

Fizik Bölümü / PHYSICS /						
Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4026	Methods of Radiation Measurements	2.00	2.00	0.00	3.00	7.00
Course Detail						
<b>Course Language</b>	: Turkish					
<b>Qualification Degree</b>	: Bachelor					
<b>Course Type</b>	: Optional					
<b>Preconditions</b>	: Not					
<b>Objectives of the Course</b>	: The aim of course is to teach the basic principles of radiation detection and measurement.					
<b>Course Contents</b>	: Introduction to radiation measurements, Statistical error of radiation counting, Review of atomic and nuclear physics, Review of atomic and nuclear physics, Energy loss and penetration of radiation through matter, Energy loss and penetration of radiation through matter , Gas-filled detectors, Scintillation detectors, Semiconductors detectors, Relative and absolute measurements, Electronics, Data analysis methods, Neutron detection, Health physics Fundamentals.					
<b>Recommended or Required Reading</b>	: Measurement and detection of radiation; Nicholas Tsoulfanidis, Taylor&Francis, Second Edition, 1983. Radiation Detection and Measurement; Glenn F. Knoll, Wiley; 3 edition, 2000 Radiation Dosimetry: Instrumentation and Methods, Second Edition; Gad Shani, CRC Press; 2000					
<b>Planned Learning Activities and Teaching Methods</b>	: Oral lecture, questions-answers, homework.					
<b>Recommended Optional Programme Components</b>	: --					
<b>Instructors</b>	: Prof. Dr. Emine Dilara Atalay					
<b>Instructor's Assistants</b>	: --					
<b>Presentation Of Course</b>	: Face to face					

Course Outcomes	
<b>Upon the completion of this course a student :</b>	
1	To comprehend the properties of ionizing radiation.
2	To comprehend the interactions of charged particulate and uncharged radiations with matter.
3	To determine the detection techniques for ionizing radiation.
4	To evaluate the statistical analysis of the results of nuclear counting experiments.
5	To select the correct systems for detection of radiation.
6	To comprehend the sources of background and the properties of shielding materials.
7	To evaluate the purpose of detector shielding and the background in gamma-ray spectra.
8	To interpret the statistical analysis of the results of nuclear counting experiments.

Preconditions						
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Weekly Contents					
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Introduction to radiation measurements.				*Oral lecture, questions-answers, homework.
2.Week	*Statistical error of radiation counting.				
3.Week	*Review of atomic and nuclear physics.				
4.Week	*Review of atomic and nuclear physics.				
5.Week	*Energy loss and penetration of radiation through matter.				
6.Week	*Energy loss and penetration of radiation through matter.				
7.Week	*Gas-filled detectors.				
8.Week	*Scintillation detectors.				
9.Week	*Semiconductors detectors.				
10.Week	*Relative and absolute measurements.				
11.Week	*Electronics				
12.Week	*Data analysis methods.				
13.Week	*Neutron detection.				
14.Week	*Health physics fundamentals.				

Assesment Methods %	
1	Mzæ : 20.000
2	Presentation/Seminar : 20.000

