writing an Article			
Reading			
Case Study			
Performance			
Problem Solution			
Project Preparation			
Project Submission			
Quiz			
Report Preparation			
Submitting Reports			
Role/Drama Work			
Seminar			
Oral Exam			
Team/Group Work	12	3	36
Argument	14	1	14
Application/Practice			
Other			
TOTAL WORKLOAD:			**126**
ECTS CREDİTS OF THE COURSE: *(The number obtained as a result of Total Workload/25 is calculated by rounding to the whole number.)*			**5**

	Program Outcomes (PO) / **Learning Outcomes (LO)** *(Course Outcomes)*	1	2	3	4	5	6	7	8	9	10	11
1	To be able to define different experimental techniques	**5**	**5**	**5**	**4**	**3**	**3**	**4**	**5**	**5**	**3**	**3**
2	To be able to select and apply appropriate experimental methods	**5**	**5**	**5**	**4**	**3**	**3**	**4**	**5**	**5**	**3**	**3**
3	To be able to design physics experiments and analyze experimental data	**5**	**5**	**5**	**4**	**3**	**3**	**4**	**5**	**5**	**3**	**3**

Organizer: Assoc. Prof. Dr. Köksal YILDIZ
Preparation Date: 20.05.2024