Course Co	Course Code Course Name Course Type Course Type						urse P (if any	ool )	We Course T	ekly Hours U	Credits	ECTS Credits	Semes ter						
EE4092 Selected Topics in Elect Electronics Engineering					trical and Seçimlik			ĸ				3	0	5	5	2			
Prerequisite Courses (Course Code and Name, Min Letter Grade to success)						, Prerequisite to (Course Code and Name, Min Letter Grade to su					ccess)	Weekly Time & Classroom Schedule s) (Day, Hours, Classroom)							
Course Lecturer	Asst.Prof.Dr. Mehmet Saadeddin ÖZTÜRK								Teach Assist	ing ant(s)									
Office	M2-2	-252							Office	.,									
Tel /	0216	)216 777 3580								Tel / E	xtenti	on							
E-mail	saad	saadeddin.ozturk@marmara.edu.tr							E-mail										
Web	https	https://avesis.marmara.edu.tr/saadeddin.ozturk							Web										
Office Days and		TEA						_	Office	Days ar	nd								
Course Objectives	Т	This course aims to describe the physical principles behind light tissue interaction and optical imaging at different media settings.																	
	<b>C</b> οι	irse w	eb pa	ges:															
Textbooks	1	Jerome Mertz, Introduction to Optical Microscopy, 2010, Roberts and Company, USA																	
and/or	2	lvan A	van Andonovic, Deepak Uttamchandani, Principles of Modern Optical Systems, 1989, Artech House, USA																
(Recommen	3	Karl F.	Carl F. Renk, Basics of Laser Physics For Students of Science and Engineering, 2017, Springer																
ded	4	David	David A Boas, Constantinos Pitris and Nimmi Ramanujam, Handbook of biomedical optics, 2011, CRC Press																
Reading)	5	Jürger	ürgen Popp (Ed.) vd. Handbook of Biophotonics, 2011, Wiley																
	6	R Splir	R Splinter and B A Hooper, An Introduction to Biomedical Optics, 2007, CRC Press																
	1	Physic	al prin	ciples	underly	ying th	e geon	netrica	loptic	s will b	e gaine	ed							
	2	Physical principles underlying the wave optics will be gained																	
Learning	3	Mathe	ematic	al back	ground	d on lig	ht inte	ractior	n with	optical	comp	onents	and ir	nage fo	ormati	on will	be gained		
	4	Breadth understanding on light tissue interaction and image formation through scattering media will be gained																	
	5	Worki	ng prii	nciples	of diff	erent o	optical	imagir	ng tach	niques	will b	e obtai	ined.						
						Pro	gram (	Gains ,	/ Outp	outs						1:	:Week; 2:M	edium; 3:St	rong
Program	PG1	PG2	PG3	PG4	PG5	PG6	PG7	PG8	PG9	PG10	PG11	PG12	PG13	PG14	PG15		Course Le	arning Gai	ns
Gains	3										0	2				DK1 P	hysical prir	nciples	
Course	3		3									2				DK2 P	hysical prir	nciples	
Learning	3	3	3													DK3 N	lathematic	al backgro	
Gains	2	2		2												DK4 B	readth und	lerstandin.	
Matrix	2			3	3	1	1					3				DK5 W	/orking pri	inciples	
	3	3	3	3	3	1	1	0	0	0	0	2	0	0	0	ΤΟΤΑΙ	L EFFECT		

Language of	Lea	rning Activ	ity and Tead	hing Metho	ds		Co	ourse Presentation					
	In class teaching wi applicable. Student with classmates thr systems and put the	ll be support s will have ar ough an in-c eir understar	e thought on board and through presentations slides.										
Week	Date		Cou	rse Content	s (Topics)			R	Reference No -	Section			
Week 1	Introduction to biomedical optics 1,4												
Week 2	Ray Optics & Image Formation 1,4												
Week 3	Wave	Propagation for Monochromatic Light 1,4											
Week 4	Wave	Propagation	opagation in Through Optical Elements 1,4										
Week 5	Optica	I component	s: Lens, Filter	, Fiberoptics	etc.			2,4					
Week 6	Light S	ources						2,4					
Week 7	Detect	tors and Cam	eras					2,3,4					
Week 8	Noise	Characteriza <sup>.</sup>	tion in Detect	ors and Cam	eras			2,3,4					
Week 9	Midter	rm						1,3					
Week 10	Image	Contrast Sou	irces: Absorp	tion, fluroesc	ence, biolumi	nescence e	tc.	4,5,6					
Week 11	Light Tissue interaction and Optical Properties of tissues4,5,6												
Week 12	Imaging Techniques in scattering medium 4,5												
Week 13	Imagir	ng Technique	s in scattering	g medium				4,5					
Week 14	Imaging Techniques in scattering medium 4,5												
Week 15	Projec	t Presentatio	ins										
Week 16	Projec	t Presentatio	ns										
Week 17	Final E	xam											
Evaluation Method YSSL (BDS) BNAL (BDS) BDKL (BDS) Grade Calculation													
Öğretim Üyesi	i/Görevlisi Takdiri (Ö	öÜG)					Yarıyıl/yıl iç sın	i değer avı not	rlendirmesi ve ya tlarından hesapla	rıyıl/yıl sonu nır.			
	Evaluation <sup>•</sup>	Tool		Quantity	Date		Weight in Total (%)		Weigh Semester Eva	t in luation (%)			
	Final						40,00		0,00	)			
	Resit (Final M	/lake-up) Exa	m (if exists)										
	Semester Eva	aluation					60,00		100,0	00			
Assessme	nt Midterm(s)					15,00		25,00					
Methods	Quiz(es)												
Criteria	Project(s)						30,00		50,0	0			
enterna	Homework(s												
	Laboratory / Workshop												
	Presentation												
	Research / Report / Other												
	Attendance						15,00		25,0	0			
			Student V	Vorkload (E	CTS Credit)	Calculation	ı						
Evaluation Too	l Hour/Quan tity	Workload Hours	Evaluation T	ool	Hour/Quan tity	Workload Hours	Evaluation T	ool	Hour/Qu antity	Workload Hours			

Theoretical hours	3,00	42	Midterm & preparation	2,00	28	Laboratory/Atelier & preparation			
Application hours			Quiz & preparation			Presentation & preparation	2,00	28	
Pre-class and Post-class self study	2,00	28	Project & preparation	2,00	28	Research & preparation			
Pre and post- application self study			Homework & preparation			Final & preparation	3,00	42	
Total Student Workload			1 ECTS Cradits - 25 Student Workload Hours			Workload False: [196/25]=8.			
	Hours:	190	1 ECTS CIEURS - 25 Stu			Calculation: Doğrusu=5.			