

1.	Subject	CLINICAL CYTOLOGY			
2.	Code	MLD – 311			
3.	Study program:	Three-year professional studies of medical laboratory diagnostics			
4.	Conducted by	UKIM – Medical faculty Department of Transfusiology, Institute of Transfusion Medicine			
5.	Degree of education (first or second cycle)	First cycle			
6.	Academic year/semester	III/V	7.	Credits	6
8.	Professor	Prof. d-r Liljana Spasevska			
9.	Prerequisite	Finished theoretical and practical lessons in all subjects in first year			
10.	Goals	Gaining general knowledge of Clinical Cytology and its diagnostic importance in endocrinology, gynecology, pulmonology, urology and gastroenterology			
11.	<p>Content summary:</p> <p>Theoretical lessons:</p> <ul style="list-style-type: none"> • Basic morphological elements of the cells and their function. • Taking material for cytological analysis in: <p>Endocrinology: cytological puncture of surface organs with the control of an ultra sound, free hand technique, biological material print, discharge.</p> <p>Gynecological cytology: vulva smear, VCE smears, exfoliate from a cervix, ovarian puncture, amniotic fluid</p> <p>Pulmonology cytology: sputum, swab with a brush, KAS, BAL, TBP, transthoracic puncture</p> <p>Urological cytology: urine, washing brushing</p> <ul style="list-style-type: none"> • Technical processing of the material for cytological analysis: preparation of agents, basic and specialized staining and contemporary diagnostic methods in cytology • Analysis of cytological agents: types of cells, and other elements • Indications, contraindications, advantages and disadvantages of cytological methods • Normal and pathological cytological result, classification of cytological results. Cytological criteria of inflammation, proliferation processes, tumors with benign and malignant cytological features in endocrinology, gynecological, pulmonology, urinary and gastrointestinal cytological diagnostic <p>Practical lessons (20):</p> <ul style="list-style-type: none"> • Receiving and labeling cytological smears and material • Preparing reagents for cytological slides • Organoleptic preview of liquid samples, cytocentrifuge • Preparing cytological smears, imprint slides, cytospin, cell block, one-layer smear, fixating and staining of them (May-Gruenwald-Giemsa, Papanicolaou I H.E) • Recognizing basic cell and non-cell elements in a cytological smear • Proper archiving of cytological slides 				
12.	Teaching methods: theoretical lessons, practical lessons, and praxis				
13.	Total classes:	90			
14.	Organization				
15.	Types of teaching activities	15.1	Lessons: theoretical classes	30	
		15.2	Practical lessons	30	
16.	Other types of activities	16.1	Projects		

		16.2	Practice	30
		16.3	Learning at home	Filled practicum
17.	Knowledge assessment		Points	
	17.1	Tests		
	17.2	Final exam		24 – 40 min.-max.
	17.3	Total points (theoretical lessons, practical lessons, practice and mid-term exams, tests)	Points Min. – Max. Theoretical lessons: 2 – 5 Practical lessons: 9 - 10 Final exam: 24 - 40 Total: 35 - 55	
			Final exam: the exam is in a written form and contains: 24 multiple-choice questions with 4 alternatives: each question 1 point 6 fill-in-the-gaps questions – each question 1 point 2 essay questions – each question 5 points The exam is passed with at least 60% (24 points) of the total points – 40 points.	
			Final grade: The grade is formed according to the grading criterion, and it is based on the sum of the points from all the activities.	
	17.4	Active participation		
18.	Grading criterion (points/grades)	Up to 59	5 (five) F	
		60-68	6 (six) E	
		69-76	7 (seven) D	
		77-84	8 (eight) C	
		85-92	9 (nine) B	
		93-100	10 (ten) A	
19.	Requirements for obtaining a signature and attending the final examination	Finished theoretical and practical lessons and filled practicum		
20.	Language	Macedonian		
21.	Method of evaluating the quality of the lessons	Students' attendance and interactive participation in the theoretical and practical lessons		
22.	Literature:			
	22.1	Mandatory literature		
		1.	Leopold G. Koss Diagnostic Cytology 5 th edition, Lippincott W.W. 2006	
		2.	Department of Pathology, Authorized lectors for the basic principles of diagnostic techniques in pathology, Medical Faculty UKIM, Skopje, 2019	

	22.2	Additional literature	
		1.	Kumar V., Abul A., Nelson F., Richard M., Foundations of Pathology according to Robins, 8 th revised edition, Tabernakul 2010
		2.	Department of Pathology – group of authors, Chosen chapters of pathology 1, Medical Faculty, UKIM, Skopje, 2010