Course Information

Course Code	T	P	L	C	ECTS	Type C/E	Language TR/ENG etc.	Year/Semester
FİZ4012	3	0	0	3	5	E	TR	4/SPRING

Course Name (Turkish)	Manyetik Katılar
Course Name (English)	Magnetic Solids

Unit/Program	Physics Department/Undergraduate Program
Course Prerequisite	No
Course Objectives	To provide students with basic knowledge about magnetic fields
Course Outline	Formation of Magnetic Field, Behavior of charged particle in magnetic field, Magnetic property of materials, Magnetic Resonance (NMR)
Textbook/ Material / Resources	The Magnetic Properties of Solids (The Structures and Properties of Solids, 6, 1977
Internship Status	No

Course Precedents

University Name	Program Name	Course Name	T-P-L-C; ECTS	Type

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	Formation of the Magnetic Field	
2	Charged Particle in a Magnetic Field	
3	Conductor in a Magnetic Field	
4	Atomic Theory of Magnetism	
5	Diamagnetism, Diamagnetism of Electron Gas	
6	Paramagnetism, Dependence of Paramagnetism on Temperature	
7	Paramagnetism of Electron Gas, Quantum Theory of Paramagnetism	
8	Paramagnetism Susceptibility of Conduction Electrons	
9	Midterm Exam	
10	Curi Temperature, Mangons, Magnetic Domains, Magnetocrystalline Energy	
11	Nükleer Magnetic Resonance (NMR)	
12	Equations of Motion	
13	Line Width, Ferromagnetic Resonance	
14	Knight Shift	
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	100
	Engineering Sciences	
	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	Learns the formation of magnetic fields and their applications in technology	5	5	5	4	3	3	4	5	5	1	1
2	Learns how the magnetic property of materials is formed	5	5	5	4	3	3	4	5	5	1	1
3	Comprehend the atomic theory of magnetism	5	5	5	4	3	3	4	5	5	1	1

Organizer: Prof. Dr. Mediha KÖK
Preparation Date: 20.05.2024