

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4029	Medical and Industrial Applications of Radiation	3.00	0.00	0.00	3.00	6.00
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 student is intended to be knowledgeable about the medical imaging techniques and the use of radiation in industry.					
<b>Course Contents</b>	: Introduction to medical imaging techniques, radiography, imaging with positron and x-rays and principles of magnetic resonance imaging, industrial applications.					
<b>Recommended or Required Reading</b>	: The physics of medical imaging, Medical Science Series, IOP Publishing Ltd, 1998 An introduction of to the Physics of Diagnostic Radiology, 2nd ed., Philadelphia: Lea and Febigar London, Kimpton, 1978					
<b>Planned Learning Activities and Teaching Methods</b>	: Lecture, Discussion, Report Preparation and / or Presentation.					
<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

## Upon the completion of this course a student :

- 1 After completion of this course students will be able to: understand the principles of Magnetic Resonance Imaging
- 2 Comprehend the principles of Computed Tomography.
- 3 Comprehend the issues need to be considered when applying Ultrasonography and color Doppler ultrasound imaging techniques.
- 4 Have knowledge about several conventional imaging methods.

## Preconditions

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## Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Introduction to medical imaging systems				*Lecture, Discussion, Report Preparation and / or Presentation.
2.Week	*Introduction to medical imaging systems				
3.Week	*Radiography				
4.Week		*Radiography			
5.Week	*Imaging with SPECT and PET				
6.Week		*Imaging with SPECT and PET			
7.Week	*Imaging with X rays				
8.Week		*Imaging with X rays			
9.Week	*Principles of MRI				
10.Week		*Imaging with MR			
11.Week		*Imaging with MR			
12.Week		*Application of radiation in industry			
13.Week		*Application of radiation in industry			
14.Week		*Application of radiation in industry			

## Assesment Methods %

- 1 Presentation/Seminar : 40.000
- 2 Ödev : 10.000
- 3 Final : 50.000

## ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Ödev	4	3.00	12.00
Final	1	3.00	3.00
Individual study before lecture	3	5.00	15.00
Class Hours (14 weeks)	14	3.00	42.00

Activities	Count	Time(Hour)	Sum of Workload
Final Exam Preparation	14	2.00	28.00
Presentation/Seminar	3	3.00	9.00
Preliminary Study	14	3.00	42.00
Further Study	14	3.00	42.00
Total :			193.00
Sum of Workload / 30 ( Hour ) :			6
ECTS :			6.00

Program And OutcomeRelation																								
	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 1	4	3	3	4	3	3	3	3	3	3	2	2	3	2	3	4	3	3	2	3	2	3	3	3
L.O. 2	5	4	4	3	4	2	4	4	2	4	3	2	2	2	2	3	3	2	2	3	2	2	3	3
L.O. 3	5	2	2	3	2	3	3	2	4	3	3	2	3	3	3	2	2	3	3	3	3	2	4	2
L.O. 4	4	4	3	2	3	2	3	4	2	2	2	2	4	3	3	2	3	2	3	3	3	2	4	3

Ders/Program Çıktıları İlişkisi																								
P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24	P.O. 2
3	3	3	3	3	3	2	2	2	2	2	3	2	2	3	3	3	2	3	3	3	2	3	3	2