

Course Information								
Course Code	T	P	L	C	ECTS	Type C/E	Language TR/ENG etc.	Year/Semester
FİZ4033	3	0	0	3	5	E	TR	4/FALL
Course Name (Turkish)	Radyasyon Tekniği							
Course Name (English)	Radiation Technique							

Unit/Program	Physics Department/Undergraduate Program
Course Prerequisite	No
Course Objectives	Providing students with basic radiation technique information
Course Outline	Types of radiation, Interaction of radiation with matter, Detection of radiation, Statistical analysis of radiation
Textbook/ Material / Resources	1. G.F Knoll Radiation Detection and Measurement, 3rd edition, 2000, Jhon Wiley and Sons Inc. 2. Tsoulfanidis, N., Landsberger, S., Measurement and Detection of Radiation, 3rd Edition, 2011,CRC Press
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	Quantum fundamentals, Radiation sources, Alpha, Beta, Gamma radiations	
2	Interaction of radiation with matter	
3	Neutron sources, Radiation measurement methods and devices	
4	Geiger counters, Proportional counters, Scintillation counters, Photomultiplier tubes	
5	The latest innovations and new technologies in measuring instruments	
6	Radiation detectors (ion chambers, proportional counters, Geiger Mueller detectors, Inorganic and organic scintillation detectors, semiconductor radiation detectors	
7	Radiation detectors (ion chambers, proportional counters, Geiger Mueller detectors, Inorganic and organic scintillation detectors, semiconductor radiation detectors	
8	General characteristics of radiation detectors	
9	Midterm Exam	
10	Pulse processing and shaping	
11	Statistical models and error analysis in radiation detection	
12	Statistical models and error analysis in radiation detection	
13	Radiation spectrometer in scintillators	
14	Electronic components used in gamma counting components	
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 CREDITS 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)										
		1	2	3	4	5	6	7	8	9	10	11
Learning Outcomes (LO) (Course Outcomes)												
1	By learning the types of radiation, they become aware of radiation protection	5	5	5	4	3	3	4	5	5	3	3
2	Knows the applications of radiation in technology, its effects in diagnosis and treatment	5	5	5	4	3	3	4	5	5	3	3
3	Have knowledge about radiation measurement systems and detectors	5	5	5	4	3	3	4	5	5	3	3

Organizer: Assist. U.S. Seçil NİKSARLIOĞLU

Preparation Date: 20.05.2024