Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Biomedical Imaging Systems	FZ5065		3 + 0	3.0	7.5

Prerequisites	None

Language of Instruction	Turkish
Course Level	Second Cycle
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Emine Dilara AYDIN
Instructors	Assoc. Prof. Dr. Emine Dilara AYDIN
Assistants	
Course Objectives	The purpose of the course is to give to the students the information about nuclear and ultrasonic imaging techniques used in biomedical engineering.
Course Content	Magnetic resonance imaging and physical principles. Imaging applications of 1.5 Tesla and 3 Tesla MR device. Computerized tomography physics. Multislice CT imaging device applications. Conventional and digital X-rays, fluoroscopic examinations. Conventional and digital X-ray applications. Ultrasonography and color Doppler U.S. with physical principles and practical applications. Ultrasound unit, practical applications.
Course Learning Outcomes	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.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Magnetic resonance imaging and physical principles.	Lecturing Question-answer Homework	
2. Week	Imaging applications of 1.5 Tesla and 3 Tesla MR device.	Lecturing Question-answer Homework	
3. Week	Imaging applications of 1.5 Tesla and 3 Tesla MR device.	Lecturing Question-answer Homework	
4. Week	Computerized tomography physics.	Lecturing Question-	

Quick Access

Physics (Master)
- Qualification Awarded
- Level of Qualification
- Qualification Requirements and Regulations
- Specific Admission Requirements
- Recognition of Prior Learning
- Profile of the Program
- Program Key Learning Outcomes
- Occupational Profile of Graduates
- Access to Further Studies
- Course Structure & Credits
- Exam Regulations & Assessment & Grading
- Graduation Requirements
- Mode of Study
- Programme Director(or Equivalent)
- Evaluation Questionnaire
- TYYÇ

Course Information
- Course Information
- Weekly Course Content
- Resources
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

		answer Homework	
5. Week	Multislice CT imaging device applications.	Lecturing Question-answer Homework	
6. Week	Multislice CT imaging device applications.	Lecturing Question-answer Homework	
7. Week	Multislice CT imaging device applications.	Lecturing Question-answer Homework	
8. Week	Mid-term Exam		
9. Week	Conventional and digital X-rays, fluoroscopic examinations.	Lecturing Question-answer Homework	
10. Week	Conventional and digital X-rays, fluoroscopic examinations.	Lecturing Question-answer Homework	
11. Week	Conventional and digital X-ray applications.	Lecturing Question-answer Homework	
12. Week	Conventional and digital X-ray applications.	Lecturing Question-answer Homework	
13. Week	Ultrasonography and color Doppler U.S. with physical principles and practical applications.	Lecturing Question-answer Homework	
14. Week	Ultrasound unit, practical applications.	Lecturing Question-answer Homework	
15. Week	Ultrasound unit, practical applications.	Lecturing Question-answer Homework	
16. Week	Final Exam		

RESOURCES

Recommended Sources
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.
Temel Radyoloji Tekniği; editör Prof. Dr. Tamer KAYA. Tıbbi Görüntüleme Fiziği; editörler Prof. Dr. Orhan OYAR, Prof. Dr. Ufuk K. GÜLSOY

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Mid-term Exam, Attendance, Problem Solving, Quiz, Final Exam

COURSE CATEGORY

Course Category	Percentage
Support Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4
PY1	4	4	4	3	4
PY2	3	3	4	3	3
PY3	3	3	4	3	3
PY4	4	4	4	4	3
PY5	3	3	3	3	3
PY6	4	4	4	4	3

PY7	4	3	4	4	4
PY8	3	4	3	3	3
PY9	3	3	3	3	3
PY10	1	1	1	1	1
PY11	3	3	3	3	3
PY12	3	3	4	3	3
PY13	3	3	3	3	4
PY14	4	4	4	5	4
PY15	4	4	4	4	5

*DK = Course's Contrubution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

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ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Quiz 1	4	2	8
Class Hours (14 weeks)	14	3	42
Mid Term Exam Preparation	1	15	15
Assignment 1	4	2	8
Further Study	14	5	70
Final Exam Preparation	1	15	15
Preliminary Study	14	2	28
Mid Term Exam 1	1	3	3
Final Exam	1	3	3
		Total Workload	192
		Total Workload / 25.5 (s)	7.53
		ECTS Credit of the Course	8