



Code and Name:

FİZ5620 RADIATION DETECTION AND MEASUREMENT METHODS

Unit:

Graduate School of Natural and Applied Sciences

Detail:

Period: 2023-2024 **Status:** Optional **Class:** 1 **Credits:** 3-0-0-3 **ECTS:** 6 **Language:** Turkish

INSTRUCTOR

Title, Name and Surname:

Phone:

Email:

Social Account: -

Student Day and Time:

COURSE ASSISTANT

Title, Name and Surname:

Phone:

Email:

Social Account:

Student Day and Time:

Lessons

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Weekly

Program:

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Rendering:
Place:

Face-to-face lessons per week 3 It will be done on an hourly basis.
YY: - **UE:** -

Purpose:

Students will learn about different types of radiation sources (fast electrons, heavy particles, electromagnetic radiation, neutrons) and how these sources interact with various media. In addition, they will obtain detailed information about the structure, working principles, modeling and radiation dose measurements of radiation detectors.

Material:

1. Radiation Detection and Measurement. Glenn F. Knoll
2. From Radiation and Radiation Korunma Fiziği, James E. Martin

Student Responsibility:

Class participation, homework, project

Weekly Lesson Plan

Week	Topic	Method
1	Introduction to Radiation Sources: Basic types and sources of radiation	YY
2	Unit Definitions and Basic Concepts	YY
3	Fast Electron Sources: Generation of fast electrons and their properties	YY
4	Heavy Particle Sources: Heavy particle production and properties	YY
5	Sources of electromagnetic radiation	YY
6	Neutron Sources: Generation of neutrons and their uses	YY
7	Radiation E Schemes	YY
8	Heavy Particle Interactions	YY
9	Neutron and Gamma Interactions	YY
10	General Structure and Modeling of Radiation Detectors	YY
11	Operating Methods and Efficiency of Detectors	YY
12	Operation of ionization chambers and gas detectors	YY
13	Acceleration of gases Enmesi, census charts, and Geiger-MuLLER Tubes	YY
14	Scintillation Detectors and Radiation Spectroscopy	YY

Assessment and Evaluation

Method		Number	Weight
Break Exam	Exam	Face	1 % 50
	Quiz	-	-
	Homework	-	-
	Project	-	-
General Exam	Face	1	% 50

Course Outcomes:

1	Students will understand the various sources and types of radiation and comprehend the fundamental characteristics of these radiation types..
2	Students will acquire in-depth knowledge of the interaction mechanisms between radiation and matter..
3	Students will learn about the types, working principles, and modeling of radiation detectors..
4	It will enhance students' ability to analyze and solve complex radiation-related problems..
5	Students will develop skills in analyzing and interpreting radiation data..

Course-Specific Explanations:



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FIRAT UNIVERSITY
Course Syllabus Form

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UE: Distance Education; **YY:** Face-to-Face Education