

Medical Imaging Techniques (Evening Education)			
Associate	TR-NQF-HE: Level 5	QF-EHEA: Short Cycle	EQF-LLL: Level 5

Course Introduction and Application Information

Course Code:	SHM110		
Course Name:	Radiation Physics		
Semester:	Spring		
Course Credits:	ECTS 4		
Language of instruction:	Turkish		
Course Condition:			
Does the Course Require Work Experience?:	No		
Type of course:	Compulsory Courses		
Course Level:	Associate TR-NQF-HE:5. Master`s Degree</div> <div>QF-EHEA:Short Cycle</div> <div>EQF-LLL:5. Master`s Degree		
Mode of Delivery:	Face to face		
Course Coordinator:	Dr. Öğr. Üy. ŞEYMA PARLATAN		
Course Lecturer(s):	Dr. Öğretim Üyesi Şeyma Parlatan		
Course Assistants:			

Course Objective and Content

Course Objectives:	Students will learn about issues such as radiation, radioactivity, radioactive decay, radiation doses, exposure risks and areas of usage. This course forms an infrastructure for other courses that students will take.
Course Content:	To teach all basic concepts and information about Radiation used in Medical Physics and Health Physics.

Learning Outcomes

The students who have succeeded in this course;

- 1) Will be able to learn radiation measurement systems and radioactivity dose units.
- 2) Will be able to learn some basic nuclear reactions.
- 3) Will be able to learn about radioactive disposal laws, natural radioactivity and radioactivity damages.
- 4) Will be able to learn about nuclear reactors and working principles.

Course Flow Plan

Week	Subject	Related Preparation
1)	Basic Concepts (Radioactivity, Radiation, Electromagnetic Wave, Excitation and Ionization, Periodic Table and Radioactive Decay)	
2)	Basic Concepts (Radioactivity, Radiation, Electromagnetic Wave, Excitation and Ionization, Periodic Table and Radioactive Decay)	
3)	Types of Radioactive Decay	
4)	Types of Radioactive Decay	
5)	Nucleus Reactions	
6)	Fusion, fission, mass, energy and binding energy	
7)	Midterm Exam Week	
8)	Electromagnetic Ray Interaction with Matter	
9)	Charged Particles Interaction with Matter	
10)	Charged Particles Interaction with Matter	
11)	Radiation Dosage Units	
12)	Radiation Detectors	
13)	Radiation Detectors	
14)	Uses of Radiation in Health	

Sources

Course Notes / Textbooks:	Radyasyon Fiziği ve Tıbbi Uygulama Palme Yayıncılık
References:	Öğretim Üyesi Ders Notları

Course - Program Learning Outcome Relationship

Course Learning Outcomes	1	2	3	4
Program Outcomes				
1) Has a basic level of theoretical and practical knowledge about the field of Medical Imaging Techniques.				
2) Applies radiation safety and radiation protection rules. Takes the necessary precautions to protect himself and the patient from the harmful effects of radiation.				
3) Knows the infrastructure of medical imaging devices, daily maintenance and controls of the devices.				
4) Has knowledge about occupational health and safety.				
5) In order to solve unforeseen complex problems encountered in the applications related to the field, it takes part in the team and acts in accordance with the quality management and processes and takes individual responsibility when necessary.				
6) Communicates effectively with colleagues, patients, relatives, physicians and other health professionals.				
7) Knows radiological anatomy at basic level. Recognize the anatomical structures displayed.				
8) Know medical and radiological terms, uses effectively.				
9) Has the ability to communicate and work effectively with different medical sciences.				
10) Adopts the principle of lifelong learning and follows and learns the technological developments in the field.				
11) Follows the information in his / her field and communicates with his / her colleagues by using a foreign language at least at a level of European Language Portfolio A2 General Level.				
12) Uses information and communication technologies with computer software at least at the basic level of European Computer Driving License required by the field.				
13) Has knowledge about ethical principles and rules in the field.				

Course - Learning Outcome Relationship

No Effect	1 Lowest	2 Average	3 Highest

	Program Outcomes	Level of Contribution
1)	Has a basic level of theoretical and practical knowledge about the field of Medical Imaging Techniques.	
2)	Applies radiation safety and radiation protection rules. Takes the necessary precautions to protect himself and the patient from the harmful effects of radiation.	
3)	Knows the infrastructure of medical imaging devices, daily maintenance and controls of the devices.	
4)	Has knowledge about occupational health and safety.	
5)	In order to solve unforeseen complex problems encountered in the applications related to the field, it takes part in the team and acts in accordance with the quality management and processes and takes individual responsibility when necessary.	
6)	Communicates effectively with colleagues, patients, relatives, physicians and other health professionals.	
7)	Knows radiological anatomy at basic level. Recognize the anatomical structures displayed.	
8)	Know medical and radiological terms, uses effectively.	
9)	Has the ability to communicate and work effectively with different medical sciences.	
10)	Adopts the principle of lifelong learning and follows and learns the technological developments in the field.	
11)	Follows the information in his / her field and communicates with his / her colleagues by using a foreign language at least at a level of European Language Portfolio A2 General Level.	
12)	Uses information and communication technologies with computer software at least at the basic level of European Computer Driving License required by the field.	
13)	Has knowledge about ethical principles and rules in the field.	

Assessment & Grading

Semester Requirements	Number of Activities	Level of Contribution
Midterms	1	% 40
Final	1	% 60
total		% 100

PERCENTAGE OF SEMESTER WORK		% 40
PERCENTAGE OF FINAL WORK		% 60
total		% 100

Workload and ECTS Credit Calculation

Activities	Number of Activities	Workload
Course Hours	14	28
Presentations / Seminar	14	16
Project	13	17
Homework Assignments	14	18
Quizzes	2	4
Midterms	2	4
Final	1	1
Total Workload		88