

Approved by
Deputy Rector for Academic Affairs

_____E.V. Konovalova

"16" June 2022, Record No.6

Clinical Pathophysiology

Syllabus

Department **Pathophysiology and General Pathology**

Curriculum s310501-ЛечДелоИн-21-1.pli.xml
Specialty 31.05.01 General Medicine

Qualification **General Practitioner**

Form of education **Full-time**

Total (in credits) **2**

Total academic hours 72

including:

Classes 48

Self-study 24

Control:

Credit, 7th term

Course outline in terms

Academic year (Term)	4 (4.7)		Total	
	Cur	Syl		
Weeks	19			
Types of classes	Cur	Syl	Cur	Syl
Lectures	16	16	16	16
Practical	32	32	32	32
Contact	48	48	48	48
Self-study	24	24	24	24
Total	72	72	72	72

The Syllabus is compiled by:

PhD in Medical Sciences (Medicine), Professor, Kovalenko L.V. _____

PhD in Biological Sciences (Biology), Associate Professor, Kavushevskaya N.S. _____

The Syllabus

Clinical Pathophysiology

Developed in accordance with Federal State Educational Standard:

Federal State Educational Standard of higher education in the specialty 31.05.01 General medicine (Order of the Ministry of Education and Science of the Russian Federation on August, 12, 2020 №988)

Based on the Curriculum:

31.05.01 GENERAL MEDICINE

Specialization: General Medicine

Approved by the Academic Council of Surgut State University, “16” June 2022, Record No.6

The Syllabus was approved by the department

Pathophysiology and General Pathology

Head of Department, Doctor of Medicine, Professor Kovalenko L.V.

1. COURSE OBJECTIVES	
1.1	The aim of Clinical Pathophysiology course is to provide students with knowledge of the general patterns and specific mechanisms of occurrence, development and outcome of pathological processes, conditions, individual diseases and the principles of their detection, treatment and prevention. The comparison of the stages of pathogenesis and clinical manifestations of diseases at all stages allow developing students' abilities of clinical and pathogenetic analysis, to select the appropriate methods of diagnostics and prescribe pathogenetic treatment.

2. COURSE OVERVIEW	
Course code (in curriculum)	Б1.О.ДВ.01.
2.1	Assumed background
Б1.О.04.08	Human anatomy
Б1.О.04.09	Histology, Embryology, Cytology
Б1.О.04.10	Hominal Physiology
Б1.О.04.12	Microbiology, Virology
Б1.О.04.04	Biology
Б1.О.04.07	Biochemistry
2.2	Post-requisite courses and practice:
Б1.О.04.26	Medical Rehabilitation
Б1.О.04.25	Clinical Pharmacology
Б1.О.04.23	X-Ray Diagnostics
Б1.О.04.29	Anaesthesiology, Resuscitation, Intensive Care
Б1.О.04.32	Oncology, X-Ray Therapy
Б1.О.04.35	Forensic Medicine
Б1.О.04.40	Hospital Therapy (the 5th year)
Б1.О.04.36	Professional Diseases
Б1.О.04.37	Outpatient Therapy

3. COMPETENCES UPON COMPLETION OF THE COURSE (MODULE)	
GPC-5.6: Knows the structure of the human body, morphological macro- and microscopic parameters in health and in pathology, criteria for general pathological pathophysiological processes in various nosologies, knows how to differentiate them macro- and microscopically, has skills to solve problems of operative surgery on the basis of knowledge of topographic anatomy	
GPC-5.8: Knows the mechanisms of development of general pathological processes and the pathogenesis of various diseases and pathological conditions of a person; is able to identify the leading factors of pathogenesis in their relationship with a specific disease or pathological condition and substantiate effective pathogenetic therapy	
GPC-5.9: Knows immune defense mechanisms, types of immunological reactions and their role in the pathogenesis of human diseases	
GPC-5.10: Knows the etiology and pathogenesis of diseases, which is necessary to assess the physiological state and pathological processes in order to diagnose, treat and prevent diseases	
PC-9.1: Analyzes medical information	
PC-9.2: Provides evidence-based health information	
PC-10.1 Participates in applying new methods and techniques aimed at protecting the public health	
By the end of the course students must:	
3.1	know:
	- the specific features of the subject and objectives of Clinical Pathophysiology;
	- the role, place and relations with other biological and medical sciences;
	- the main historical stages of pathophysiology;

	- the prospects of development and new trends in the study of clinical pathophysiology
	- the general patterns of development and manifestations of various pathological reactions, processes, conditions and diseases;
	- the mechanisms of developing pathological systems and violations of the information process when exposed to various pathological agents;
	- developmental patterns of the main pathological conditions, symptoms, syndromes, diseases, as well as the mechanisms of recovery of various diseases;
	- the mechanisms of development of pathological systems and violations of the information process when exposed to various pathological agents.
3.2	be able to:
	- use the background knowledge in pathophysiology for studying other biomedical and clinical disciplines;
	- interpret correctly and apply the basic concepts of pathophysiology while studying biomedical and medical literature and in collaboration with medical specialists;
	- analyze pathological processes and individual diseases at different structural and morphofunctional levels;
	- draw clinical and pathogenetic parallels of the common pathological syndromes;
	- carry out pathophysiological analysis of clinical and laboratory, experimental and other data and to formulate a conclusion on their basis on the possible causes and mechanisms of pathological processes (diseases);
	- carry out differentiated diagnostics of pathological conditions on the basis of pathogenesis mapping;
	- substantiate the pathogenetic approach to the treatment of pathological process (disease);
	- analyze the role of causes, conditions, reactivity of the body, development and completion (outcome) of diseases;
	- analyze the ethiology, pathogenesis, manifestations and outcomes of the most common forms of pathology of the organs and physiological systems, the principles of their etiological and pathogenetic therapy.
3.3	have skills of:
	- working with educational, scientific, popular science literature;
	- analysing pathogenesis of various pathological conditions and human diseases;
	- systemic analysing of pathophysiological problems;
	- interpreting laboratory and instrumental methods of examination;
	- analysing the problems of general pathology and critical evaluating modern theoretical concepts and trends in medicine;
	- pathophysiological analysis of various diseases, substantiation of pathogenetic methods (principles) of diagnosis, treatment, rehabilitation and prevention of diseases;
	- assessing the functional states of the human body in various diseases;
	- analyzing and interpreting the results of modern human diagnostic technologies for various diseases

4. STRUCTURE AND CONTENTS OF THE COURSE (MODULE)

Class Code	Topics /Class type	Term / Academic year	Academic hours	Competences	Literature	Interactive	Notes
1.1	Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis. /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3.	0	
1.2	Polyorgan failure syndrome /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	

1.3	Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.4	Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.5	Thrombosis. Thrombophilia. Sludge syndrome. /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.6	The main types of disorders of consciousness. Classification Of Coma. Types of coma. Types of violations of consciousness. /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.7	Hepatorenal syndrome. Uraemia /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.8	Shock. Pathogenesis, clinic, therapy /Lecture/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.9	Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.10	Polyorgan failure syndrome /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests

1.11	Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.12	Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation Thrombosis. Thrombophilia. Sludge syndrome /Practice/	7	8	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.13	Hepatorenal syndrome. Uraemia /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.14	Final lesson (Control work) /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	
1.15	The main types of disorders of consciousness. Classification Of Coma. Types of coma. Types of violations of consciousness /Practice/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.16	Credit /Practice/	7	0	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies tests
1.17	Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis /Self-study/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.18	Polyorgan failure syndrome /Self-study/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays

1.19	Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome. /Self study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.20	Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation. /Self-study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.21	Hepatorenal syndrome. Uraemia. /Self-study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.22	The main types of disorders of consciousness. Classification Of Coma. Types of coma. Types of violations of consciousness /Self-study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.23	Final lesson (Control work) /Self-study/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	essays
1.24	Credit	7	0	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L 1.1., L 1.2., L1.3	0	oral quiz case-studies

5. ASSESSMENT TOOLS

Supplement 1

5.2. Topics for written papers

Supplement 1

5.3. ASSESSMENT TOOLS

Supplement 1

5.4. List of assessment tools

oral quiz, case-studies, tests, essays

6. COURSE (MODULE) RESOURCES

6.1. Recommended Literature

6.1.1. Core

	Authors	Title	Publish., year	Quantity
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L 1.1	Litvitsky P.F.	Clinical pathophysiology : concise lectures, tests, cases	Moscow: GEOTAR-Media, 2021 .-- 432 p. http://www.studmedlib.ru/book/ISBN9785970461006.html	1
L 1.2	Litvitsky P.F.	Clinical pathophysiology : concise lectures, tests, cases	Moscow: GEOTAR-Media, 2019 .-- 432 p. http://www.studmedlib.ru/book/ISBN9785970449929.html	1
	Litvitsky P.F.	Pathophysiology	Moscow: GEOTAR-Media, 2016 .-- 432 p. www.studmedlib.ru/book/ISBN9785970436004.html	1
6.1.2. Supplementary literature				
L 2.1	Naumova L. A	Inflammation: study guide	Surgut: LLC "Printed world of Surgut", 2016	1
6.2. Internet resources				
ЭЗ	FreeMedicalJournals			
6.3.1 Software				
6.3.1.1	Operational system Microsoft, applied programs pack Microsoft Office			
6.3.1.2	Internet access (Wi-Fi)			
6.3.2 Information Referral systems				
6.3.2.1	E-data bases: ПГБ, Orbicon, Medline.			
6.3.2.2	Student Consultant http://www.studmedlib.ru			

ASSESSMENT TOOLS

Syllabus Supplement

Clinical Pathophysiology

Qualification

Specialist

Specialty

31.05.01 General Medicine

Form of education

Full-time

Designer Department

Pathophysiology and General Pathology

Graduate Department

Internal Diseases

Sample tasks and tests

Stage I: Formative assessment.

1.1. The list of essays topics

2. Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis
3. Polyorgan failure syndrome
4. Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome
5. Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation Thrombosis. Thrombophilia Sludge syndrome
6. Hepatorenal syndrome. Uraemia
7. The main types of disorders of consciousness. Classification of Coma. Types of coma. Types of violations of consciousness.

1.2 List of points for oral quiz:

Topic 1. Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis

1. Pathophysiology of bacterial shock
2. Neonatal sepsis.
3. Umbilical sepsis.
4. The role of chemokines and adhesive molecules in phagocytic reactions.

Topic 2. Polyorgan failure syndrome

1. The pressure in the pulmonary artery in shock.
2. Hypoxia and acidosis in shock
3. Hemoconcentration in shock.
4. Capillary - trophic insufficiency syndrome.

Topic 3. Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome

1. Respiratory obstruction syndrome.
2. Pharmacotherapy in pregnant women with respiratory diseases

Topic 4. Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation Thrombosis. Thrombophilia Sludge syndrome.

1. Violation of haemostatic system.
2. Thrombohemorrhagic syndromes.
3. Sludge syndrome.
4. Thrombophilia.
5. Hereditary haemophilia.
6. Hemorrhagic vasculitis.

Topic 5. Hepatorenal syndrome. Uraemia

1. Cirrhosis.
2. Etiology, pathogenesis of liver cirrhosis.
3. Signs and symptoms of cirrhosis
4. Cirrhosis of the liver.
5. Complications. Diagnostics.
6. Portal hypertension and varicose veins of the esophagus and stomach.

Topic 6. The main types of disorders of consciousness. Classification of Coma. Types of coma. Types of violations of consciousness

1. Classification Of Coma. Types of coma.
2. Types of violations of consciousness.
3. Collapse. Characteristic of the concept types, causes, mechanisms of development. Manifestations, consequences. Principles of therapy.
4. Stress. The concept of stress as a non-specific reaction of the body to the effects of various emergency stimuli.

1.3. Sample of case-studies:

The patient, aged 15, was admitted for inpatient treatment to the surgical Department for acute lymphadenitis of the right submandibular region that arose after acute hypothermia. In the history of the patient there was chronic tonsillitis, for which it was recommended planned surgical treatment. The condition of the patient of moderate severity: BPD-16 in min.; blood pressure-110/70 mm Hg. article; pulse – 98 / min. Head tilted to the right. The right submandibular region is palpated dense infiltrate painful. The skin over the infiltrate is hot, has a red colour, its turgor is elevated. Body temperature-38,3 ° C. Laboratory research methods: red blood cells- 2.8×10^{12} / l, Hb-132 g/l, colour index – 0.9; platelets – 188×10^9 /l, leukocytes – 14.0×10^9 /l, eosinophils – 5 %, rod – 22 %, segmental – 56 %, lymphocytes – 26 %, monocytes – 6 %, ESR – 35 mm / h. Plasma compliment C-3-2,3 g / l (norm 1,3-1,7 g/l), C-reactive protein in blood plasma – 15 mg / l.

Questions:

1. What is the pathological process inherent in the identified changes?
2. What systemic manifestations of this pathological process have you revealed in this patient?
3. Outcomes of this typical pathological process.
4. What molecular markers of inflammation do you know?

1.4. Sample tests for formative assessment.

1. The most common cause of sepsis is:
 - 1) opportunistic bacteria
 - 2) especially dangerous infections
 - 3) specific infectious agents
 - 4) viruses
 - 5) protozoal infection
2. The highest frequency of sepsis occurs in patients:
 - 1) with norvergence reactivity on the background of infection of especially dangerous infections
 - 2) with increased reactivity and a tendency to localize the infection;
 - 3) with giorgionesque reactions on the background of pulse therapy with broad-spectrum antibiotics
 - 4) with reduced reactivity and resistance against the background of repeated use of different antibacterial agents
 - 5) with giperergicakie reactions and additional superinfections

3. The primary proinflammatory cytokines are referred to:

- 1) Histamine
- 2) Kallidin
- 3) Leukotrienes
- 4) tumor necrosis factor-alpha
- 5) hormones.

Stage II: Midterm assessment – Credit

Midterm assessment is carried out in the form of credit. Tasks for the credit include two theoretical points for oral quiz and one case-study.

Tasks for competence assessment «Knowledge»	Task type
<p>List of theoretical points for oral quiz:</p> <ol style="list-style-type: none"> 1. Inflammation. Systemic inflammatory response syndrome (SIRS) Sepsis 2. Polyorgan failure syndrome 3. Pathophysiology of lung diseases. Respiratory failure. Adult respiratory distress syndrome. Neonatal Respiratory Distress Syndrome Respiratory obstruction syndrome 4. Violation of haemostatic system. Thrombohemorrhagic syndromes. Disseminated intravascular coagulation Thrombosis. Thrombophilia Sludge syndrome 5. Hepatorenal syndrome. Uraemia 6. The main types of disorders of consciousness. Classification of Coma. Types of coma. Types of violations of consciousness. 7. Pathophysiology of bacterial shock 8. Neonatal sepsis. 9. Umbilical sepsis. 10. The role of chemokines and adhesive molecules in phagocytic reactions. 11. The pressure in the pulmonary artery in shock. 12. Hypoxia and acidosis in shock 13. Hemoconcentration in shock. 14. Capillary - trophic insufficiency syndrome. 15. Respiratory obstruction syndrome. 16. Pharmacotherapy in pregnant women with respiratory diseases 17. Violation of haemostatic system. 18. Thrombohemorrhagic syndromes. 19. Sludge syndrome. 20. Thrombophilia. 21. Hereditary haemophilia. 22. Hemorrhagic vasculitis. 23. Cirrhosis. 24. Etiology, pathogenesis of liver cirrhosis. 25. Signs and symptoms of cirrhosis 26. Cirrhosis of the liver. 27. Complications. Diagnostics. 28. Portal hypertension and varicose veins of the esophagus and stomach. 29. Classification Of Coma. Types of coma. 30. Types of violations of consciousness. 31. Collapse. Characteristic of the concept types, causes, mechanisms of development. Manifestations, consequences. Principles of therapy. 32. Stress. The concept of stress as a non-specific reaction of the body to the effects of various emergency stimuli. 	<p>-theoretical</p>
<p>Tasks for competence assessment «Abilities»</p>	<p>Task type</p>

<p>Sample of Case – studies:</p> <p>Patient N., 15 years, after suffering a mental injury for 3 days gradually increased weakness, lethargy, drowsiness, fatigue. N. He complained of headache, nausea, vomiting, loss of appetite, abdominal pain, thirst, in connection with which he was hospitalized. At receipt: dry skin and mucous membranes; lips dry, cracked, covered with crusts; tongue dry, lined with brown coating. Skin turgor is reduced, facial features are pointed, eyes are deeply sunken, eyeballs are soft, pupils are narrowed. Pulse threadlike, weak filling, 115 UD. in min, BP 90/50 mm Hg. St. Breathing rare, deep, noisy. diuresis is reduced. Muscle tone is sharply weakened, tendon reflexes are not caused. Consciousness is absent. Blood test: glucose 32 mmol/l (normal 4,4 – 6,6 mmol/l), residual nitrogen 45 mg% (normal 20-40 mg%), β-hydroxybutyrate 13,7 mmol/l (normal 0,43-1,03 mmol/l), free fatty acids 2,1 mmol/l (normal 0,3 – 0,8 mmol/l), lactic acid 1,9 mmol/l (normal 0,99-1,78 mmol/l), pH 7.20 (normal 7.35-7.45), raso2 20 mm Hg. art. (norm 34-45 mm Hg. St.), SB 9 mmol/l (normal 21-25 mmol/l).</p> <p>Questions:</p> <ol style="list-style-type: none"> 1. What form of pathology did N. develop? 2. This condition is often a complication of the disease... 3. What is the mechanism of this complication? 4. What factors may trigger its development? <p>Answers:</p> <ol style="list-style-type: none"> 1. The gradual increase in clinical symptoms (weakness, drowsiness, fatigue, abdominal pain, thirst), as well as hyperglycemia, ketonemia, acidosis and loss of consciousness are characteristic of coma (in this case – ketoacidotic). 2. Ketoacidotic coma is a frequent complication of type 1 diabetes (young age, lack of obesity). 3. Coma is the result of a significant increase in the blood levels of ketoacids (associated with increased gluconeogenesis from fats and proteins through the stage of ketoacids), development of acidosis, disturbances of energy supply of the brain and other organs. Normally, ketoacids can be resynthesized into fats and glycogen. But under a coma this not is happening. When deficiency of insulin and reduced the content of Acetyl-CoA in the oxidation of ketoacids inhibited: they accumulate in the blood, which leads to a coma. 4. The development of ketoacidotic coma can cause other extreme conditions, as well as stress, traumatic surgery and research methods, infectious diseases. 	<p>-practical</p>
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METHODOLOGICAL GUIDELINES FOR LEARNING OUTCOMES ASSESSMENT

Stage: Formative assessment

Formative assessment is a regular checking of student academic progress during the academic term. It is performed in various oral and written forms (quizzes, essays, checking of home assignments, compilation of cases, self-study, colloquiums, and testing). During formative assessment, the teacher monitors the level of student’s academic progress according to the curriculum identifying lack of knowledge, or misunderstanding.

The tasks of formative assessment are aligned with the Curriculum and Syllabus.

1. Guidelines for assessing the oral quiz:

In assessing the teacher takes into account:

- knowledge and understanding of the subject matter;
- activity during the class;
- consistency of presentation;
- argumentation of the answer, the level of independent thinking;
- ability to link theoretical and practical principles with future professional activity.

Assessment criteria:

The results are assessed in a four-grading scale: "excellent", "good", "satisfactory", "unsatisfactory".

Type of the task	Assessed competences	Assessment criteria	Grade
Oral quiz	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	The student demonstrates a comprehensive, systematic and in-depth knowledge of the academic material; has learned the required and additional resources. The student demonstrates a consistent and thorough understanding of the required knowledge, concepts, skills of the material learned, and their significance for future profession.	Excellent
		The student demonstrates a comprehensive knowledge of the academic material; has learned the required and additional resources. The student demonstrates a consistent understanding of the required knowledge, concepts, skills of the material learned, but makes minor errors.	Good
		The student demonstrates basic knowledge necessary for further study; has learned basic recommended literature. The student operates with inaccurate formulating, has difficulties in the independent answers, makes significant mistakes but is able to correct them under the guidance of a teacher.	Satisfactory
		The student does not know the obligatory minimum or demonstrates gaps in knowledge of the academic material, makes major mistakes or gives completely wrong answers.	Unsatisfactory

2. Guidelines for case-study assessment:

Assessment criteria:

The results are assessed in a four-grading scale: “excellent”, “good”, “satisfactory”, “unsatisfactory”.

Type of the task	Assessed competences	Assessment criteria	Grade
Case - study	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	The student correctly and solves the case-study task, demonstrating deep knowledge. There are no errors in logical reasoning and solution, the problem is solved in a rational way. The right answer is obtained, ways are clearly described.	Excellent
		The student correctly solves the case-study task, demonstrating deep knowledge. There are minor errors in logical reasoning and solution, the problem is solved in a rational way. The right answer is obtained, ways are clearly described.	Good
		The student correctly solves the case-study task, demonstrating basic knowledge. There are significant errors in logical reasoning and solution. The student demonstrates difficulties, but still is able to solve a case-study task.	Satisfactory
		The student incorrectly solves the case-study task, makes significant mistakes. The student is not able to solve a case-study.	Unsatisfactory

3. Guidelines for test assessment.

Assessment criteria:

The results are assessed in a four-grading scale: “excellent”, “good”, “satisfactory”, “unsatisfactory”.

Type of the task	Assessed competences	Assessment criteria	Grade
Test	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	80 – 100%	Excellent
		66 – 80%	Good
		46 – 65%	Satisfactory
		Less Than 46%	Unsatisfactory

4. Essay requirements:

1) Volume: 1500-300 words,

2) Contents structure:

- Introduction

- prove the relevance of the chosen topic

- point out the purpose of the essay
- give a summary of the main points
- Body
- use information obtained from different sources during the research
- show inaccuracy of the opposite points of view
- Conclusion
- List of references

The essay assumes usage of several specialized sources (at least 8-10 publications, monographs, the reference media, manuals). Preference is given to the publications in specialized medical journal and monographs including foreign databases.

Assessment criteria:

The results are assessed in a four-grading scale: “excellent”, “good”, “satisfactory”, “unsatisfactory”.

Type of the task	Assessed competences	Assessment criteria	Grade
Essay	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	The requirements are fulfilled: - the problem is formulated and its relevance is proved; - the various approaches to problem are presented; - conclusions are formulated; - the subject is thoroughly studied; - volume is observed; - design requirements are observed; - correct answers to additional questions are given.	Excellent
		The main are fulfilled with some mistakes: - inaccuracies in material statement; - no logical sequence in judgments; - volume is not observed; - errors in design requirements; - incomplete answers are given to additional questions in the process of defense.	Good
		There are significant deviations from requirements: - topic is only partially explored; - mistakes in contents of the paper; - mistakes in answers to additional questions; - no conclusion is given at the process of defense.	Satisfactory
		The essay is not prepared at all. The subject of the essay is not explored, significant misunderstanding of a topic.	Unsatisfactory

Stage: midterm assessment (credit)

Midterm assessment is carried out in the form of credit. Tasks for the credit include two theoretical points Oral quiz and one case-study

Methodological guidelines for preparation of credit

Requirements for the student:

- to attend classroom classes regularly; skipping classes is not allowed without a good reason;
- in case of missing the lesson, the student must be ready to answer the questions of the teacher on the topic of the class he/she missed;
- to hand over written papers on time and to make sure they are credited;
- preparing for the next class, the student must read the relevant textbooks, manuals, monographs, etc., and be ready to demonstrate their knowledge; student's participation in the discussion is taken into account and assessed;
- in case the student has not mastered the necessary material or has not understood something, he/she should attend consultation sessions;
- preparation for one theoretical question is 5-7 minutes;
- the second stage is the demonstration of a practical skill. The student has to describe indications and conditions and demonstrate technique on the model.

Midterm assessment (credit) are assessed in a two-grading scale

1. «passed»;
2. «failed»

Type of the task	Assessed competences	Assessment criteria	Grade
Oral quiz	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	The student answers all the questions correctly, clearly, logically and completely. The student closely applies theory and practice and correctly solves the problems of higher complexity with the professional content.	Passed

	<p>GPC-5.6</p> <p>GPC-5.8</p> <p>GPC-5.9</p> <p>GPC-5.10</p> <p>PC-9.1</p> <p>PC-9.2</p> <p>PC-10.1</p>	The student is not able to give logical answer, gives no answer to additional questions and does not understand the topic. He/she makes significant and serious mistakes in answers.	Failed
Case-study	<p>GPC-5.6</p> <p>GPC-5.8</p> <p>GPC-5.9</p> <p>GPC-5.10</p> <p>PC-9.1</p> <p>PC-9.2</p> <p>PC-10.1</p>	The student correctly and solves the case-study task, demonstrating deep knowledge. There are no errors in logical reasoning and solution, the problem is solved in a rational way. The right answer is obtained, ways are clearly described.	Passed
		The student incorrectly solves the case-study task, makes significant mistakes. The student is not able to solve a case-study.	Failed

Chart of the credit grade assessment:

Tasks	Assessed competences	Grade	Score
Theoretical point № 1 (Oral quiz)	GPC-5.6	Excellent	5
	GPC-5.8	Good	4
	GPC-5.9	Satisfactory	3
	GPC-5.10	Unsatisfactory	2
	PC-9.1		

	PC-9.2 PC-10.1		
Theoretical point № 2 (Oral quiz)	GPC-5.6	Excellent	5
	GPC-5.8	Good	4
	GPC-5.9	Satisfactory	3
	GPC-5.10 PC-9.1 PC-9.2 PC-10.1	Unsatisfactory	2
Practical point № 3 (Case-study)	GPC-5.6	Excellent	5
	GPC-5.8	Good	4
	GPC-5.9	Satisfactory	3
	GPC-5.10 PC-9.1 PC-9.2 PC-10.1	Unsatisfactory	2
Total	GPC-5.6	Excellent	13-15
	GPC-5.8	Good	10-12
	GPC-5.9	Satisfactory	7-9
	GPC-5.10 PC-9.1 PC-9.2 PC-10.1	Unsatisfactory	1-6

