

Vocational School of Health Services / Radiotherapy

2024 - 2025 Academic Year

MEDICAL IMAGING in RADIOTHERAPY

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
MEDICAL IMAGING in RADIOTHERAPY	RAD2213775	Spring Semester	2+4	4	10
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	Turkish				
Course Level	Short Cycle (Associate's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Mustafa ÇAĞLAR				
Name of Lecturer(s)	Assist.Prof. Mustafa ÇAĞLAR				
Assistant(s)					
Aim	To give information about simulation devices and advanced fixation systems used in radiotherapy				
Course Content	This course contains; Imaging devices and imaging fusion used in radiotherapy,Importance of contouring in radiotherapy,TPS applications using 4D images,Inter-device image transferring,MRI imaging and its applications in radiotherapy,PET, CT imaging and their applications in radiotherapy,Other imaging methods used in radiotherapy (ultrason,anjio etc.),Definition of IGRT and Its Importance in Radiotherapy,Improtance of methods for IGRT,IGRT application methods via Linac based device I,IGRT application methods via Linac based device II,IGRT application methods via other devices than Linac,Adaptive Radiotherapy and Patient Selection Strategies in Adaptive Radiotherapy,Electronic Portal Imaging Devices (EPIDs) for Quality Assurance Tests.				
Course Learning Outcomes				Teaching Methods	Assessment Methods
1. Learn about imaging and fusion methods				16, 9	A
1.1. Explains imaging fusion				16, 9	A
2. Learns about imaging systems like MRI and PET				16, 9	A
3. Knows about IGRT imaging system which is applied during radiotherapy				10, 9	A
3.1. Implements IGRT				16, 9	A
4. Learns about quality assurance applications				16, 9	A
Teaching Methods	10: Discussion Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam				
Lecture Schedule					
Sequenc e	Topics	Preliminary Preparation			
1	Imaging devices and imaging fusion used in radiotherapy	Mebis Lectures			
2	Importance of contouring in radiotherapy	Mebis Lectures			
3	TPS applications using 4D images	Mebis Lectures			
4	Inter-device image transferring	Mebis Lectures			
5	MRI imaging and its applications in radiotherapy	Mebis Lectures			
6	PET, CT imaging and their applications in radiotherapy	Mebis Lectures			
7	Other imaging methods used in radiotherapy (ultrason,anjio etc.)	Mebis Lectures			
8	Definition of IGRT and Its Importance in Radiotherapy	Mebis Lectures			
9	Improtance of methods for IGRT	Mebis Lectures			
10	IGRT application methods via Linac based device I	Mebis Lectures			
11	IGRT application methods via Linac based device II	Mebis Lectures			
12	IGRT application methods via other devices than Linac	Mebis Lectures			
13	Adaptive Radiotherapy and Patient Selection Strategies in Adaptive Radiotherapy	Mebis Lectures			
14	Electronic Portal Imaging Devices (EPIDs) for Quality Assurance Tests	Mebis Lectures			
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources	
Basic Radiation Oncology Murat Beyzadeoglu, Gokhan Ozyigit, Cüneyt Ebruli ISBN-10 : 13662519143 ISBN-13 : 978-3662519141Introduction to Radiological Physics and Radiation Dosimetry,The Physics of Radiation Therapy 4 Faiz M. Khan	