

Vocational School of Health Services / Radiotherapy

2024 - 2025 Academic Year

MEDICAL RADIATION PHYSICS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
MEDICAL RADIATION PHYSICS	RAD1213772	Spring Semester	2+0	2	6
Prerequisites Courses					
Recommended Elective Courses	MEDICAL IMAGING DEVICES				
Language of Instruction	Turkish				
Course Level	Short Cycle (Associate's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Mustafa ÇAĞLAR				
Name of Lecturer(s)	Lect. İLKAY KARA				
Assistant(s)	None				
Aim	To learn main principles of radiation physics, to give knowledge about clinically usef the beamformation and its interaction with matter				
Course Content	This course contains; Introduction to the physics of radiation,Matter and its structure,Definition of Radiation and its Applications,Particular Radiations,Electromagnetic Radiations,Production of X-ray,Types and Properties of X-ray,Interactions of X-ray and Gamma-ray with Matter,Interaction of Particular Radiations with Matter,Radioactive Decay,Types of Radioactive Decay,Radiation Units,Radioactivity Calculations,Radiation Measurement and Dosimeters.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Distinguishes between types of radiation			14, 16, 9	A	
Explains matter and its structure.			16, 9	A	
Explains the interaction of radiation with matter.			10, 16, 9	A	
Explains radioactivity and its medical uses.			16, 9	A	
Explains radiation measurement methods.			10, 16, 9	A	
Teaching Methods	10: Discussion Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam				
Lecture Schedule					
Sequenc e	Topics	Preliminary Preparation			
1	Introduction to the physics of radiation	presentations			
2	Matter and its structure	presentations			
3	Definition of Radiation and its Applications	presentations			
4	Particular Radiations	presentations			
5	Electromagnetic Radiations	presentations			
6	Production of X-ray	presentations			
7	Types and Properties of X-ray	presentations			
8	Interactions of X-ray and Gamma-ray with Matter	presentations			
9	Interaction of Particular Radiations with Matter	presentations			
10	Radioactive Decay	presentations			
11	Types of Radioactive Decay	presentations			
12	Radiation Units	presentations			
13	Radioactivity Calculations	presentations			
14	Radiation Measurement and Dosimeters	presentations			
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources
Course notes will be given to the studentsIntroduction to Radiological Physics and Radiation Dosimetry,The Physics of Radiation Therapy 4 Faiz M. Khan