FLOW CYTOMETRY

1	Course Title:	FLOW CYTOMETRY	
2	Course Code:	TİM5008	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	8.00	
8	Theoretical (hour/week):	1.00	
9	Practice (hour/week):	4.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. FERAH BUDAK	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	Uludağ Üniversitesi, Tıp Fakültesi, İmmünoloji Anabilim Dalı, 16059, Nilüfer, BURSA E-posta: fbudak@uludag.edu.tr Tel: 2954134	
17	Website:		
18	Objective of the Course:	This course is aimed to the student to comprehend the clinical and research applications of flow cytometry.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	To understand the mechanism and structure of the flow cytometry
		2	To understand the methods used in flow cytometry
		3	To learn the clinical applications of flow cytometry
		4	To learn the application of flow cytometry for research purposes
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Basic principles of flow cytometry, history	Introduction to Flow cytometer
2	introduction of flourochromes, flourochrome staing techniques	Quality control applications
3	Current uses of flow cytometry	The combination of fluorescent and compensation
4	Immunophenotyping	Test protocol designing

5	Diagnosis of Immunodeficiency	Immune deficiency pane
6	Diagnosis of leukemia and lymphoma	Leukemia and Lymphoma panels
7	Proliferation and activation tests	CFSE proliferation test
8	Analysis apoptosis	Anneksin V/PI staining
9	Intracellular cytokine measurement	Intracellular cytokine measurement
10	Ekstracellular cytokine measurement	Cytokine bead assay
11	Phagocytosis, chemotaxis, oxidative burst measurements	Respiratory burst test
12	Stem cell analysis, absolute CD4 counting	Absolute CD4 counting
13	DNA analysis	DNA cycle analysis
14	Data evaluation softwares, future uses	Application of flow cytometry softwares

22	Textbooks, References and/or Other Materials:	1. Deniz G., Demirel G.Y. “Akan hücre ölçer” Yelken Ajans Reklamcılık, Yayıncılık ve Matbaacılık, 1. Baskı (2014) 2. Turgeon M.L., "Immunology & Serology in Laboratory Medicine", Elsevier (2014). 3. Howard M. Shaıro “Practical Flow Cytometry, Wıley and Sons Inc. Publication 4. Baskı (2003).
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Contribution of Term (Year) Learning Activities to Success Grade	50.00	
Contribution of Final Exam to Success Grade	50.00	
Measurement and Evaluation Techniques Used in the Course		

24 ECTS / WORK LOAD TABLE

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	10.00	140.00
Homeworks	5	2.00	10.00
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	15.00	15.00
Total Work Load			235.00
Total work load/ 30 hr			7.83
ECTS Credit of the Course			8.00

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	5	0	0	0	0	0	0	0	0	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