

1.	Subject	PATHOLOGY			
2.	Code	DA – 217			
3.	Study program:	Three-year professional studies of medical laboratory diagnostics			
4.	Conducted by	Department of Human Genetics UKIM Medical faculty Skopje			
5.	Degree of education (first or second cycle)	First cycle			
6.	Academic year/semester	First/III-IV	7.	Credits	10.5
8.	Professor	Prof. D-r Liljana Spasevska			
9.	Prerequisite	Fulfilled condition for enrolment into II year			
10.	Goals	<p>Gaining basic knowledge of general pathology. Gaining skills for comparison of standard tissue handling and routine HE staining, mastering the general principles of the specific diagnostic techniques</p> <p>Gaining knowledge about the influence of the external and internal environment on the pathological changes of the tissues and organs, which is a basis for all diseases</p>			
11.	Content summary:	<p>Theoretical lessons 20:</p> <ul style="list-style-type: none"> -Basic disease development mechanisms -cell damage and cell death -Cell damage and death (types of damage, reasons, mechanisms). Ischemic, hypoxic -Hypoxic injury, damage of the cell caused by free radicals, chemical damage, microbiological damage and viral damage. Morphology of reversed and irreversible damage. Cell adaptation to growth and differentiation. -Hemodynamic disorders: edema, hyperemia, congestion, hemorrhage, thrombosis, embolism, sudden cardiac arrest and shock -Acute and chronic inflammation: etiological factors, cellular, vascular and humoral inflammation changes, morphological inflammation patterns, systemic effects of an inflammation, organism's defense of sources that cause inflammation, results from an acute and chronic inflammation. -Specific granulomatous inflammations -Processes of reparation and regeneration of tissues. -Cellular and humoral immunity with hypersensitive reactions and most common autoimmune disorders -Tumor pathology: definition, nomenclature, differences between malignant and benign tumors, invasion and metastasis, carcinogenesis. Organism defense from tumors. Clinical characteristics of tumors determining the stage of the malignant disease. <p>Practical lessons:</p> <ul style="list-style-type: none"> -Introduction to basic diagnostic methods and morphological changes of biopsied and surgery specimen -Taking and transport of tissues and bodily fluids for cytological, histochemical, immunohistochemical, immunofluorescence, electrone-microscopic and cytogenetic analysis. Ex tempore biopsy -Receiving and marking the material, gaining skills for standard processing of tissue: fixation, modeling and cutting. -Gaining skills for routine H.E., staining and knowledge of the most common histochemical staining -Foundations of electronic microscopy in pathology -Foundations of immunohistochemical, immunofluorescence and cytogenetic analyses. 			

	-Ex tempore biopsy -archiving the biological material and keeping records in pathology -Observing an autopsy or presenting 10 surgical materials of different organ systems.			
12.	Teaching methods: Interactive theoretical lessons, practical lessons			
13.	Total classes:	140		
14.	Organization	140 theoretical, practical lessons, seminars		
15.	Types of teaching activities	15.1	Lessons: theoretical classes	30
		15.2	Practical lessons (laboratory, clinical)	60
16.	Other types of activities	16.1	Practice	50
		16.2	Self-supporting practice	/
		16.3	Learning at home	30
17.	Knowledge assessment		Points	
	17.1	Final exam	Written part* Min. – Max. 24 - 40 *The exam is in a written form and contains: 24 questions with 4 choices – every question gives 1 point 6 fill-in-the-gaps questions – every question gives 1 point 2 essay questions – every question gives 5 points The exam is passed with at least 60% (24 points) from a total of 40 points. The final grade for the subject is formed according to the table for grading, and is based on the sum of the points from all the activities.	
	17.2	Active Participation	Theoretical lessons* Min.-max. 2 - 5 Practical lessons 14 - 15 Final exam 24 - 40	
18.	Grading criterion (points/grades)	Up to 59 points	5 (five) F	
		From 60 to 68 points	6 (six) E	
		From 69 to 76 points	7 (seven) D	
		From 77 to 84 points	8 (eight) C	
		From 85 to 92 points	9 (nine) B	
		From 93 to 100 points	10 (ten) A	
19.	Requirements for obtaining a signature and attending the final examination	To obtain a signature, the student must obtain minimum points and attend the theoretical and practical lessons. To attend the final exam, the student must pass the mid-term exams or gain a minimum of 30% of the total points. In the exam session, the student first attends the mid-term exams that were not passed and then the final exam.		

		The final grade for the subject is formed according to the table for grading, and is based on the sum of the points from all the activities, mid-term exams and the final exam.	
20.	Language	Macedonian	
21.	Method of evaluating the quality of the lessons	Anonymous student evaluation of the subject, the professors and the collaborators who hold the lessons.	
22.	Literature		
	22.1	Mandatory literature	
		1.	Department of pathology, Authorized lectures of the basic principles of diagnostic techniques in pathology, Medical Faculty Skopje, 2019
		2.	Manual of Histological Staining Methods of the AFIP, Lee G. Luna, HT, McGraw – Hill book company
		3.	Chosen chapters of pathology, Department of Pathology, group of authors, UKIM, Medical Faculty, Skopje,2010
	22.2	Additional literature	
	1.	Kumar V., Abul A., Nelson F., Richard M., Basic Pathology according to Robbins, 8th revised edition, Tabernakul, 2010	