AZERBAIJAN MINISTRY OF HEALTH

AZERBAIJAN MEDICAL UNIVERSITY

“APPROVED““CONFIRM"

Head of the education-methodical innovation department of Azerbaijan Medical University

Professor Qurbanov A. I.

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The chairman of the central and methodical commission of Azerbaijan Medical University

Professor Aliyev A. J.

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15. 09. 2016

PROTOCOL №1

SYLLABUS

ON PATHOLOGICAL PHYSIOLOGY

BAKU-2019

AZERBAIJAN MINISTRY OF EDUCATION

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THE INSTITUTE OF EDUCATION PROBLEMS OF AZERBAIJAN

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SYLLABUS ON PATHOLOGICAL PHYSIOLOGY

07101- general medicine, 070102-military medicine ,

070103 – public health, 070104- stomatological,

050806- pharmaceutical specialties

Confirmed by the "Theoretical medical sciences" department of Scientific Methodological Council of Azerbaijan Ministry of Education

"15"September 2016 , (protocol№1)

BAKU-2019

SYLLABUS ON PATHOLOGICAL PHYSIOLOGY

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Specialization code for general medicine faculty 070101

Course III

Semester V and VI

Credits for discipline 4 credits (V semester) +5 credits (VI semester)

Study language Azerbaijan, Russian, English

Lectures:14 (V semester) +14 (VI semester) hours

Practical studies (seminars) 46 (V semester) +61(semester) hours

Passing -

Examination V semesterand VI semester

Total: 135 hours

Introduction

The modern level of medicine demands comprehensive theoretical knowledge of students in the high educational enterprises. The most important aspect of modernity in the medical education includes profoundly studying of the subject of pathological physiology, that takes a big role in the further preparing of highly qualified physicians.

Pathological physiology establishes a foundation of medical-biological discipline, delivers an important skills and knowledge to the physicians in the different fields of medicine and promotes a formation of physician thinking. Pathological physiology collaborates a theoretical basis of prophylaxis, diagnosis and therapy.

Purposes and tasks of discipline

The main task of pathological physiology course is the formation in students a knowledge about general regularities, causes, concrete mechanisms of development of diseases, to understand their onset and outcome, the process of recovery and also determination of an idea of pathological process, concrete disease, pathological state, principles of their revealing, treatment and prophylaxis. All these knowledge help us to teach the students to carry out analysis of typical clinical cases and formation of their professional medical thinking.

In the course of pathological physiology students should

KNOW:

-main historical stages of development of pathology, its subject and tasks, interrelation between other disciplines as medical-biochemistry, medicine, pharmaceutics;

- basic ideas of pathology, role of causative factors and pathogenic conditions, as well as reactivity of organism in the development of diseases and the main regularities of general etiology;

-general regularities of pathogenesis and also basic aspects of teaching about diseases, causes, mechanisms of development and manifestations of pathological processes, their significance and role in the formation of different types of disease;

- etiology, pathogenesis, main manifestation and outcome of the most important degenerative, inflammatory, immune and tumor diseases;

- principles of pharmacological correction (etiotropic, pathogenetic and symptomatic) of typical pathological processes and main diseases;

-significance of experimental method in the investigation of pathological processes;

- role of pathology in the development of medical science, pharmacy, investigation and applying of new medicines for prophylaxis and treatment of diseases;

CAN:

- work with laboratory animals used for experiments;
- make a preparations;
- reproduce experimental models of several diseases (infarct, angina pectoris, shock, gastric ulcer, diabetes mellitus, nephritis, nephrosis);
- examination of some biological fluids (blood, urine, bile, gastric juice) used during several pathological processes;

- examination of electrocardiograms;

- examination of pneumograms ;

- apply all gained knowledge andskills in clinic;

- explain and analyses the results of experiment;

POSSESS:

- the main principles of prophylaxis and therapy of typical pathological processes and also typical disturbances of organs and systems;
- researching of the main developing fields of general pathology

The syllabus is prepared for all faculties in the same order. It embraces all important divisions of course of pathological physiology for the general medicine, stomatological, military-medical, public health and pharmaceutical faculties.

The students of general medicine faculty should profoundly possess the essence of general nosology, etiology and pathogenesis of typical pathological processes and diseases of different organs and systems. They must learn a reproduction of experimental models of different diseases and methods of their therapy. Also the students study all above mentioned problems and take attention to the specific futures of child organism, difference of reactivity, immunity, endocrine and nerves system and their influence in the development of diverse diseases.

The students of stomatological faculty study etiology and pathogenesis of typical pathological processes and diseases of different organs and systems. It is important to emphasizes that they must take a great attention to learn all these pathological processes particularly developed in the oral cavity.

The students of public health faculty should profoundly possess the essence of general nosology, etiology and pathogenesis of typical pathological processes and diseases of different organs and systems. In addition they must take attention to the role of external factors- ecology, poisoning of water, ground, foods and others in the etiology and pathogenesis of diseases.

The syllabus includes general instructions of the teaching of pathological physiology for all medical students and also, notes specific directions that more important for different faculties. Theseelements were note at the end of each part of subject for the general medicine, military medicine, stomatological and the public health faculties.

The course of pathological physiology includes lectures and practical studies (seminars). Lectures are very informative, they demonstrate movies, video-slides, some experiments on laboratory animals. During practical studies students work individually , but under instructions of teachers. They reproduce an experimental models of different diseases, discuss and analyse the results of experiments and give theoretical explanations for them.

According to study program the course of pathological physiology is studied in the stomatological faculty on the IV and V semesters, in all other faculties on the V and VI semesters. At the end of each semester students take examination.

The subject plan and hours of lectures, as well as practical studies for each faculty were given below.

General Medicine and Military Medicine faculties

Pre-Requisites:

Medical biology and genetics,biochemistry,normal anatomy, physiology, histology.

Co-Requisites:

Pathological anatomy, pharmacology, microbiology, internal diseases, general surgery.

Study Plan for General Medicine and Military Medicine faculties

III course (with academic hours)

Semester	Weeks	Lectures	Pract. studies	Total
V	12	14	46	60
VI	16	14	61	75
	28	28	107	135

Plan of Lectures

V semester

№	*Subject*	*Hours*
1	Introduction. The subject of pathophysiology. Evolution of pathophysiology. An idea of “general nosology”: Etiology and pathogenesis.	2
2	Pathogenic role of the external and internal factors in pathology. Heredity, reactivity, constitution age. Reactivity.	2
3	Cell injury. Pathology of microcirculation. Local circulatory	2

	disorders.	
4	Inflammation. Fever.	2
5	Pathology of immune system. Allergy.	2
6	Pathology of metabolism.	2
7	Pathology of tissue growth. Tumor. Extreme states. Hypoxia .	2
Total		14

Plan for Practical studies

V semester

№	*Theme of practical study*	*Parts ofpractical study*	*Hours*
1.	Introduction. Significance of experimental method in pathophysiological researches. General etiology and pathogenesis.	**Discussion of theoretical issues:** 1. The methods and tasks of pathophysiology. Etiology and pathogenesis. 2. Determination: norm , health and disease. 3. Disease: classification, stages , causes, outcome. 4. Etiology and pathogenesis **Tasks:** Influence of physical load on the compensatory –adaptation reactions	4
2.	The role the external environment, hereditary and constitution in pathology.	**Discussion of theoretical issues:** 1. Classification of environmental factors, their role in pathology. 2. Etiology and pathogenesis of hereditary disease. 3. Types of hereditary diseases, methods of their investigation and treatment. 4. Types of constitutions, diatheses. **Tasks:** Influence of heat and cold on the organism. Determination of sex chromatin.	4

3.	Role of the reactivity in pathology.	**Discussion of theoretical issues:** 1.An idea of reactivity of the organism. 2.Classification of the reactivity (А.Д. Ado) 3.Resistance of organism. Interrelation of reactivity with internal and external factors. 4.Immunity.Immune reactivity. **Tasks:** Influence of dizenterine vaccine on reactivity.	4
4.	Cell injury.	**Discussion of theoretical issues:** 1.Types of cell injury. 2. Specific and non-specific mechanisms of cell injury. 3.Protective reactions against of cell injury. **Tasks:** Alteration of mucosa membrane of oral cavity of frog.	
5.	Disorders of microcirculation and local circulation. Quiz	**Discussion of theoretical issues:** 1. Pathology of microcirculation 2. Arterial hyperemia, etiology, pathogenesis. 3. Venous hyperemia, etiology, pathogenesis. 4. Ischemia, stasis, infarction, thrombosis and embolism. **Tasks:** Reproduction of ischemia, stasis, infarction, thrombosis and embolism in the experiment. **Summary of the previous topics:** “General idea of disease”,“General etiology and pathogenesis”,“The role the external environment, hereditary and constitution in pathology”,“Role of the reactivity in pathology”, “Cell injury”, “Disorders of microcirculation and local circulation”	4

6.	Inflammation.	**Discussion of theoretical issues:** 1. Inflammation. Theories of inflammation 2. Causes, stages and outcome of inflammation. 3. Classification of inflammation. 4. Manifestations of inflammation. 5. Differentiation of acute and chronic inflammation. **Tasks:** Cohnheim's and Danilevsky experiments.	4
7.	Fever.	**Discussion of theoretical issues:** 1. Etiology, pathogenesis, stages, significance of fever. 2.The role of endocrine and nervous system in the development of fever. 3.The types of temperature curves 4. Common and different futures of fever and hyperthermia . **Tasks:** Influence of fever on ESR and number of leukocytes	4
8.	Pathology of immune system.	**Discussion of theoretical issues:** 1. Immune deficiency syndromes. 2.Allergy. Types and classification of allergic reactions. 3.Allergens: classification and characteristics. 4.Types and of allergic reactions 5.Autoimmune states **Tasks:** Reproduction of anaphylactic shock.	4
	Quiz	**Summary of the previous topics:** "Inflammation", "Fever", "Pathology of immune system"	
9.	Pathology of metabolism.	**Discussion of theoretical issues:** 1.General characteristic of metabolism .	

		2. Disorders of carbohydratemetabolism. 3. Classification, etiology, pathogenesis, complications of diabetes mellitus 4. Disorders of protein metabolism. 5. Disorders of lipid metabolism. **Tasks:** Reproduction of diabetes mellitus	4
10.	Pathology of metabolism.	**Discussion of theoretical issues:** 1. Disorders of water-salt metabolism. 2. Disorders of mineral metabolism . 3. Disorders of vitamin metabolism. 4. Disorders of acid-alkaline balance. 5. Starvation. **Tasks:** Reproduction of edemas.	4
11.	Pathology of the tissue growth. Tumors.	**Discussion of theoretical issues:** 1. Hyper- and hypobiotical processes 2. Tumor. Etiology, pathogenesis 3. Characteristic of carcinogens and oncogens. 4. Types of tumors. Mechanisms of development. 5. Antiblastomic resistant of organism **Tasks:** Reproduction of dezoxidative carbonuria.	4
	Extreme states. Hypoxia	**Discussion of theoretical issues:** 1.Extreme states: causes, types, characteristic. 2.Causes and mechanisms of shock.. 3.Collapse: syncope, coma: types, causes, mechanisms of development.	

12.		4.Stress 5.Hypoxia. **Tasks:** Reproduction of hypoxia on experiment.	4
	Quiz	The final seminar that includes previously studied themes: «Pathology of metabolism.», «Tumor», «Pathological physiology of extreme states», «Hypoxia»	
Total			46

Program of themes for the students studied by credit system in the

General Medicine and Military Medicine faculties

(4 credits 60 hours)

V semester

Credit	**Lectures**	**Hours**	**Practical studies**	**Hours**
1	1. Introduction. The subject of pathophysiology. Evolution of pathophysiology. An idea of "general nosology". General idea of disease. General etiology and pathogenesis. 2. Pathogenic role of the external and internal factors in pathology. Reactivity.	2 2	1.Introduction. General etiology and pathogenesis. 2. Pathogenic influence of environment, the role of hereditary and constitution in pathology. 3. Role of the reactivity in pathology.	4 4 4
	3.Cell injury. Pathology of microcirculation. Local circulatory disorders.	2 2	4.Cell injury. 5. Pathology of microcirculation 6. Inflammation.	4 4

1	4.Inflammation. Fever.			4
1	5.Pathology of immune system. 6.Pathology of metabolism.	2 2	7.Fever 8.Pathology of immune system. 9. Typical disturbances of metabolism. Disorders of carbohydrate, protein and lipid metabolism.	4 4 4
1	7. Pathology of tissue growth. Extreme states. Hypoxia	2	10. Disorders of water-salt, mineral, acid- alkaline and vitamin metabolism. 11. Tumor. Etiology, pathogenesis 12. Extreme states: causes, types, characteristic. Hypoxia.	4 4 2
Total		14		46

Total: 60 hours

Plan of Lectures

VI semester

№	*The themes of lectures*	*Hours*
1.	Pathology of blood system	2
2.	Pathology of cardiovascular system	2
3.	Pathology of respiratory system	2
4.	Pathology of digestion and liver	2
5.	Pathology of kidney	2
6.	Pathology of endocrine system	2

7.	Pathology of nerves system	2
Total		14

Plan for Practical studies

VI semester

№	*Theme of practical study*	*Parts of practical study*	*Hours*
1.	Typical disturbances of blood system.	**Discussion of theoretical issues:** 1.Changes of volume of circulated blood. 2.Erythrocytosis, anemia, classification. **Tasks:** Determination of catalase activity and erythrocyte number during anemia.	4
2.	Pathological physiology of blood system.	**Discussion of theoretical issues:** 1.leukocytosis, leukopenia, types, causes, mechanisms. 2. Leukomoid reactions. 3.Leucosis, etiology, pathogenesis, types, classification, causes, mechanisms. **Tasks:** Reproduction of leukocytosis and leucopenia in experiment.	4
3	Pathological physiology of blood system.	**Discussion of theoretical issues:** 1.Typical disturbances of hemostases. Disturbances of vascular-thrombocytic and coagulation hemostases. 2.Pathology of blood coagulatory, anticoagulatory and fibrinolytic system. **Tasks:**Determination of blood clotting time	4

4.	Pathological physiology of cardiovascular system.	**Discussion of theoretical issues:** 1. Types and causes of cardiovascular insufficiency. 2. Changes of hemo -dynamic indexes and main manifestation of cardiovascular insufficiency. 3. Etiology and pathogenesis of ischemic disease of heart . 4. Non- coronary forms of myocardial infarction. **Tasks:**Reproduction of angina pectoris and myocardial infarction in experiment.	4
5	Pathological physiology of cardiovascular system.	**Discussion of theoretical issues:** 1. Arrhythmia. **Tasks:** Reproduction of heart blockade .	4
6	Pathological physiology of cardiovascular system.	1. Vascular insufficiency, types, causes. 2. Disturbances of neuro-humoral mechanisms of vascular tonicity . 3. Arterial hyper- and hypotension. **Tasks:** Reproduction of arterial hypertension.	4
	Quiz	The final seminar that includes previously studied themes: «Typical disturbances of blood system», « Typical disturbances of cardiovascular system».	
7	Pathological physiology of respiratory system.	**Discussion of theoretical issues:** 1. Causes, types of respiratory insufficiency . 2.Disturbance of alveolar ventilation and diffusion. 3. Disturbance of internal respiration. **Tasks:** Reproduction of periodical breathing.	4

		Reproduction of reflex disturbances of external respiration.	
8	Pathological physiology of digestive system.	**Discussion of theoretical issues:** 1. Causes of disturbances of digestion. 2.Disturbances of appetite and oral cavity. 3. Disturbances of digestion in stomach. 4.Theories of ulcer disease. **Tasks:**Investigation of physic-chemical content of gastric juice. Determination of blood in gastric juice.	4
9	Pathological physiology of digestive system.	**Discussion of theoretical issues:** 1. Disturbances of digestion in intestines. 2.Intestinal obstructions (ileus), types, causes, outcomes. **Tasks:**Disturbance of membrane digestion during acute intestinal injury.	4
10	Pathological physiology of liver Quiz	**Discussion of theoretical issues:** 1. Hepatic insufficiency. 2. Portal hypertension. Types of jaundice. Cholelytyasis. **Tasks:** Toxic influence of bile on the organism. Determination of bilirubine in the blood and urine. The final seminar that includes previously studied themes: "Pathological physiology of respiratory system" , "Typical disturbances of digestive system », «Typical disturbances of liver».	4

11	Pathological physiology of kidney.	**Discussion of theoretical issues:** 1. Causes, types of renal insufficiency. 2. Investigation of functional state of kidney. 3. Uremia. Hemodialysis. 4. Urolytiasis. **Tasks:** Microscopic investigation of urine. Physico-chemical investigation of urine.	4
12	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1. Etiopathogenesis of disturbances of endocrine system. 2. Pathology of pituitary gland, types, mechanisms. 3. Pathology of adrenal gland, types, mechanisms. **Tasks:** Reaction of hypophys-adrenal system on the damaging influence of electrical current.	4
13	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1.Pathology of thyroid gland. 2. Pathology of parathyroid glands. 3. Pathology of sex glands. **Tasks:**Determination of the Ca- level in blood after parathyroid removing.	4
14	Pathological physiology of nerves system.	**Discussion of theoretical issues:** 1.Disturbance of nerves system, causes, types. 2. Pathology of nerve cells. 3.Pathology of labiality, parabiosis, denervation and deafferentation syndromes. 1. Motor, sensor and trophyc dysfunctions of	4

		nerves system. **Tasks:** Reproduction of camphora epilepsy.	
15	Pathological physiology of nerves system.	**Discussion of theoretical issues:** 2.Pathology of vegetative nerves system 3.Pain, causes, types, mechanisms. 4.Disturbance of higher nervous system. Neuroses. **Tasks:** Reproduction of neurosis in experiment Changes in reflexes after dissection of frog's motor nerve	4
	Quiz	The final seminar that includes previously studied themes: « Typical disturbances of renal system», «Typical disturbances of endocrine system», «Typical disturbances of nerves system».	
16	Final		1
Total			61

Program of themes for the students studied by credit system in the general medicine and military medicine faculties

(5 credits 75 hours)

VI semester

Credits	***Lectures***	***Hours***	***Practical studies***	***Hours***

1	1.Pathology of blood system 2. Pathology of cardiovascular system	2 2	1. Anemias, etiopathogenesis. 2. Leucosis, leukocytosis, leucopenia. 3.Disturbance of hemostasis	4 4 4
1	3. Pathology of respiratory system. 4. Pathology of digestion and liver	2 2	4. Ischemic heart diseases, 5. Arrhythmia. 6. Vascular insufficiency.	4 4 4
1	5. Pathology of kidney	2	7.Disturbances of respiration 8. Disturbance of digestion in the stomach and intestine . Ulcer disease. 9. Disturbance of digestion in the intestine. Ileus.	4 4 4
1	6.Pathology of endocrine system	2	10. Pathology of liver. Jaundice, types. 11. .Renal insufficiency, causes, types . 12. Hyper- and hypofunction of endocrine system. Pathology of pituitary gland, adrenal gland, types, mechanisms.	4 4 4
1	6.Pathology of nerves system	2	13. Hyper- and hypofunction of endocrine system. Pathology of thyroid, parathyroid and sex glands. 14. Disturbance of function of nervous system. 15. Disturbance of higher nervous	4 4 4

			system . Neurosis. 16. Final	1
Total		14		61

Total: 5 credits **75 hours**

STOMATOLOGICAL FACULTY

Specialization code for stomatological faculty070104

Course II, III

Semester IV and V

Credits for discipline 4 credits (IV semester)+ 4 credits (V semester)

Study language Azerbaijan, Russian, English

Lectures: 14 hours (IV semester) + 14 hours (V semester)

Practical studies (seminars) 46 hours (IV semester) + 46 hours (V semester)

Passing

Examination IV and V semesters

Total: 120 hours

Pre-Requisites:

Medical biology and genetics,biochemistry, normal anatomy, physiology, histology.

Co-Requisites:

Pathological anatomy, pharmacology, microbiology, internal diseases, general surgery.

Study Plan for stomatological faculty in the II course (IV semester) and III course (V semester)

(with academic hours)

Semester	**Weeks**	**Lectures**	**Pract. Studies**	**Total**
IV	12	14	46	60
V	12	14	46	60
	24	28	92	120

Plan of Lectures

IV semester

№	***Subject***	***Hours***
1	Introduction. The subject of pathophysiology. Evolution of pathophysiology. An idea of " general nosology". Etiology and pathogenesis.	2
2	Pathogenic role of the external and internal factors in pathology. Heredity, reactivity, constitution, age.	2
3	Cell injury. Pathology of microcirculation. Local circulatory disorders.	2
4	Inflammation. Fever..	2

5	Pathology of immune system. Allergy.	2
6	Pathology of metabolism.	2
7	Pathology of tissue growth. Tumor. Extreme states.	2
Total		14

Plan for Practical studies

IV semester

№	*Theme of practical study*	*Parts of practical study*	*Hours*
1.	Introduction. Significance of experimental method in pathophysiological researches. General etiology and pathogenesis. Pathogenic influence of environment.	**Discussion of theoretical issues:** 1.The methods and tasks of pathophysiology. Etiology and pathogenesis. 2.Determination: norm , health and disease. 3.Etiology and pathogenesis 4.Disease: classification, stages , causes, outcome. 5.Classification of external factors, their role in the development of disease **Tasks:**Influence of the high and low temperature on the organism.	4
2.	The role of hereditary and constitution in pathology.	**Discussion of theoretical issues:** 1.Etiology and pathogenesis of hereditary disease. 2.Types of hereditary diseases, methods of their investigation and treatment. 3.Types of constitutions, diatheses. **Tasks:** Determination of sex chromatin.	4
	Role of the reactivity in	**Discussion of theoretical issues:**	

3.	pathology.	1.An idea of reactivity of the organism. 2.Classification of the reactivity (А.Д. Ado) 3.Resistance of organism. Interrelation of reactivity with internal and external factors. 4.Immunity.Immune reactivity. **Tasks:**Influence of dizenterine vaccine on reactivity.	4
4.	Cell injury.	**Discussion of theoretical issues:** 1.Types of cell injury. 2. Specific and non-specific mechanisms of cell injury. 3.Protective reactions against of cell injury. **Tasks:** Alteration of mucosa membrane of oral cavity of frog.	4
5.	Disorders of microcirculation and local circulation. Quiz	**Discussion of theoretical issues:** 1.Pathology of microcirculation 2.Arterial hyperemia, etiology, pathogenesis, venous hyperemia, etiology, pathogenesis. 3.Ischemia, stasis, infarction, thrombosis and embolism. **Tasks:** Reproduction of ischemia, stasis, infarction, thrombosis and embolism. The final seminar that includes previously studied themes: “General etiology and pathogenesis», “The role of external and internal factors »“Reactivity» “Cell injury», «Pathology of microcirculation and local circulation”	
6.	Inflammation.	**Discussion of theoretical issues:** 1. Inflammation. Theories of inflammation 2. Causes, stages and outcome of inflammation. 3. Classification of inflammation. 4. Manifestations of inflammation. 5. Differentiation of acute and chronic inflammation.	4

		6. Inflammation of face-jaw areas. **Tasks:** Cohnheim's and Danilevsky experiments.	
7.	Fever.	**Discussion of theoretical issues:** 1. Etiology, pathogenesis, stages, significance of fever. 2.The role of endocrine and nervous system in the development of fever. 3.The types of temperature curves 4. Common and different futures of fever and hyperthermia . **Tasks:** Influence of fever on ESR and number of leukocytes	4
8.	Pathology of immune system. Allergy. Quiz	**Discussion of theoretical issues:** 1. Immune deficiency syndromes. 2.Allergy. Types and classification of allergic reactions. 3.Allergens: classification and characteristics. 4.Types and of allergic reactions 5.Treatment of allergy. **Tasks:** Reproduction of anaphylactic shock. The final seminar that includes previously studied themes: "Inflammation", "Fever", "Pathology of immune system"	4
9.	Pathology of metabolism.	**Discussion of theoretical issues:** 1.General characteristic of metabolism . 2. Disorders of carbohydrate metabolism. 3. Classification, etiology, pathogenesis, complications of diabetes mellitus 4. Disorders of protein and lipid metabolism. **Tasks:** Reproduction of diabetes mellitus	4
10.	Pathology of metabolism.	**Discussion of theoretical issues:** 1. Disorders of water-salt metabolism. 2. Disorders of mineral metabolism .	4

		3. Disorders of vitamin metabolism. 4. Disorders of acid-alkaline balance. 5. Starvation. **Tasks:** Reproduction of edemas.	
11.	Pathology of the tissue growth. Tumors.	**Discussion of theoretical issues:** 1. Hyper- and hypobiotical processes 2. Tumor. Etiology, pathogenesis 3. Characteristic of carcinogens and oncogens. 4. Types of tumors. Mechanisms of development. 5. Antiblastomic resistant of organism **Tasks:**Reproduction of dezoxidative carbonuria.	4
12.	Pathological physiology of extreme states.	**Discussion of theoretical issues:** 1.Extreme states: causes, types, characteristic. 2.Causes and mechanisms of shock.. 3.Collapse: syncope, coma: types, causes, mechanisms of development. 4.Stress 5.Hypoxia. **Tasks:** Reproduction of hypoxia on experiment.	2
	Quiz	The final seminar that includes previously studied themes: «Pathology of metabolism.», «Tumor», «Pathological physiology of extreme states»	
Total			46

Program of themes for the students studied by credit system in the stomatological faculty

(4 credits 60 hours)

***IV* semester**

Credit	Lectures	Hours	Practical studies	Hours
I	1. Introduction. The subject of pathophysiology. A brief evolution of pathophysiology. An idea of "general nosology" and disease. General etiology and pathogenesis. 2. Pathogenic role of the external and internal factors in pathology. Reactivity.	2 2	1.Introduction. General etiology and pathogenesis. Pathogenic influence of environment. 2. The role of hereditary and constitution in pathology. 3. Role of the reactivity in pathology.	4 4 4
1	3. Cell injury. Pathology of microcirculation. Local circulatory disorders. 4.Inflammation. Fever.	2 2	4. Cell injury. 5. Pathology of microcirculation. 6. Inflammation	4 4 4
1	5.Pathology of immune system. Allergy. 6.Pathology of metabolism.	2 2	7.Fever 8. Pathology of immune system. Allergy. 9. Typical disturbances of metabolism. Disorders of carbohydrate, protein and lipid metabolism.	4 4 4
			10. Disorders of water-salt, mineral, acid- alkaline and vitamin metabolism. 11. Tumor. Etiology,	4

1	7.Pathology of tissue growth. Extreme states. Hypoxia	2	pathogenesis 12. Extreme states: causes, types, characteristic.Hypoxia	4 2
Total		14		46

Total: 60 hours

Plan of Lectures

V semester

№	*The theme of lectures*	*Hours*
1.	Pathology of blood system	2
2.	Pathology of cardiovascular system	2
3.	Pathology of respiratory system	2
4.	Pathology of digestion and liver	2
5.	Pathology of kidney	2
6.	Pathology of endocrine system	2
7.	Pathology of nerves system	2
Total		14

Plan for Practical studies

V semester

№	*Theme of practical study*	*Parts of practical study*	*Hours*
1.	Typical disturbances of blood system.	**Discussion of theoretical issues:** 1. Changes of volume of circulated blood. 2. Erythrocytosis, anemia, classification. 3.leukocytosis, leukopenia, types, causes,	4

		mechanisms. 4. Stomatological signs during anemias. **Tasks:** Determination of catalase activity and erythrocyte number during anemia.	
2.	Pathological physiology of blood system.	**Discussion of theoretical issues:** 1. Leukomoid reactions. 2.Leucosis, etiology, pathogenesis, types, classification, causes, mechanisms. 3. Pathology of blood coagulatory, anticoagulatory and fibrinolytic system. 4. Stomatological signs during pathology of leucocytes. 5. Stomatological signs during typical disturbances of hemostases. **Tasks:** Reproduction of leukocytosis and leucopenia in experiment. Determination of blood clotting time.	4
3.	Pathological physiology of cardiovascular system.	**Discussion of theoretical issues:** 1. Types and causes of cardiovascular insufficiency . 2. Changes of hemo -dynamic indexes and main manifestation of cardiovascular insufficiency. 3. Etiology and pathogenesis of ischemic disease of heart 4. Non- coronary forms of myocardial infarction. **Tasks:** Reproduction of angina pectoris and myocardial infarction in experiment.	4
	Pathological physiology of	**Discussion of theoretical issues:**	

4.	cardiovascular system.	1. Arrhythmia. 2.Causes, mechanisms of arrhythmias. 3. Vascular insufficiency, types, causes. Arterial hyper- and hypotension. **Task:** Reproduction of heart blockade.	4
	Quiz	The final seminar that includes previously studied themes: «Typical disturbances of blood system», « Typical disturbances of cardiovascular system».	
5.	Pathological physiology of respiratory system.	**Discussion of theoretical issues:** 1. Causes, types of respiratory insufficiency 2.Disturbance of alveolar ventilation and diffusion 3. Disturbance of internal respiration. **Tasks:** Reproduction of periodical breathing. Reproduction of reflex disturbances of external respiration.	4
6.	Pathological physiology of digestive system.	**Discussion of theoretical issues:** 1. Causes of disturbances of digestion 2.Disturbances of appetite and oral cavity. 3. Disturbances of digestion in stomach. Theories of ulcer disease 4. Interrelation between digestive diseases and pathology of oral cavity.	4

		5. . Disturbances of digestion in intestines. 6.Intestinal obstructions (ileus), types, causes, outcomes. **Tasks:**Reproduction of gastric and duodenal ulcer in experiment .	
7.	Pathological physiology of liver.	**Discussion of theoretical issues:** 1.Etiology and pathogenesis of liver insufficiency 2. Methods of investigation of hepatic functions. 3. Portal hypertension. 4. Types and causes of jaundice. 5. Cholelytiasis. 6. Toxic influence of the bile on organism. **Tasks:** Determination of free and conjugated bilirubin	4
	Quiz	The final seminar that includes previously studied themes: "Pathological physiology of respiratory system" , "Typical disturbances of digestive system », «Typical disturbances of liver»,	
8.	Pathological physiology of kidney.	**Discussion of theoretical issues:** 1. Causes, types of renal insufficiency. 2. Investigation of functional state of kidney. 3. Uremia. Hemodialysis. 4. Urolytiasis. **Tasks:** Microscopic investigation of urine. Physico-chemical investigation of urine.	4

9.	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1. Etiopathogenesis of disturbances of endocrine system. 2. Pathology of pituitary gland, types, mechanisms. 3. Pathology of adrenal gland, types, mechanisms. **Tasks:** Reaction of hypophys-adrenal system on the damaging influence of electrical current.	4
10.	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1.Pathology of thyroid gland 2. Pathology of parathyroid glands 3. Pathology of sex glands **Tasks:** Determination of the Ca- level in blood after parathyroid removing	4
11.	Pathological physiology of nerves system.	**Discussion of theoretical issues:** 1.Disturbance of nerves system, causes, types. 2. Pathology of nerve cells. 3.Pathology of labiality, parabiosis, denervation and deafferentation syndroms. 4. Motor, sensor and trophic dysfunctions of nerves system. 5. Pathology of vegetative nerves system. 6. .Disturbance of higher nervous system. Neuroses. 7. Pathophysiology of pain in face: trigeminal, themporomandibular, myofassial pains.	4

		Tasks: Reproduction of neurosis in experiment. Reproduction of camphora epilepsy.	
12.	Quiz	The final seminar that includes previously studied themes: « Typical disturbances of renal system» «Typical disturbances of endocrine system»,«Typical disturbances of nerves system».	2
Total			46

Program of themes for the students studied by credit system in the stomatological faculty

(4 credits 60 hours)

V semester

Credits	***Lectures***	***Hours***	***Practical studies***	***Hours***
1	1.Pathology of blood system. 2. Pathology of cardiovascular system .	2 2	1. Anemias, etiopathogenesis. 2. Leucosis, leukocytosis, leucopenia. Disturbance of hemostasis. 3. Ischemic heart diseases	4 4 4

1	3. Pathology of respiratory system. 4. Pathology of digestion and liver.	2 2	4. Arrhythmia. Vascular insufficiency. Arterial hyper-, hypotension. 5. Disturbances of respiration 6. Disturbance of digestion in the stomach and intestine . Ulcer disease. Disturbance of digestion in the intestine. Ileus.	4 4 4
1	5. Pathology of kidney. 6.Pathology of endocrine system .	2 2	7. . Pathology of liver. Jaundice, types. 8. Renal insufficiency, causes, types. 9. Hyper- and hypofunction of endocrine system. Pathology of pituitary gland, adrenal gland, types, mechanisms.	4 4 4
1	7. Pathology of nerves system.	2	10. Hyper- and hypofunction of endocrine system. Pathology of thyroid, parathyroid and sex glands. 11. Disturbance of function of nervous system. Disturbance of higher nervous system . Neurosis. 12. Final	4 4 2
Total		14		46

Total: 4 credits **60 hours**

PHARMACEUTICAL FACULTY

Specialization code for pharmaceutical faculty050806

Course III

Semester V and VI

Credits for discipline 4 credits (V semester) +3 credits (VI semester)

Study language Azerbaijan, Russian, English

Lectures: 10 (V semester) +10 hours (VI semester)

Practical studies (seminars) 50 hours (V semester) ++35 hours (VI semester)

Passing -

Examination V and VI semesters

Total: 105 hour

Pre-Requisites:

Anatomy, microbiology, normal physiology, Latin

Co-Requisites:

Pharmacology, biochemistry, general surgery

Study Plan for III course of pharmaceutical faculty

(with academic hours)

Semester	**Weeks**	**Lectures**	**Pract. studies**	**Total**
V	13	10	50	60
VI	16	10	35	45
	29	20	85	105

Plan of Lectures

V semester

№	*Subject*	*Hours*
1.	Introduction. The subject of pathophysiology. Evolution of pathophysiology. An idea of "general nosology".	2
2.	Pathogenic role of the external and internal factors in pathology. Reactivity.	2
3.	Cell injury. Pathology of microcirculation. Local circulatory disorders. Inflammation. Fever.	2
4.	Pathology of immune system. Allergy.	2
5.	Pathology of metabolism.Pathology of tissue growth. Extreme states. Hypoxia	2
Total		10

Plan for Practical studies

V semester

№	*Theme of practical study*	*Parts of practical study*	*Hours*
	Introduction. Significance of experimental method in	**Discussion of theoretical issues:** 5. The methods and tasks of pathophysiology. Etiology and pathogenesis. 6. Determination: norm , health and disease.	

1.	pathophysiological researches. General etiology and pathogenesis.	7. Disease: classification, stages , causes, outcome. 8. Etiology and pathogenesis **Tasks:** Influence of physical load on the compensatory –adaptation reactions	4
2.	The role the external environment, hereditary and constitution in pathology.	**Discussion of theoretical issues:** 5. Classification of environmental factors, their role in pathology. 6. Etiology and pathogenesis of hereditary disease. 7. Types of hereditary diseases, methods of their investigation and treatment. 8. Types of constitutions, diatheses. **Tasks:** Influence of heat and cold on the organism. Determination of sex chromatin.	4
3.	Role of the reactivity in pathology.	**Discussion of theoretical issues:** 1.An idea of reactivity of the organism. 2.Classification of the reactivity (А.Д. Ado) 3.Resistance of organism. Interrelation of reactivity with internal and external factors. 4.Immunity.Immune reactivity. **Tasks:** Influence of dizenterine vaccine on reactivity.	4

4.	Cell injury.	**Discussion of theoretical issues:** 1.Types of cell injury. 2. Specific and non-specific mechanisms of cell injury. 3.Protective reactions against of cell injury. **Tasks:** Alteration of mucosa membrane of oral cavity of frog.	4
5.	Disorders of microcirculation and local circulation. Quiz	**Discussion of theoretical issues:** 5. Pathology of microcirculation 6. Arterial hyperemia, etiology, pathogenesis. 7. Venous hyperemia, etiology, pathogenesis. 8. Ischemia, stasis, infarction, thrombosis and embolism. **Tasks:** Reproduction of ischemia, stasis, infarction, thrombosis and embolism in the experiment. **Summary of the previous topics:** "General idea of disease", "General etiology and pathogenesis", "The role the external environment, hereditary and constitution in pathology", "Role of the reactivity in pathology", "Cell injury", "Disorders of microcirculation and	4

		local circulation”	
6.	Inflammation.	**Discussion of theoretical issues:** 6. Inflammation. Theories of inflammation 7. Causes, stages and outcome of inflammation. 8. Classification of inflammation. 9. Manifestations of inflammation. 10. Differentiation of acute and chronic inflammation. **Tasks:** Cohnheim’s and Danilevsky experiments.	4
7.	Fever.	**Discussion of theoretical issues:** 1. Etiology, pathogenesis, stages, significance of fever. 2.The role of endocrine and nervous system in the development of fever. 3.The types of temperature curves 4. Common and different futures of fever and hyperthermia . **Tasks:** Influence of fever on ESR and number of leukocytes	4
8.	Pathology of immune system.	**Discussion of theoretical issues:** 1. Immune deficiency syndromes. 2.Allergy. Types and classification of allergic reactions. 3.Allergens: classification and characteristics. 4.Types and of allergic reactions 5.Autoimmune states **Tasks:** Reproduction of anaphylactic shock.	4
	Quiz	**Summary of the previous topics:** “Inflammation”, “Fever”, “Pathology of immune system”	
	Pathology of	**Discussion of theoretical issues:**	

9.	metabolism.	1.General characteristic of metabolism . 2. Disorders of carbohydrate metabolism. 3. Classification, etiology, pathogenesis, complications of diabetes mellitus 4. Disorders of protein metabolism. 5. Disorders of lipid metabolism. **Tasks:** Reproduction of diabetes mellitus	4
10.	Pathology of metabolism.	**Discussion of theoretical issues:** 1. Disorders of water-salt metabolism. 2. Disorders of mineral metabolism . 3. Disorders of vitamin metabolism. 4. Disorders of acid-alkaline balance. 5. Starvation. **Tasks:** Reproduction of edemas.	4
11.	Pathology of the tissue growth. Tumors.	**Discussion of theoretical issues:** 1. Hyper- and hypobiotical processes 2. Tumor. Etiology, pathogenesis 3. Characteristic of carcinogens and oncogens. 4. Types of tumors. Mechanisms of development. 5. Antiblastomic resistant of organism **Tasks:** Reproduction of dezoxidative carbonuria.	4
	Extreme states. Hypoxia	**Discussion of theoretical issues:** 1.Extreme states: causes, types, characteristic. 2.Causes and mechanisms of shock.. 3.Collapse: syncope, coma: types, causes,	

12.		mechanisms of development. 4.Stress 5.Hypoxia. **Tasks:** Reproduction of hypoxia on experiment.	4
13	Quiz	The final seminar that includes previously studied themes: «Pathology of metabolism.», «Tumor», «Pathological physiology of extreme states», «Hypoxia»	2
Total			50

Program of themes for the students studied by credit system in the Pharmaceutical faculty

(4 credits 60 hours)

V semester

Credit	**Lectures**	**Hours**	**Practical studies**	**Hours**
1	1. Introduction. The subject of pathophysiology. Evolution of pathophysiology. An idea of "general nosology". General idea of disease. General etiology and pathogenesis. 2. Pathogenic role of the external and internal factors in pathology. Reactivity.	2 2	1.Introduction. General etiology and pathogenesis. 2. Pathogenic influence of environment, the role of hereditary and constitution in pathology.	4 4
	3.Cell injury. Pathology of microcirculation. Local	2	3. Role of the reactivity in pathology. 4.Cell injury.	4 4

1	circulatory disorders. Inflammation. Fever.		5. Pathology of microcirculation	4
1	4. Pathology of immune system.	2	6. Inflammation. 7.Fever 8.Pathology of immune system.	4 4 4
1	5.Pathology of metabolism. Pathology of tissue growth. Extreme states. Hypoxia	2	9. Typical disturbances of metabolism. Disorders of carbohydrate, protein and lipid metabolism. 10. Disorders of water-salt, mineral, acid- alkaline and vitamin metabolism. 11. Tumor. Etiology, pathogenesis 12. Extreme states: causes, types, characteristic. Hypoxia. 13. Final lesson	4 4 4 4 2
Total		10		50

Total: 60 hours

Plan of Lectures

VI semester

№	*The themes of lectures*	*Hours*
1.	Pathology of blood system	2
2.	Pathology of cardiovascular system and respiration	2
3.	Pathology of digestion and liver	2
4.	Pathology of kidney	2
5.	Pathology of endocrine system and nervous system	2
Total		10

Plan for Practical studies

VI semester

№	*Theme of practical study*	*Parts of practical study*	*Hours*
1.	Typical disturbances of blood system.	**Discussion of theoretical issues:** 1. Changes of volume of circulated blood. 2. Erythrocytosis, anemia, classification. **Tasks:** Determination of catalase activity and erythrocyte number during anemia.	2
2.	Pathological physiology of blood system.	**Discussion of theoretical issues:** 1.leukocytosis, leukopenia, types, causes, mechanisms. 2. Leukomoid reactions. 3.Leucosis, etiology, pathogenesis, types, classification, causes, mechanisms. **Tasks:** Reproduction of leukocytosis and leucopenia in experiment.	2
3	Pathological	**Discussion of theoretical issues:** 1.Typical disturbances of hemostases.	2

	physiology of blood system.	Disturbances of vascular-thrombocytic and coagulation hemostases. 2.Pathology of blood coagulatory, anticoagulatory and fibrinolytic system. **Tasks:** Determination of blood clotting time	
4.	Pathological physiology of cardiovascular system.	**Discussion of theoretical issues:** 1. Types and causes of cardiovascular insufficiency. 2. Changes of hemo -dynamic indexes and main manifestation of cardiovascular insufficiency. 3. Etiology and pathogenesis of ischemic disease of heart . 4. Non- coronary forms of myocardial infarction. **Tasks:**Reproduction of angina pectoris and myocardial infarction in experiment.	2
5	Pathological physiology of cardiovascular system.	**Discussion of theoretical issues:** 1. Arrhythmia. **Tasks:** Reproduction of heart blockade .	2
6	Pathological physiology of cardiovascular system.	1. Vascular insufficiency, types, causes. 2. Disturbances of neuro-humoral mechanisms of vascular tonicity . 3. Arterial hyper- and hypotension. **Tasks:** Reproduction of arterial hypertension.	2
	Quiz	The final seminar that includes previously studied themes: «Typical disturbances of blood system», « Typical disturbances of cardiovascular system».	
	Pathological physiology of	**Discussion of theoretical issues:**	

7	respiratory system.	1. Causes, types of respiratory insufficiency . 2.Disturbance of alveolar ventilation and diffusion. 3. Disturbance of internal respiration. **Tasks:** Reproduction of periodical breathing. Reproduction of reflex disturbances of external respiration.	2
8	Pathological physiology of digestive system.	**Discussion of theoretical issues:** 1. Causes of disturbances of digestion. 2.Disturbances of appetite and oral cavity. 3. Disturbances of digestion in stomach. 4.Theories of ulcer disease. **Tasks:** Investigation of physic-chemical content of gastric juice. Determination of blood in gastric juice.	2
9	Pathological physiology of digestive system.	**Discussion of theoretical issues:** 1. Disturbances of digestion in intestines. 2.Intestinal obstructions (ileus), types, causes, outcomes. **Tasks:**Disturbace of membrane digestion during acute intestinal injury.	2
10	Pathology of liver Quiz	**Discussion of theoretical issues:** 1.Hepatic insufficiency. 2.Portal hypertension. Cholelytyasis. **Tasks:**Toxic influence of bile on the organism The final seminar that includes previously studied themes: “Pathological physiology of respiratory system” , “Typical disturbances of	2

		digestive system », «Typical disturbances of liver».	
11	Pathological physiology of kidney.	**Discussion of theoretical issues:** 1. Causes, types of renal insufficiency. 2. Investigation of functional state of kidney. 3. Uremia. Hemodialysis. 4. Urolytiasis. **Tasks:** Microscopic investigation of urine. Physico-chemical investigation of urine.	2
12	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1. Etiopathogenesis of disturbances of endocrine system. 2. Pathology of pituitary gland, types, mechanisms. 3. Pathology of adrenal gland, types, mechanisms. **Tasks:** Reaction of hypophys-adrenal system on the damaging influence of electrical current.	2
13	Pathological physiology of endocrine system.	**Discussion of theoretical issues:** 1.Pathology of thyroid gland. 2. Pathology of parathyroid glands. 3. Pathology of sex glands. **Tasks:**Determination of the Ca- level in blood after parathyroid removing.	2
14	Pathological physiology of nerves system.	**Discussion of theoretical issues:** 1.Disturbance of nerves system, causes, types.	

		2. Pathology of nerve cells. 3.Pathology of labiality, parabiosis, denervation and deafferentation syndromes. 1. Motor, sensor and trophyc dysfunctions of nerves system. **Tasks:** Reproduction of camphora epilepsy.	2
15	Pathological physiology of nerves system.	**Discussion of theoretical issues:** 2.Pathology of vegetative nerves system 3.Pain, causes, types, mechanisms. 4.Disturbance of higher nervous system. Neuroses. **Tasks:** Reproduction of neurosis in experiment Changes in reflexes after dissection of frog's motor nerve	2
16	Quiz	The final seminar that includes previously studied themes: « Typical disturbances of renal system», «Typical disturbances of endocrine system», «Typical disturbances of nerves system».	3
Total			35

Program of themes for the students studied by credit system

(3 credits, 45 hours)

Credits	***Lectures***	***Hours***	***Practical studies***	***Hours***
1	1.Pathology of blood system 2. Pathology of cardiovascular and respiratory system	2 2	1. Erythrocytosis. Anemia 2. Leukocytosis, leucopenia, Leucosis, 3. Disturbance of hemostasis. 4. Ischemic heart diseases 5.Arrhythmias, 6.Arterial hyper- and hypotension.	2 2 2 2 2 2
1	3. Pathology of digestion and liver 4. Pathology of kidney	2 2	7.Respiratory insufficiency. Periodical breathing . 8. Disturbance of digestion in the stomach. 9. Disturbance of digestion in the intestine. 10. Pathology of liver. Jaundice, types. 11.Renal insufficiency, causes, types.	2 2 2 2 2
1	5.Pathology of endocrine and nerves system.	2	12.Pathology of endocrine system. 13. Hyper- and hypofunction of endocrine system.	2 2

			14. Disturbance of nervous system 15. Disturbance of function of higher nervous system. 16. Final lesson	2 4 3
Total		10		35

CONTENTS OF DISCIPLINE

Practical study 1.

Introduction. **The subject and methods of pathology.**

Pathology as a science and teaching discipline (its subject and tasks). The methods of pathology. The significance of experiment in the development of theoretical and practical medicine and pharmacy: general principles for reproduction of medico-biological experiments, interpretation of their results, experimental modeling, its types and possibilities. Experimental modeling of diseases and short comes of experimental method. An important role of such fields of medicine as molecular biology, genetics, biochemistry as well as, electronics, mathematics, ecology and others in the improvement of pathological physiology. Significance of experimental therapy in the investigation of new methods of treatment. A term of clinical pathophysiology, its tasks and perspectives. A brief information about history of development of pathophysiology. A history of development of pathophysiology in Azerbaijan. A main parts of pathological physiology: general pathophysiology (general nosology, typical pathological processes) and specific pathophysiology (pathophysiology of organs and systems).

General pathological physiology. Disease. General nosology.

An idea of nosology. Difference of nosology from pathology. Determination of the essence of diseases. Determination of terms: norm , health, disease. Disease: classification, stages , causes, outcome. Classification of external factors, their role in the development of disease. Principles of prophylaxes and therapy. Terminal states, characteristic of preagonal state, agony, clinical and biological death. Reanimation, post-reanimation diseases, stages, general characteristic. A main principles of classification of diseases (WHO).

General etiology and pathogenesis.

Etiology (term, essence, classification of causative factors and conditions). The role of etiological factors and conditions in the development of diseases. Theoretical and practical significance of investigation of diseases. Exogenous and endogenous factors in the etiology of diseases. Mechanical, physical, chemical, biological, social factors that take a great role in the development of diseases. The theories about etiology of diseases. Etiotropical principle in the therapy.

Pathogenesis: determination, classification. Cell injury as a main link in the development of pathogenesis. The levels of injury, main link, vicious circles. General and local, Theoretical basic of pathogenic therapy. Protective and compensatory reactions of organism. A mechanisms of recovery.

Significance of the external environment in the origin of diseases

Mechanical factors. Traumatic shock. Acceleration. Overload and kinetosis. Weightlessness. Sound vibrations and ultrasounds. Heat and cold. Ultra-violet rays. Ionizing radiation . Radiation sickness. Laser rays. Electric energy. Lowered and elevated Atmospheric pressure. Chemical factors. Biological factors. Psychical and social factors

Resistance to medicine (drug), drug disease, dependence from drugs. Pathogenic effect of drugs.

Practical study 2.

Role ofhereditary, constitution, age and sex in the pathology.

Heredity. Gene, chromosomal and genome mutations. Methods of study hereditary diseases. Gene and chromosomal diseases. Principles of treatment of the hereditary diseases. Sex. Age. Theories explaining the mechanism of aging. Constitution. Trends in understanding of constitution. Classifications of constitutional Types. Diatheses. General principles of treatment of hereditary diseases.

I. *A main factors determined the specific peculiarities of pathology in the early stages of ontogenesis. A main peculiarities of reactivity in children and its significance. General information of diathesis. Pathology of intrauterine development. Information about antenatal pathology. Gametopathies, blastopathies, embriopathies, fetopathies. Pathology of neonatal period and a problems of neonatal death.*
II. *A main peculiarities of etiology and pathogenesis of diseases developed in the oral cavity.*
III. *A role of civilization, urbanization, scientific-technical progress in the development of diseases. New factors in the etiology of diseases. Pathogenic action of physical, chemical, biological factors connected with work and life conditions of people. Influence of negative emotions, pollution of environment.*

Practical study 3.

Role of reactivity in the pathology.

Organism's reactivity and its significance in pathology.

Classification of reactivity. The pathological reactivity. External and internal factors on which the reactivity depends. Resistance of the organism. Phagocytosis. Immunity. The Immunogenic reactivity and non-specific resistance. Influence of environmental, social, ecological factors. Pathological reactivity. Group and individual reactivity.

Typical Pathological Processes

Practical study 4.

Pathological physiology of cell

Classification of Cell Injuries. Pathogenetic Mechanisms of Cell Injuries. Disturbances of Structure and Functions of Cell Organoids. Non - specific and Specific Signs of Cell Injuries. Reversible and irreversible forms of cell injury. Disturbance of genetic apparatus. Cell dystrophy, necrosis and autolysis as an outcome of cell injury. Defence - recovery Mechanisms of Cell Injury (antioxidant, antimutation, detoxication and buffer systems). Methods of determination of cell injury in the separate organs and tissues.

Practical study 5.

Pathology of the Microcirculation and Local Circulatory Disorders (arterial and venous hyperemia, ischemia, infarction, stasis, thrombosis, embolism, DIC- syndrome)

Disturbances of Microcirculation. Lymph Circulation Insufficiency. Arterial Hyperemia- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. Venous Hyperemia- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. Ischemia- etiology, pathogenesis of development, metabolic changes,

classification, main signs and significance.. Stasis- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. Infarct- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. Thrombosis- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. Embolism- etiology, pathogenesis of development, metabolic changes, classification, main signs and significance. DIC- syndrome - etiology, pathogenesis of development. General principles of treatment of local circulatory disorders.

Practical study 6.

Inflammation

The Concept and Theories of Inflammation. The Exogenous and Endogenous Phlogogens. Stages in the Pathogenesis of Inflammation. Mediators of Inflammation. Internal, External and General Signs of Inflammation. Classification of Inflammation. Nomenclature of Inflammation. Outcome of Inflammation.

Mediators of inflammations: the mediators which influence mainly vascular wall tension and permeability and the mediators which influence mainly the functional properties of leukocytes.

The role central nervous system in the mechanism of inflammation. The vegetative nervous system in the course of the inflammatory reactions. Hyperfunction of the sympathetic nervous system inhibits the development of inflammation and its hypofunction tends to stimulate the process. Participation of the endocrine glands in the development of inflammation.

General principles of prophylaxis and treatment of inflammatory diseases.

I. Development of inflammation in the ontogenesis. Specific futures of inflammation in the period of newborns. Peculiarities of vascular reactions, emigration, phagocytosis.

II. Peculiarities of inflammation in the stomatological practice. Peculiarities of proliferative stage of inflammation in the dental tissues.

Infection process

General characteristics of infection process, causes, types, kinds of infection agents, the ways of their penetration and spreading in the organism. A stages and manifestation of infection diseases. A role of reactivity in the development of infection process. Specific and non-specific protective factors of organism against of infection. An outcome of infection diseases. Principles of therapy.

I. *Infection diseases of children, their specific futures.*

Practical study 7.

Fever.

Etiology and Pathogenesis of Fever. Exogenous and Endogenous Pyrogenic Substances. Action Mechanism of the Pyrogens. Stages in the Course of the Fever. Classification of the Fever. Metabolic Disturbances and Disorders in Activity of Organs and Systems of Organism in Fever. The pyrogenic substances; exogenous(products of vital activity or disintegration of microorganisms and endogenous(formed in the organism under the influence of various etiologic, mainly infectious agents). Metabolic disturbances in the fever. Etiological peculiaritiesof the infectious agent. Elevation of body temperature. Loss of appetite and digestive disturbances in the organism during fever.

Disturbances and of thermoregulation raised in the nervous system, excitation of the sympathetic nervous system, changes of the cardiac rhythm. Participation of endocrine glands in the development of the feverish reaction. Outcome of the Fever. Pyrotherapy. General principles of prophylaxis and treatment of inflammatory diseases.

I. Fever reaction in the children , their specific futures.

II. A state of mucosal surface of oral cavity and salivary glands during feverish reaction.

Practical study 8.

Immune system pathology. Allergy

Immunity deficiency states. Pathological tolerance. Transplantation disease. Allergic reactions. Classification of allergens and allergic reactions. Stages of allergy. Mediators of allergy. Immediate type allergic reactions. Anaphylactic reactions. Anaphylactic shock. Overy's phenomenon. Arthus' phenomenon. Serum sickness. Delayed type allergic reactions. Autoimmune processes. General principles of prophylaxis, desensebilization (hyposensibilization) during immediate and delayed types of allergic reactions.

Etiology, pathogenesis and clinical manifestations of anaphylactic and atopic reactions. General principles of treatment of allergic diseases.

I. Immune conflict between mother and fetus, main forms, outcomes. Allergic diseases of newborns. Pathogenesis of immune disorders and allergic diseases in the children. Immune deficiency states in children .
II. Immune disorders and allergic diseases encountered in the stomatological clinics. The role of allergic processes in the development of paradontosis, diseases of mucosal surface of oral cavity.
III. Industrial and domestic allergens. Their role in the development of dermatosis.

Practical study 9.

Pathology of the Metabolism

Disturbances in Basal Metabolism. Disturbances in Carbohydrate metabolism. The forms of disturbances in carbohydrate metabolism: disturbances

in carbohydrate digestion and absorption; disturbances in synthesis and breakdown of glycogen; disturbances in intermediate metabolism of carbohydrates; disturbances in regulation of carbohydrate metabolism. Diabetic coma. General principles of correction of disturbances of carbohydrate metabolism.

Disturbances of Lipid and Protein Metabolism.

The forms of disturbances of protein metabolism: disturbances in nitrogen balance; disturbances in digestion and absorption of proteins; disturbances in sythesis of proteins; disturbances in intermediate amino acid metalbolism; disturbances in final stage of protein metabolism; disturbances in blood content of proteins; disturbances in nucleic acid metabolism.

The forms of disturbances in lipid metabolism: disturbances in digestion and absorption of fats in intestine; disturbances in passage of fats from the blood into tissues; disturbances in deposition of fats (obesity); disturbances in intermediate fat metabolism; disturbances in phospholipide metabolism; disturbances in cholesterol metabolism.

General principles in the correction of disturbances of lipid and protein metabolism.

I. A specific peculiarities of lipid metabolism and their disturbances in children. Glucosfingolipidosis, their etiopathogenesis, disturbances of purin metabolism in the children. Hyperuricemia and utaruria in newborns. Nerve-artritic diatheses.

Disturbances of the Water and Salt Metabolism. Edema. Disturbances in Mineral and Vitamin Metabolism. Disturbances of acid- alkaline balance. Starvation.

Water balance of the organisms. Negative water balance (loss of water by the organism). Positive water balance (retention of water in the organism).

Dehydration and hyperhydration: isoosmotic, hypoosmotic, hyperosmotic types of dehydrations or hyperhydrations.

The mechanism of development (pathogenesis) of edemas. Mechanical (congestive) edema; Oncotic edema; Osmotic edema; Toxic edema (hyperpermeability of the capillary wall).

Gaseous (respiratory) and non-gaseous acidosis and alkalosis. Etiology and pathogenesis.

Disturbances in calcium and phosphorus: disturbances in absorption of calcium and phosphorus in intestine; demineralization of bones and teeth; excessive accumulation of calcium and phosphorus in bones and tissues.

Types of disturbances of vitamin balance in the organism: Negative balance- hypovitaminosis (partial vitamin deficiency) and avitaminosis (vitamin starvation). Positive balance (excessive accumulation of vitamin in the organism)- hypervitaminosis (vitamin intoxication. Principles of correction of disturbances of the water and salt metabolism. Treatment of edemas. Correction of disturbances in mineral and vitamin metabolism.

I. A main futures of disturbances of water metabolism in the children.

The hypervitaminoses of D and rachitic diseases of children. D-resistance rachitis. Principles of their prophylaxis and therapy.

General peculiarities of starvation in the children.

II. Typical disturbances of phosphor- calcium metabolism. Hypo- and hyper-calcemia, hypo- and hyper-phosphatemia, their etiopathogenesis. Their clinical manifestations in the dental practice.

Practical study 10.

Pathology of the Tissue Growth. Tumor.

Disorders of the Intrauterine Development. Disorders in the Development of the Body at the Postnatal Period. Hypobiotic Processes: Dystrophy and Atrophy. Hyperbiotic Processes: Hypertrophy, Hyperplasia, Regeneration and Tumors. Properties of Tumoral cells and Tissues. Classification of Tumors. Benign and Malignant Tumors. Tumoral Progression. Metabolic Changes in the Organism Caused by Tumors. Theories of the Etiology of Tumors. The Theory of Pathogenesis of Tumors.

Experimental studies of Neoplastic Growth. Antiblastomic Resistance of the Organism. General principles of prophylaxis and treatment of neoplastic processes.

I. General peculiarities of tumor diseases in the children.

III.A significance of well life condition in the prophylaxis of cancer with professional origin.

Practical study 11.

Pathological Physiology of Extreme States of Organism.

Classification of Extreme States. Common Peculiarities in the Pathogenesis of the Extreme States. Pain. Classification of the Pain. Stress. Shock. Main characteristic, Classification of the Shock. Stages and Phases of the Shock. Etiology and pathogenesis of Shock. Theories of the Pathogenesis of the Shock. Crush Syndrome. Syncope. Collapse.

Coma. Types of coma. Etiology and pathogenesis of coma. Stages of coma. A main principles of treatment.

Syncope. Collapse. Types, etiology and pathogenesis.

Stress. Stages and mechanisms of stress. Main manifestation of stress. An idea of “adaptation diseases”. Pathophysiological basics of prophylaxis and treatment of extreme states of organism.

Hypoxia. Classification of hypoxia. Causes and mechanisms of development of hypoxia. Mechanisms of immediate and protracted reactions of compensation during hypoxia. Acute and chronic hypoxia. Etiology and pathogenesis. Exogenous and endogenous forms of hypoxia. Hypoxic, respirator, circulator, hemic, histotoxic and mixed forms of hypoxia. Experimental modeling of different forms of hypoxia. A main principles of treatment.

Hyperoxia, its role in the pathology. Hyperoxia and free radicals. Hyperoxia as an outcome of hypoxia. The usage of hyperbaric oxygenation in the medicine.

I. An acute and chronic hypoxia of fetus and newborns. Interdependence of hypoxia from the age of person.

II. The role of hypoxia in the inflammatory diseases during dental practice. The usage of hyperbaric oxygenation in the dental diseases.

PHATOLOGICAL PHYSIOLOGY OF ORGANS AND SYSTEMS

Practical study 1.

Pathological physiology of blood system.

Blood System Pathology. Changes in the Physicochemical Properties and Total Volume of the Blood. Loss of Blood.

Disturbances of erythrocytes. Quantitative and Qualitative Changes in Erythrocytes. Anemia and its Classification. Pathogenic classification of anemia: Posthemorrhagic anemias, Dyserythropoietic anemias, Hemolytic anemias. General principles of treatment of anemias.

Disturbances of leucocytes. Pathological Changes in Leukocytes. Leucosis. Theories Explaining Etiology of Leucosis. Pathogenesis of Leucosis (clonal theory). Classification of Leucosis. Leukemic Reactions. Pathological Changes in Thrombocytes and Pathology of Hemostasis.

Pathological changes of leukocytes. The quantitative changes –leukopenia and leukocytosis, qualitatively changes - degenerative forms of leukocytes. Hemoblastoses: leukoses (leukemias) and hematosarcomas. Leukoses, etiology and pathogenesis. The theories explaining the etiology of leukosis: Viral theory, Genetic theory, Radiation theory, Theory of chemical carcinogenesis. Clonal theory in the pathogenesis of leukosis. Leukemoid reactions. General principles of treatment leucosis.

Disturbances of hemostasis and blood coagulation. Pathological changes in thrombocytes: quantitativeand qualitative changes of thrombocytes. thrombopenia and thrombocytosis. Qualitative changes of thrombocytes- thrombasthenia. General principles of treatment.DIC- syndrome - etiology, pathogenesis of development.

I. *Hemolytic disease of newborn. Anemia in immature birthed newborns. Leukosis of children, main manifestations. Hemorrhagic diathesis of children.*

II. *Pathological changes of dental tissue during chronic anemia. children.*

Pathological changes of dental tissue during leucosis.

III. *An etiology, prophylaxis and social aspects of therapy during diseases of blood system. An avoidance of environmental pollution by radioactive substances and its significance as a prophylaxis of diseases of blood system as well as leucosis.*

Practical study 2.

Pathological physiology of Blood Circulation

Circulatory Insufficiency and its Clinical Symptoms. Coronary Heart Disease: Stenocardia, Myocardial Infarction, Cardiosclerosis. Cardiogenic Shock. Experimental Models of the Myocardial Infarction. Arrhythmia and Extrasystole. Heart Block. Auricular and Ventricular Flutter and Fibrillation. Valvular Defects. Dilatation and Hypertrophy of Myocardium. Arterial Hypertension. Renopressive and Renoprival Theories. Arterial Hypotension

Mechanisms of development and clinical manifestations of circulatory insufficiency:

cardiac insufficiency (heart failure); vascular insufficiency; mixed cardiovascular insufficiency

Etiologic factors causing cardiac insufficiency: lesions in the myocardium – infectious and toxic myocardites, disorders of coronary circulation, hypoxia, intoxications, myocardial dystrophies caused by metabolic disorders and avitaminoses, etc; increased cardiac activity and overstrain of myocardium – valvular diseases, increased pressure in the greater and lesser circulation, paroxysmal tachycardia, etc; disturbed pericardiac function; mixed type.

Clinical manifestations of left-sided heart failure.

Etiology of the vascular insufficiency part: decreased circulating blood volume (resulted from loss of blood, vomiting, diarrhea, adrenal gland dysfunction), increased total volume of vascular bed.

Coronary heart disease: Stenocardia (angina pectoris), myocardial infarction and cardiosclerosis.Pathological hypertrophy.

Disturbances of conductive system of heart. Arrhythmias. Pathological changes in heart’s properties of automatism, excitability, conductivity and contractibility Mechanisms of disturbances in sinus rhythm: sinus tachycardia; sinus bradycardia; sinus arrhythmia. Extraordinary excitation - extrasystole: Atrial

extrasystole, Atrioventricular extrasystole, Ventricular extrasystole. Heart block. Types of disturbances in cardiac conduction: sinoauricular block; intraatrial block; atrioventricular block; intraventricular block. Auricular flutter and fibrillation. Reproduction of heart blocks.

Disturbances of vascular functions. Arterial hypertension. Renopressive and renoprival theories. In the mechanism of development of arterial pressure.

General principles of prophylaxis and treatment of disturbances of cardiovascular diseases.

I. *A main manifestation of circulatory diseases in childhood. Functional arrhythmias in children, etiopathogenesis.*
II. *A main changes in dental tissue during chronic disorders of cardio-vascular system.*

Practical study 3.

Pathological physiology of respiration

Respiratory Insufficiency. Indices Characterizing Functional State of the Respiratory System. Changes In the Pulmonary Ventilation. Factors that Play a Part in Etiology and Pathogenesis of Respiratory Insufficiency. Pneumothorax. Closed pneumothorax, Open pneumothorax, Valvular pneumothorax. Disturbance of Alveolar Diffusion. Ventilation-Perfusion Ratio. Dyspnea. Pathological Forms of Respiration. Asphyxia. The main etiologic factors of asphyxia:

Respiratory Defence Reflexes. Disturbances in Internal Respiration. Hypoxia. Stages of the asphyxia: respiratory (pulmonary) hypoxia; circulatory (cardiovascular) hypoxia; hemic (blood) hypoxia; histotoxic (tissue) hypoxia; mixed types of hypoxia.

General principles of prophylaxis and treatment of respiratory diseases.

I. *A main syndrome of respiratory insufficiency in newborn. Asphyxia, etiopathogenesis. A syndrome of hyaline membranes. An etiology and pathogenesis of emphysema and pneumothorax in children.*

II. *A main manifestation of respiratory diseases of children and their stomatological signs. Interconnection of respiratory and dental diseases.*

III. *A significance of cleaning of environment as a prophylaxis of respiratory diseases. Smoking . Struggle against of smoking.*

Practical study 4.

Pathological physiology of digestion

Etiologic Factors of the Digestive System Diseases. Disturbances in Appetite. Disturbances of Digestion in the Oral Cavity. Hypersalivation and hyposalivation. Dysphagia. Disturbances in the Process of Digestion in Stomach. Dumping syndrome .Theories of Pathogenesis of the Peptic Ulcer. Pathological Processes in Intestines. Diarrhea and Constipation. Ileus, types, mechanisms of development, complications. Disorders in Defecation. General principles of prophylaxis and treatment of disturbances of digestion.

I. *Disturbances of appetite in children, protein deficiency or its excess in food of children. An increase of sensibility against of milk in newborns. A pathogenesis of diarrhea in the children.*

II. *A main cause and mechanism of disturbances of secretor and incretor functions of salivary glands. Syalodenitis, causes, stages, mechanisms of development. A role of disturbance of salivary function in the pathology of mastication and tissues of oral cavity.*

Practical study 5.

Pathological physiology of liver

Methods to Study the Hepatic Functions in Experiment. Bilirubin Metabolism. Liver Function Tests. Etiological Factors of Hepatic Diseases.

Hepatic Insufficiency. Metabolic changes during hepatic insufficiency. Jaundice. Etiology and pathogenesis. Mechanisms of manifestation of jaundice. Cholelithiasis. Portal Hypertension. General principles of prophylaxis and treatment of disturbances of liver.

I. A main futures of jaundice in the children.

II. A main changes in the tissues of oral cavity during chronic hepatic insufficiency, their mechanisms.

III. A role of alcohol and industrial hepatotropic poisons in the etiopathogenesis of tomour and dystrophic diseases of liver. The ways of prophylaxis of liver pathology.

Practical study 6.

Pathological physiology of kidney

The Tests Permitting to Judge of Renal Function .Pathological Components of Urine . Extrarenal and Renal Factors Causing Renal Function Pathology. Urolithiasis. Disturbanses in Glomerular Filtration, Tubular Reabsorption and Tubular Secretion. Renal Failure. Pre-renal, renal and post-renal factors in the development of renal failure. Chronic and acute renal insufficiency . Uremia, etiology, pathonenic mechanisms of development, principles of treatment. Artificial kidney, hemodialisis, hemabsorbtion, transplantation of kidney.

I. A main characteristic of uropoiesis and dieresis in childhood and their significance during development of renal insufficiency.

II. The main changes of dental tissue and jaw during chronic renal insufficiency.

Practical study 7.

Pathological physiology of the Endocrine Regulation

Central and Peripheral Types of the Endocrine Disorders. Pathology of Hypophysis, Adrenal Glands, Thyroid and Parathyroid Glands, Sexual Glands. Dysfunction of Pineal Body and Thymus. Mechanisms of development of endocrine disorders: Disorders in the Central regulating mechanisms of the endocrine glands activity- connected with disturbances in the hypothalamus and connected with disturbances in the hypophysis. Peripheral disorders- connected with pathological processes in the endocrine glands and disturbances in activity of hormones connected with extraglandular mechanisms. Disturbances of function of adeno-hypophysis (hypo-, and hyper production of STH, ACTH, GTH, TSH). Dysfunction of adrenal cortex, Cushing syndrome, types, etiology, pathogenesis, manifestation. Hyper and hyposecretions of mineralocorticoids, glucocorticoids, estrogens and androgens Pathology of adrenal medulla, etiology, pathogenesis, manifestation. Pathology of thyroid gland etiology, pathogenesis, manifestation. Stress and adaptation syndrome, stages, mechanisms, etiology and pathogenesis. General principles of prophylaxis and treatment of disturbances of endocrine disorders.

I. *A role of mathernal endocrinopathy in the development of endocrine diseases of child. A main characteristics of endocrine diseases in the children. Disturbances of immunological reactivity and grows in the children with the pathology of thymus gland. Lymphaticohypoplastic diathesis.*
II. *A role of disturbance of hormonal balance in the pathology of tissuesof oral cavity.*

Practical study 8

Pathological physiology of the Nervous System

General Etiology of the Nervous Disorders. Disturbances in the Main Physiological Functions of Neurons, Nerve Fibers, Synapses. The Main Functional

Manifestations of Lesion of Neurons: Denervation Syndrome, Pathological Lability, Pathological Parabiosis. Patholoical dominant, determinant. Disturbances in Interneuronal Connections: Deafferentation Syndrome, Disorders in Connections between Excitation and Inhibition. Pathological Phenomena Developing on the Level of the Central Nervous System: Pathological System, Pathological Dominant, Hysteriosis, Protective Inhibition, Pathological Reflexes. Disorders of Motor Functions of the Nervous System and Sensitivity. Paresis, paralysis, decerebration rigidity, Pathology of pyramid and extrapyramid systems, their types, mechanisms and manifestation. Dysfunction of the Vegetative Nervous System and Trophic Function of the Nervous System. Disturbances in the Higher Nervous Activity. Experimental Neurosis. The main manifestation of neurosis. Neurosis as a premorbid state of organism.

I. The main futures of disturbances of higher nervous system in the children.

II. The main futures of trigeminal, themporomandibular, myofassial pains encountered in the dentalpractice.

III.

Preparation for practical studies

For complete and qualitative carrying out of practical studies in the department of pathological physiology was created diverse schemes, tables and other methods that take a great role for individual preparation of students. These include demonstration of video-films (movie) of a lot of experiments: “Hypobaria. Experimental kinetosis”, “Reactivity of organism. Hypoxia”, “Biochemical laboratory investigations”, “Radiation sickness”, “Microcirculation” and others. Some of these movies were recorded in the department of pathological physiology. There are a sufficient amount of tests and programs that made possible to check students’ knowledge quickly and deeply, but as a reason of absence of computers in all our study auditoria this method is not applied completely in the department of pathological physiology.

The topics and the list of the free works (assignments)

V semester

Topics	*Deadline*
1. General etiology and pathogenesis. General nosology, the idea of disease.	*3rd week*
2. The role of external and internal factorsin the development of diseases.	*4th week*
3. Hereditary, constitution, age, their role in the development of pathology.	*5th week*
4.Reactivity of organism. The pathology of reactivity.	*6th week*
5. Cell injury, etiology, pathogenesis, protective mechanisms.	*7th week*
6. Inflammation, etiological factors, pathogenetic mechanisms, outcome, classification.	*8th week*
7. Fever, etiological factors, pathogenetic mechanisms, outcome, classification.	*9th week*
8. Pathology of immune system. Allergy.	

Classification, causes, mechanisms.	***10th week***
9. Pathology of metabolism. The main principles of their correction.	***11th week***
10. Pathology of tissue growth. Tumor. Etiology, pathogenesis, classification, the main principles of therapy.	***12th week***

The topics and list of the free works (assignments)

VI semester

Topics	***Deadline***
3. Pathplogy of red blood cells (anemias and polycytemias, their classification, and main characteristics).	***5th week***
2. Pathology of white blood cells (leukocytosis, leukopenia, leukosis, leukomoid reactions, their classification, main characteristics).	***6th week***
3. Etiology and pathogenesis of cardio-vascular pathology.	***7th week***
4. Disturbances of vascular function	***8th week***

(arterial hyper- and hypotension, atherosclerosis)	
5. Causes and mechanisms of respiratory insufficiency.	***9th week***
6. The main characteristic of digestive insufficiency.	***10th week***
7. Pathology of liver. Metabolic disorders during hepatic insufficiency.	***11thweek***
8. Renal insufficiency. Causes, mechanisms of development, signs.	***12th week***
9. Pathology of endocrine system. Causes, mechanisms, their main characteristic.	***13th week***
10. Pathology of nervous system. Causes, mechanisms, their main characteristic.	***15th week***

Additions to the syllabus on the subject of pathological physiology

1. Methodical instructions for teachers.

Scientific methods are used in teaching of this subject: analysis, synthesis, induction, deduction, experiment. Sometimes axiomatic methods are also used. Free works, classroom studies, abstracts, lectures are also used in the teaching process. Material equipment includes tables, slides, stands, computer programs, video films, and technical supplies.

2. Materials used for the final (15-week) certification.

Final attestation is applied on the basis of instructions that meet the needs of higher education institutions. Programmed control is used in each practice session. On this basis, the student's individual readiness is assessed. In the final lessons (seminars, colloquiums, quiz), questions will be asked (in the form of situational questions and tests) on all topics. At the Department of Pathological Physiology, test questions and situational issues were prepared to test the final knowledge of the student. Assessment of student knowledge is based on the results of the semester.

3. Innovative methods used in the Department of Pathological Physiology.

Preparations for the lectures.

3.1. In order to prepare lectures, teachers of the department should use the articles published in domestic and foreign literature, as well as the research work of the department. Multiple projectors should be used when lectures are read, and the lecturer should give them explanations, including schedules and schemes.

3.2. Different schemes and schedules should be used as supplementary material for good practice sessions at the Department of Pathological Physiology. Video should be shown to suit the theme of the workshop

- Anaphylactic shock on the guinea sea pig is shown in 10 minutes. The film shows and explains the symptoms of anaphylactic shock.

- The film "Hipobariya" is shown in 10 minutes. The film explains the effect of reducing atmospheric pressure on the body.

- «The role of reactivity in pathological conditions. Hypoxia ”is shown in 15 minutes. It shows the experimental model of hypoxia and the resistance of the body to oxygen starvation.

- The film "Radiation Sickness" lasts 35 minutes. It describes the accident at the Chernobyl nuclear power plant and explains the symptoms and complications of acute, chronic radiation sickness.

- Video "Microcirculation" is shown for 25 minutes. Various factors explain the changes that occur in the microcirculation system.

Students' knowledge is assessed using various tests and situational issues in the course of the learning process.

Valuation

For getting of 100 points a credit system requires:
50 points before examination, that include:
10 points – attendance
10 points – free works (assignments)
10 points – skills
20 points – marks from practical studies
50 points – from examination
There are 3 quiz during each semester. In case of absence of student in the day of quiz 0 points is fixed on journal. An examination is carried out by tests system. The right answer of each test is valued in 1 point. Incorrect answers strikes out the correct ones.

Note

In the case when student doesn't get 17 points in the examination the points get him before examination (from the practical studies) are not fixed. The points get in the examination and before (from practical studies) are summarized and valued as:

A -	excellent	-91-100
B-	very good	-81-90
C-	good	-71-80
D-	satisfactory	-61-70
E-	middle satisfactory	-51-60
F-	unsatisfactory	-less than 51

An assignment (free works)

10 assignments are required within the each semester. Each assignment is valued in 1 point.

An assignment is accepted in the form of handwrite or word.document (1-2 pages, font-12)

The plagiarism is not accepted.

A list of material- technical supply:

- study rooms, laboratory;
- study movies created in own department;
- multimedia Atlas on pathology, a program of computer testing;
- theme visual equipments: schemes and tables ;
- micro-preparates;
- multimedia system;
- an apparatus for determination of blood sugar;
- a complex of monitoring of cardio=respiratory system and hydratation of tissues КМ-АР-01 ДИАМАНТ;
- electroencephalograph “ТЕЛЕПАТ 104Р”;
- electrocardiograph ;
- spectrophotometr;
- veloergometr;
- laboratory animals;
- medical instruments;
- chemical substances and indicators;
- medical techniques: microscopes, apparatus for determination of arterial pressure, phonendoscopes, thermometers, distillators, centrifuge, apparatus of electrical

current, Komovcky's apparatus, Sally-hemometr, apparatus for calculating of blood cells, camera of Goryayev.

LITERATUREFOR DISCIPLINE OF "PATHOLOGICAL PHYSIOLOGY"

The main literature :

1. "Patoloji fiziologiya" I və II hissə. S.C.Əliyev, M.X.Əliyev. Bakı, 2015, 2016
2. Patoloji fiziologiya /Y.C.Məmmədov, C.H.Təqdisi, F.İ.İslamzadə, Bakı, 2004
3. Patoloji fiziologiya-situasiya məsələləri. S.C.Əliyev, İ.H.Musayev, Bakı-2004
4. «Patoloji fiziologiya». Təcrübi dərs vəsait. Bakı, 2019
5. Руководство к практическим занятиям по патофизиологии для студентов врачебных факультетов. – Изд-во ТГУ. – Томск, 2005.
6. А. И. Воложина, Г.В. Порядина – Патофизиология- Москва в 3х томах- 2006
7. Pathophysiology lectures. Nizhad Mikayılzade. Baku -2007.
8. «Patoloji fiziologiyadan atlas» S.C. Əliyev, M.X.Əliyev, Bakı 2008
9. «Патологическая физиология». Н.Н.Зайко.Москва 2008
10. «Patoloji fiziologiyadan testlər»S.C.Əliyev, Bakı 2010
11. «Патологическая физиология» В.В.Новитски, Е.Д.Голдберг. Томск 2010
12. Патофизиология. Основы К. Порт. «Москва» 2011
13. Патофизиология. Литвицкий П.Ф. Пятое издание – М.: ГЭОТАР – Медиа, 2012. – в 2х томах
14. «Tibbibiliklərin əsasları». S.C.Əliyev, H.M.Hacıyeva, N.C.Mikayılzadə, Bakı-2013

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