FUNDAMENTALS AND APPLICATIONS OF BIOENGINEERING								
1	Course Title:	FUNDA	MENTALS AND APPLICATIONS OF BIOENGINEERING					
2	Course Code:	TTIP500	7					
3	Type of Course:	Optional						
4	Level of Course:	Third Cy	cle					
5	Year of Study:	1						
6	Semester:	1						
7	ECTS Credits Allocated:	5.00						
8	Theoretical (hour/week):	2.00						
9	Practice (hour/week):	0.00						
10	Laboratory (hour/week):	0						
11	Prerequisites:	To have successfully completed Scientific Preparation program.						
12	Language:	Turkish						
13	Mode of Delivery:	Face to t	face					
14	Course Coordinator:	Prof. Dr.	Fatih Karpat					
15	Course Lecturers:							
16	Contact information of the Course Coordinator:	Prof. Dr. Fatih KARPAT Tel: (0224) 29 41930 e-posta: karpat@uludag.edu.tr						
17	Website:							
18	Objective of the Course:	The objectives of the course are to educate bioengineers who who have very good basic knowledge in the field of bioengineering, who can follow universal developments in scientific methods and principles, who are researchers, producers, entrepreneurs, who have strong interdisciplinary communication, have developed problem solving skills, and have ethical values and to bring academics into the scientific life.						
19	Contribution of the Course to Professional Development:	The student will be familiar with the concept of bioengineering and its applications.						
20	Learning Outcomes:							
		1	Adequate knowledge in subjects specific to Mathematics, Science and Basic Engineering disciplines; ability to use theoretical and applied knowledge in these fields in complex engineering problems.					
		2	Ability to identify, define, formulate, and solve complex engineering problems; the ability to select and apply appropriate analysis and modeling methods for this purpose;					
		3	Ability to design a complex system, process, device or product under realistic constraints and conditions to meet specific requirements; For this purpose, the student will gain the ability to apply modern design methods.					
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21	Course Content:							

	Course Content:																
Week	The	oreti	cal						P	ractice	1						
1	Intro	ducti	ion to	Bioen	ginee	ring											
2	Basic Methods in Bioengineering																
3	Synthetic Biology and Cellular Design																
4	Biomolecules																
5	Cell and Texture Engineering																
6	Biosensors																
7	Bioproduction and Metabolic Engineering																
8	Biopolymers																
9	Biom	nime	tics Ba	ased A	Applica	ations											
10	Micr	o- an	nd Nar	no-Tra	nspor	t of Bio	omole	cules									
11	Biom	necha	anics														
12	2 Medical Robots																
13	Ethic	cs in	Bioen	ginee	ring												
14	Bioe	ngin	eering	, Appli	catior	ns in Tr	anslat	tional									
	Med	icine	1														
22	Text	book	s, Re	ferenc	es an	d/or Ot	ther		- (C. Ross	s Ethier	r, Craig	A. Sim	nons,	"Introdu	uctory	
	Mate	erials	:						Bi	omech	anics",	Toronto	o, April 2	2007			
									F	- Ronald Huston, "Princi				ples of Biomechanics", Deceml			
Activit	es									Number			Duration (hour)		Total Work		
																Luau (i	iour)
Theore	Theoretical R						14			2.00			28.00				
Practica	Practicals/Labs						0.00				0.00						
Self stu	Self study and preperation						-0	<u>4 00</u>				56.00					
Homeworks							5 6.00			30.00							
Final E	Exam						0	0.00				0.00					
Field St	J Studies								0.00				0.00				
Midtern	ribution of Lerm (Year) Learning Activities to							4	,00			0.00			0.00		
Others	rs							4 5.00				20.00					
Final E	Exams							1			10.00			10.00			
Total W	Total Work Load							144.00									
Heasy	erne	nt an Sad/	Softya	luatio	n Tecl	hnique	s Use	d in th	e M	easure	ment a	nd eval	uation a	are pei	rtormed	42660rdi	ng to
ECTS (Credit	t of tl	he Co	urse						e. i vine.		плетол		<u>138 () </u>		5.00	
24 ECTS / WORK LOAD TABLE																	
25				CON	TRIB	UTIO	N O	E LE	ARM	NING	ουτα	OME	S TO F	ROC	RAM	ME	
	QUALIFICATIONS																
	I	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ		PQ1	PQ11	PQ12	PQ1	PQ14	PQ15	PQ16
		~.	. 41			. 40					0			3			
ÖK1	Ę	5	4	5	5	4	5	3	3	2	4	4	2	0	0	0	0
ÖK2	4	4	4	4	5	5	4	3	3	2	3	4	1	0	0	0	0
ÖK3	ť	5	4	5	5	4	4	2	3	1	4	5	2	0	0	0	0
			 	_O: L	earn	ning C) Dbjec	tives	s	 PQ: P	l rogra	m Qu	l alifica	tions	 ;		
						5					<u> </u>						

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