

# TECHNIQUES OF ELECTRON MICROSCOPY

1	Course Title:	TECHNIQUES OF ELECTRON MICROSCOPY	
2	Course Code:	THE 6002	
3	Type of Course:	Compulsory	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	1.00	
9	Practice (hour/week):	4.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	THE 6005	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. İLKİN ÇAVUŞOĞLU	
15	Course Lecturers:	Doç.Dr. Berrin Avcı	
16	Contact information of the Course Coordinator:	ilkin@uludag.edu.tr +90 224 2954051 Uludağ University Faculty of Medicine Histology and Embryology Department 16059 BURSA / TURKEY	
17	Website:		
18	Objective of the Course:	Edification of research specialists who can; get to know and use electron microscope, plan and carry out electron microscopical investigations, use electron microscopical techniques accurately and perfectly, solve technical problems and develop new methods.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Can compare the structural properties of electron microscope with light microscope
		2	Can explain the operational principle of the electron microscope
		3	Can describe the area of usage of the electron microscope
		4	Can implement routine electron microscopical processes in order and accurately
		5	Can correlate the cause and effect of electron microscopical processes
		6	Can practice different electron microscopical procedures
		7	Can recognize the equipments of electron microscopy laboratory
		8	Can plan and carry out electron microscopical investigations
		9	Can propose solutions for problems experienced in the electron microscopy laboratory
		10	
21	Course Content:		
		<b>Course Content:</b>	
Week	Theoretical	Practice	

1	The aim and learning objectives of the course Short history of the electron microscope	Introduction of the electron microscopy laboratory		
2	Structure of the electron microscope and the principles of function	Introduction of the electron microscope		
3	Fixation and fixatives	Preparation of fixatives		
4	Buffer solutions	Preparation of buffers		
5	Principles of tissue preparation	Application of tissue preparation protocols		
6	Embedding mediums for electron microscopy	Preparation of embedding mediums		
7	Embeding procedures	Application of tissue embedding methods		
8	Principles of sectioning	Preparing glass knives		
9	Features of thick and thin sections	Sectioning by using ultratome		
10	Methods and materials for staining thin sections	Staining of thin sections		
11	Principles of examination, evaluation and	Practice of examination and photographing on TEM		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		14	1.00	14.00
Practicals/Labs		14	4.00	56.00
Self study and preparation		14	3.00	42.00
Homeworks		5	6.00	30.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		0	0.00	0.00
Others		0	0.00	0.00
Final Exams		1	10.00	10.00
Total Work Load				152.00
Total work load/ 30 hr		2		8.07
ECTS Credit of the Course				5.00
23	Assesment			
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT	
Midterm Exam		0	0.00	
Quiz		0	0.00	
Home work-project		0	0.00	
Final Exam		1	100.00	
Total		1	100.00	
Contribution of Term (Year) Learning Activities to Success Grade		0.00		
Contribution of Final Exam to Success Grade		100.00		

Total									100.00								
Measurement and Evaluation Techniques Used in the Course																	
24	ECTS / WORK LOAD TABLE																
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	3	5	4	3	0	5	5	0	1	2	3	0	0	0	0	0	
ÖK2	3	5	2	0	0	5	0	0	1	0	1	0	0	0	0	0	
ÖK3	3	5	3	0	0	5	1	0	1	0	1	0	0	0	0	0	
ÖK4	3	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	
ÖK5	3	5	0	0	0	5	2	0	0	3	3	0	0	0	0	0	
ÖK6	3	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	
ÖK7	3	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	
ÖK8	3	5	5	1	0	5	0	0	0	0	0	0	0	0	0	0	
ÖK9	0	2	0	0	0	5	0	0	0	0	3	0	0	0	0	0	
LO: Learning Objectives    PQ: Program Qualifications																	
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High				