BIOMEDICAL

1	Course Title:	BIOMEDICAL
2	Course Code:	OTPS036
3	Type of Course:	Optional
4	Level of Course:	Short Cycle
5	Year of Study:	0
6	Semester:	0
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
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:	Öğr. Gör. İMREN DEMİR AKKUŞ
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	imrendemir@uludag.edu.tr
17	Website:	
18	Objective of the Course:	While technology is developing rapidly today, İt ensures that technicians working in the health sector have information about medical technology and follow the developments.
19	Contribution of the Course to Professional Development:	It enables the technicians working in the health sector to have information about medical technology and to follow the developments.
20	Learning Outcomes:	
	1	Learn the basic concepts of biomedical technologies
	2	Understand the electrical originated biological signals and physiological systems
	3	Learn the measurement scheme of electrical originated physiological signals (ECG, EMG, ENG, EEG ie.)
	4	Have a knowledge to the structure of the devices like ultrasound, CT, MRI, X-ray
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21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Definition of technology , history	
2	Introduction to biomedical technologies	
3	Formation, features and transmission of action potential	

4	General characteristics of physiological signals	
5	Electronorography (ENG)	
6	Electromyography (EMG)	
7	Electroencephalography (EEG)	
8	Electrocardiography (ECG)	
9	Elecktroculogram (EOG) and Electroretinogram (ERG)	
10	Measurement of blood pressure, blood volume, heartbeat, heart sound, respiration	
11	Ultrasound	
12	Medical imaging of X-ray	
13	Computed Tomography (CT)	
14	Magnetic Resonance Imaging (MRI)	

22	Textbooks, References and/or Other Materials:	1. Ertugrul Yazgan, Mehmet Korürek, "Medical Electronics", ITU publications Zümray Dokur, "Biomedical Layouts" ITU Lecture notes 2. Biomedical Instruments. Walter Welkowitz, Sid Deutch, Metin Akay, 1992, Academic Press Inc. 3. Medical Instrumentation, Application and Design, Webster, 3rd Ed., Wiley Bioinstrumentation.
23	Assesment	

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	2.00	28.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	15.00	15.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			106.00
Total work load/ 30 hr			3.03
ECTS Credit of the Course			3.00

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		Multiple choice tests

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	5	5	4	0	0	0	0	0	3	0	2	0	0	0	0
ÖK2	5	5	5	4	0	0	0	0	0	3	0	2	0	0	0	0
ÖK3	5	5	5	4	0	0	0	0	0	3	0	2	0	0	0	0
ÖK4	5	5	5	4	0	0	0	0	0	3	0	2	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High