BIOPHYSIC

1	Course Title:	BIOPHYSIC
2	Course Code:	TFR5015
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	2.00
8	Theoretical (hour/week):	1.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. ORHAN GÜRLER
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	ogurler@uludag.edu.tr, 0 224 29 41701, Fen Edebiyat Fakültesi Fizik Bölümü
17	Website:	
18	Objective of the Course:	To study of the general principles of the ultrasound, medical applications of the ultrasound, fundamental laws of physics medical applications of radioisotopes. To take early precaution against the dangerous of radiation .
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	General properties of Ultrasound are learned by the students.
	2	Medical applications of ultrasound are learned.
	3	Fundamental atomic concepts are learned.
	4	Medical applications of radioisotopes are learned.
	5	The knowledge of biological effect of radiation is learned.
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21 Course Content:

Course Content:

Week	Theoretical	Practice
1	The aim of this course,introduction, General considerations, Acoustic intensity, Presentation of source books.	
2	Separating power ,Horizontal and longitudinal separating power	
3	Reflection and refraction of ultrasound waves	
4	Attenuation of ultrasound waves	

5	Interaction of ultrasound with matter	
6	Ultrasound scanning methods, A-scan , B-scan	
7	M-scan, Applications of Doppler technique	
8	The fundamental atomic concepts , Nuclear binding energy, ionization and excitation	
9	Midterm exam and Guided Problem Solving	
10	Nuclear structure, stability nuclei, radionuclide ,Radioactive decay law , Radioactivity	
11	Interactions of radiation with matter	
12	Radiation dosimetry , medical applications of radioisotopes	
13	Biological effects of radiation	
14	Exposure rate , calculations of dose , Measurements of radiation	

22	Textbooks, References and/or Other Materials:	1) Nükleer tıp fiziği, Doç.Dr. Mustafa Demir,İ.Ü.Cerrahpaşa Tıp Fak. yayını, 2000 2) Hekimlikte ultrases uygulamaları, Doç.Dr.Cihan Özmutlu, Bursa Üniversitesi Tıp Fakültesi yayını,1981 3) Physics in Nuclear Medicine, Simon R. Cherry, James A. Sorenson, Michael E. Phelps, An imprint of Elsevier, 2003 4) Akustik ve optik, Prof.Dr.Salih Dinçer, Dr.Sezai Yalçın,2002 5) Physics in Medicine, University of Notre Dame,2004 (http://www.nd.edu/~nsl/Lectures/mphysics)
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	1.00	14.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	2.00	2.00
Others	14	1.00	14.00
Final Exams	1	2.00	2.00
Total Work Load			62.00
Total work load/ 30 hr			2.00
ECTS Credit of the Course			2.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				