MINISTRY OF SCIENCE, HIGHER EDUCATION AND INNOVATION OF THE KYRGYZ REPUBLIC

Kyrgyz-Russian Slavic University
named after the first President of the Russian Federation B.N. Yeltsin

I APPROVE
dean of the faculty
_____
23.10.2025

Hospital surgery

work program of the discipline (module)

Assigned to the	**Hospital surgery**
Syllabus	310501_21_45 ld in.plx Specialty 31.05.01. - RF, 560001 - KR General Medicine (for international students)
Qualification	**physician-physician**
Form of study	**full-time**
Total labor intensity	**5 ZET**

Hours according to the curriculum	180	Types of control in semesters: 9 10
including:		
classroom activities	96	
independent work	47,7	

Distribution of course hours by semester

Semester (<Course>.<Semester in the	9 (5.1)		10 (5.2)		Total	
Weeks	18		18			
Type of activity	UP	RP	UP	RP	UP	RP
Lectures	16	16	16	16	32	32
Practical	32	32	32	32	64	64
Contact work during the theoretical training period	0.3	0.3			0.3	0.3
Contact work during the examination session			0.5	0.5	0.5	0.5
Including int.	2	2	4	4	6	6
Total auditorium	48	48	48	48	96	96
Contact work	48.3	48.3	48.5	48.5	96.8	96.8
The work itself	23.7	23.7	24	24	47.7	47.7
Hours for control			35.5	35.5	35.5	35.5
Total	72	72	108	108	180	180

The program was compiled by:

Candidate of Medical Sciences, Head of the Department of Hospital Surgery, Umetaliev Tilek Maratovich; Candidate of Medical Sciences, Associate Professor of the Department of Hospital Surgery, Surov Edir Arbuduevich _____

Reviewer(s):

Candidate of Medical Sciences, Head of the Department of Surgical Diseases, Moscow Higher School of Medicine, Turar Akhmetbekovich Ermekov _____

Work program of the discipline

developed in accordance with Federal State Educational Standard 3++:

Federal State Educational Standard of Higher Education - Specialist Degree in Specialty 31.05.01 General Medicine (Order of the Ministry of Education and Science of Russia dated August 12, 2020, No. 988)

compiled on the basis of the curriculum:

Specialty 31.05.01. - RF, 560001 - KR General Medicine
(for international students)

approved by the Academic Council of the University dated _____ _____ protocol No. ____

The work program was approved at the department meeting

Protocol No. 1 dated August 25, 2025
The program is valid for the 2025-2027 academic year.
Head of the Department Umetaliev Tilek Maratovich

1. THE OBJECTIVE OF THE TEACHING DISCIPLINE	
1.1	THE OBJECTIVE OF THE TEACHING DISCIPLINE
1.2	For students the objective of the working discipline “Anesthesiology, reanimatology and intensive care” is focused on
1.3	For students the objective of the working discipline “Anesthesiology, reanimatology and intensive care” is focused on learning the principles of general and regional anesthesia,
1.4	basics of clinical physiology and pathogenesis of acute failure of vital functions, methods of clinical and laboratory evaluation of the severity of these conditions,
1.5	general principles of the intensive care of these failures and cardio-pulmonary resuscitation in cardiac arrest.
1.6	Knowledge and understanding of the physiology, pathological physiology, internal medicine, pharmacology, therapy and
1.7	Knowledge and understanding of the physiology, pathological physiology, internal medicine, pharmacology, therapy and surgery are essential for deep knowledge of “Anesthesiology, reanimatology and intensive care”.
1.8	In return, basic knowledge of reanimation, intensive care and anesthesiology will help to increase the efficacy of
1.9	In return, basic knowledge of reanimation, intensive care and anesthesiology will help to increase the efficacy of treatment of patients and casualties in emergency situations.

2. The place of the discipline in the structure general educational program	
Cycle (chapter) OOP:	Б1.Б
2.1	Requirement for the preliminary preparation of the student
2.1.1	Requirements for the preliminary preparation of the student
2.1.2	Human anatomy and physiology
2.1.3	Human anatomy and physiology
2.1.4	Topographic anatomy and operative surgery,
2.1.5	Physics, mathematics,
2.1.6	Biochemistry, general and bio-organic chemistry,
2.1.7	Normal physiology,
2.1.8	Pathological physiology, clinical pathological physiology, Pathological anatomy,
2.1.9	Propedeutics of internal diseases,
2.1.10	General surgery,
2.1.11	Hospital surgery,
2.1.12	Clinical pharmacology,
2.1.13	Disciplines and practical skills,
2.1.14	Clinical internship in specialty “Anesthesiology and resuscitation”,
2.1.15	Emergency and pre-hospital medicine,
2.1.16	Intensive care unit
2.2	**Competencies of the student, which are forming as a result of learning the discipline (module)**
2.2.1	Anatomy,
2.2.2	Topographic anatomy and operative surgery,
2.2.3	Biochemistry,
2.2.4	General and bio-organic chemistry,
2.2.5	Normal physiology,
2.2.6	Pathological physiology,
2.2.7	Clinical pathological physiology,
2.2.8	Pathological anatomy, pat.physiology
2.2.9	Propedeutics of internal diseases,
2.2.10	General surgery,
2.2.11	Clinical pharmacology

3. Competencies of the student, which are forming as a result of learning the discipline (module)
PC-6: Must be ready to define main pathologic conditions, symptoms, syndromes and diseases according to International statistical classification of the diseases and problems connected with health, review X.
Must know:

Level 1	The rules of filling out medical files, the methods of survey of patient in reanimation ward (analysis of complaints, searching for history of the disease, physical examination of the patient, the survey of local injury), the algorithm of diagnosis according to ICD.
Level 2	Clinical manifestations of syndromes: acute bleeding, hemorrhagic shock, respiratory failure, comas, acute hepatic failure, acute renal failure etc. Lab and instrumental diagnosis of emergency conditions.
Level 3	Protocol of resuscitation, methods of immediate treatment of urgent conditions. Modern methods of substitution therapy during most common emergency conditions.
Know how to do:	
Level 1	Perform the examination of the patient (collection of complaints, and family history and the disease history, local review of pathological site); to administer and interpret results of investigations, e.g. lab or tech; to evaluate the patient's condition severity.
Level 2	Formulate the diagnosis and set up a plan of urgent treatment; to reveal life threatening conditions in a timely manner, to diagnose terminal conditions, to execute urgent treating measures in common conditions, in children and in adults; to treat pain.
Level 3	To provide urgent help in life threatening situations; to provide treatment of shock and CPR; to set up indications for substitution therapy
To possess the knowledge of:	
Level 1	Correct management of documents; methods of general clinical investigations; skills of interpretation of results of lab and tech methods of diagnosis; algorithm of full clinical diagnosis.
Level 2	Main doctor's diagnostic and curative techniques to provide first medical aid in urgent and life threatening situations; skill of modern pain management, skills of defining clinical death.
Level 3	Methods of CPR; methods of providing patent airways; oxygen therapy; infusion therapy and nutrition support.

PC-11: To be ready to provide urgent medical help in situations requiring urgent medical interventions	
Must know:	
Level 1	The rules of management of medical documents; clinical manifestations of main syndromes (acute cardiovascular failure, acute respiratory failure, acute cerebral failure etc.)
Level 2	Lab and instrumental diagnosis of life threatening conditions; the protocols of resuscitation actions.
Level 3	Methods of immediate elimination of life threatening conditions; rule and order of execution of infusion and transfusion therapy; the capabilities of modern methods of substitution therapy during most common urgent situations.
Know how to do:	
Level 1	Perform the examination of the patient (collection of complaints, and family history and the disease history, local review of pathological site); to administer and interpret results of investigations, e.g. lab or tech; to evaluate the patient's condition severity; reveal life threatening conditions in time.
Level 2	Administer and interpret results of modern lab and tech investigations; to formulate diagnosis and define a plan of urgent treatment; to treat the most common urgent conditions; to provide pain relief.
Level 3	To diagnose terminal condition; to perform CPR followed by modern standard; provide treatment of shock; provide urgent help in life threatening conditions; to set up criteria for substitution therapy
To possess the knowledge of:	
Level 1	Correct management of medical documentation; methods of general clinical survey; methods of interpretation of lab and tech results; algorithm of full clinical diagnosis
Level 2	Main doctor's diagnostic and curative techniques to provide first medical help in urgent and life threatening conditions; skills of preparation of IV infusion systems; skill of pain relief; skills of blood group typing; skill of doing blood matching tests when doing transfusion of blood.
Level 3	Skills of defining clinical death; skills of CPR; skills of providing patent airways; oxygen therapy; infusion therapy and nutrition support.

PC-13: To be ready to participate in providing medical aid in urgent situations, including provision of medical evacuations	
Must know:	
Level 1	Basics of organization and tactics of medical special forces in urgent situations and in military operations
Level 2	The features of organization of medical aid in an urgent situations during peace and war situations
Level 3	The features of organization medical evacuation of casualties in urgent situations
Know how to do:	
Level 1	To organize effective medical triage of patients and casualties
Level 2	To organize medical aid at the disaster site during peaceful and war times and during medical evacuation stages
Level 3	To organize medical evacuation of casualties in urgent situations
To possess the knowledge of:	
Level 1	Skills of providing planned and urgent help

Level 2	Methods of organization of “anesthesiology, reanimation, intensive care” points during disasters in peaceful and war times
Level 3	Methods of mobile brigades organization of specialists in anesthesiology and reanimatology

As a result the student must display the result of learning discipline

3.1	**Must know:**
3.1.1	General aspects of anesthesiology and reanimatology: the definition, goals, principles of work, methods of pain treatment, classification of terminal conditions, types of death and its signs, methods of CPR and cerebral resuscitation (BLS, ALS), post-resuscitation disease.
3.1.2	Organization and general principles of work of ARIC divisions in medical and prophylactic organization of Kyrgyz
3.1.3	Organization and general principles of work of ARIC divisions in medical and prophylactic organization of Russian Federation (order #909н(взрос) #919н(дет), November 2014).
3.1.4	Definition, etiology, pathogenesis, patho-morphology (re-modeling) of internal organs, classification, clinical picture, lab
3.1.5	Definition, etiology, pathogenesis, patho-morphology (re-modeling) of internal organs, classification, clinical picture, lab and tech diagnosis, principles of intensive care, of critical conditions during ailments of internal organs and systems: acute respiratory failure, acute cerebral failure, acute liver and renal failure, acute dysfunction of hemostasis.
3.1.6	Methods and means of treatment of patient with acute poisoning from external and internal reasons.
3.1.7	Methods and means of treatment of patient with acute poisoning from external and internal reasons.
3.1.8	Methods and means of treatment of patient suffering from extreme environmental conditions, e.g. cold, heat, solar
3.1.9	Features of providing urgent medical aid and resuscitation for casualties suffering from violent attacks from animals and humans
3.1.10	Features of providing urgent medical aid and resuscitation for casualties suffering from drowning, electrical trauma,
3.1.11	Modern methods of infusion therapy with nutrition support, elimination of toxins (forced urine excretion, extra corporal methods etc), hemosorbtion, plasmaferesis.
3.1.12	Modern methods transfusion therapy of blood components) and hyperbaric therapy.
3.1.13	Clinical and pharmacological characteristics of main groups of drugs.
3.1.14	To choose rational selection of concrete medicines when treating main pathological syndromes and urgent medical
3.2	**Know how to do:**
3.2.1	To evaluate the activity of the pathological process, its form, stage and phase based on clinical manifestation; then make a decision about necessity of the medical help.
3.2.2	To set up priorities for solving the problems of the patient, to define indications and contraindications, urgency for surgery
3.2.3	To set up priorities for solving the problems of the patient, to define indications and contraindications, urgency for surgery and anesthesia.
3.2.4	To set up method of premedication and evaluate the adequacy of anesthesia based on clinical signs.
3.2.5	To set up method of premedication and evaluate the adequacy of anesthesia based on clinical signs.
3.2.6	To have simple skill of pain relief methods during painful medical procedures and interventions, to treat acute and chronic
3.2.7	To have simple skill of pain relief methods during painful medical procedures and interventions, to treat acute and chronic pain syndromes.
3.2.8	To provide resuscitation and perform control of its efficacy during clinical death.
3.2.9	To provide resuscitation and perform control of its efficacy during clinical death.
3.2.10	To provide patent airways by various means: Safar’s triple maneuvers, Guedel’s airways (T-shape), Safar’s airways,
3.2.11	To provide patent airways by various means: Safar’s triple maneuvers, Guedel’s airways (T-shape), Safar’s airways, supraglottic airways (LM, i-gel), combitube, endotracheal tube.
3.2.12	To provide simple methods of artificial ventilation of lungs: mouth-to-mouth, mouth-to-nose, with Ambu bag.
3.2.13	To provide simple methods of artificial ventilation of lungs: mouth-to-mouth, mouth-to-nose, with Ambu bag.
3.2.14	To intubate trachea of the mannequin.
3.2.15	To intubate trachea of the mannequin.
3.2.16	To set up indications for artificial ventilation of lungs, hyperbaric oxygenation, bronchoscopy, conicotomy, tracheostomy.
3.2.17	To set up indications for artificial ventilation of lungs, hyperbaric oxygenation, bronchoscopy, conicotomy, tracheostomy.
3.2.18	To perform chest compression on mannequin (indirect massage of the heart).
3.2.19	To perform chest compression on mannequin (indirect massage of the heart).
3.2.20	To define the type of rhythm disturbance on ECG, type of cardiac arrest, acute MI, tromboembolic condition.
3.2.21	To define the type of rhythm disturbance on ECG, type of cardiac arrest, acute MI, tromboembolic condition.

3.2.22	To set up indications for puncture and catheterization of big vessels.
3.2.23	To set up indications for puncture and catheterization of big vessels.
3.2.24	To formulate the non-medical and medical treatment scheme in critical and urgent medical conditions in patients.
3.2.25	To formulate the non-medical and medical treatment scheme in critical and urgent medical conditions in patients.
3.2.26	To calculate the qualitative volume of infusion therapy during disturbances of acid-base balance and water-and
3.2.27	To calculate the qualitative volume of infusion therapy during disturbances of acid-base balance and water-and electrolyte balance.
3.2.28	To reveal life-threatening disturbances during bleeding, to set up indications for blood transfusion, to evaluate the expiry
3.2.29	To reveal life-threatening disturbances during bleeding, to set up indications for blood transfusion, to evaluate the expiry condition of blood for transfusion.
3.2.30	To calculate the needs of the organism in carbohydrates, proteins and fats during nutrition support (enteral, parenteral and
3.2.31	To calculate the needs of the organism in carbohydrates, proteins and fats during nutrition support (enteral, parenteral and mixed feeding)
3.3	**To possess the knowledge of:**
3.3.1	The algorithm of provisional diagnosis with further referral to the doctor-specialist.
3.3.2	The methods of general clinical examination, interpretation of lab and instrumental results of diagnosis.
3.3.3	The methods of general clinical examination, interpretation of lab and instrumental results of diagnosis.
3.3.4	Performance of main doctor’s diagnostic and curative measures when providing first medical aid in urgent and life
3.3.5	Performance of main doctor’s diagnostic and curative measures when providing first medical aid in urgent and life threatening medical conditions in patients.
3.3.6	Displaying independent view point, analysis and logical thinking, public speeches, running discussions and round tables,
3.3.7	Displaying independent view point, analysis and logical thinking, public speeches, running discussions and round tables, principles of doctor’s deontology and medical ethics.
3.3.8	Informing patient and its relatives.
3.3.9	Informing patient and its relatives.
3.3.10	Knowledge of foreign language sufficient for communications and receiving information from international sources.
3.3.11	Knowledge of foreign language sufficient for communications and receiving information from international sources.

4. The structure and content of the discipline (module)							
Code of session	The title of chapter and theme/type of lesson	Semester /course	Hrs	Competencies	Lit-re	Interaction	Comments
	Div 1. Chapter 1. Anesthesiology						
1.1	Anesthesiology. General issues (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
1.2	Stages of development of anesthesiology, reanimatology and intensive therapy. /ISW/	12	3,7	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
1.3	“Anesthesiology, reanimatology and intensive care” in the system of medical knowledge, its role in modern clinical medicine. Legislation of the services of anesthesiology and reanimatology. /Pr/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
1.4	Introductory lesson /КрТО/	12	0,3	PC-6 PC-11	Л1.1 Л1.2	0	
1.5	The principles of modern anesthesiology. Anesthesia support, classification of modern methods. Components and stages of general anesthesia. Clinical pharmacology of drugs for anesthesia. Equipment for anesthesia, lung ventilation and monitoring. Rules of work with compressed gases. /Pr/	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	3	
1.6	The theory of “Gate control” by Melzak. Clinical physiology and intensive care of the early post-operative period /Pr/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6,	0	
	Div 2. Chapter 2. Reanimatology						

2.1	Physiology of pain. The central and peripheral mechanisms of pain. Anti-nociceptive and nociceptive systems. Neuromediators. Patho-physiology of pain syndrome (PS). Treatment of PS. Multimodal analgesia, patient control analgesia. Clinical pharmacology of drugs for treatment of PS. /ISW/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.2	Cellular and molecular mechanisms of narcosis. Special methods of narcosis (artificial hypothermia). /ISW/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.3	Reanimatology. General issues (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.4	Basics of modern reanimatology. Terminal conditions. Types of cardiac arrest. Clinical death. Biological death. Post resuscitation disease. (Pr)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.5	Brain death. Order of MOH KR from 4.05.2005 #167 “the development of transplantation of organs and tissues in KR”, the instruction was approved by order “the confirmation of human death from full and irreversible cease of functions of the brain”. Order of MOH RF from 25.12.2014 the order of confirmation of the diagnosis of the brain death of human” (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.6	Complex methods of resuscitation. Basic life support (BLS) and advanced life support (ALS). The performance algorithm. Efficacy criteria. Complications, prophylaxis and treatment. Indications to cease the CPR (Pr)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
2.7	Prophylaxis and treatment of post-hypoxic damage of brain. Deontology issues when to cease the CPR. Ethical, social and legal problems when you need to stop CPR (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
	Div. 3.						
3.1	/Пр/	12	0			0	
	Div. 4. Chapter 3. Intensive therapy						
4.1	Acute cardiovascular failure (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	

4.2	Acute cardiovascular failure (Shock). Hypovolemic shock. Vasogenic (distributive) shock: anaphylactic, septic, neurogenic shock. Cardiogenic shock. Pathophysiology, diagnosis and differential diagnosis. Components of intensive care: infusions, vasoactive, inotropic, respiratory, antibacterial, extracorporal membrane oxygenation, balloon contra-pulsation etc. (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.3	Parameters of central hemodynamics: invasive and non-invasive monitoring. Poli -organic failure (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6,	0	
4.4	Acute respiratory failure (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.5	Acute respiratory failure (ARF). Definition, etiology, patho-physiology, classification, clinical and morphological characteristics, functional tests, blood gases values. Diagnostic criteria. Principles of treatment. IC in asthmatic attack, massive pneumonias, respiratory distress syndrome, Mendelson's syndrome, artificial lung ventilation, indications, modes (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.6	Respiratory therapy, main parameters of artificial lung ventilation calculations. Therapy with exogenious surfactant in respiratory distress syndrome in adults. Hyperbaric oxygenation (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.7	ACUTE CEREBRAL FAILURE (ACF). COMAS (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.8	Acute cerebral failure. Comas. Swelling-edema of the brain, syndrome of dislocation of the brain matter. Clinical signs, diagnostic criteria, diff. diagnosis of comas. Pathological syndromes of comas. Basic principles of treatment of the acute cerebral failure (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.9	The methods of vital functions monitoring during comas. Interpretations of values (ISW) /Cp/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.10	ACUTE HEPATIC AND RENAL FAILURE (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	

4.11	Acute hepatic failure (AHF). Definition, etiology, groups of main causes: fulminant and sub-fulminant hepatitis; unfavorable course of chronic hepatitis and liver cirrhosis; long and severe cholestasis; liver necrosis and tumor destruction of the liver; hypoxia of liver parenchyma. Risk factors (provoking factors). Chain of pathogenesis of the AHF. Clinical and morphological forms: main clinical syndromes: cholestasis; cytolisis, encephalopaty, portal hypertension, hemoragia and their combinations etc; diagnosis, prognosis, course, prophylaxis, principles of treatment: basic, specific (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.12	Acute renal failure (ARF). Definition, etiology of various morphological forms of ARF: pre-renal, renal, post-renal factors. Principal chains of pathogenesis of the ARF. Risk factors. Classification, stages and clinical manifestation of ARF. Lab and technical methods of investigation. Qualitative and quantitative methods of urine tests. Diagnostic criteria. Course, outcome, prognosis, main principles of IC and reanimation. ARF ways of prophylaxis. Absolute indications for provision of substitution therapy (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.13	Anatomy and physiology of the urinary tract (mechanism of urine production and auto-regulation). Ethological, pato-genetical, symptomatic, nephrotective therapy. Recovery criteria in ARF (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.14	ACID-BASE BALANCE (ABB). BLOOD AND SYSTEM OF HEMOSTASIS. WATER AND ELECTROLYTE BALANCE (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.15	Acid-base balance (ABB). Definition, physiological principles of ABB regulation. Values of ABB. The role of kidneys and lungs in the ABB regulation. Etiology and pathogenesis of ABB disturbances. Types of disturbances. Methods of lab diagnosis and control of the main types of ABB disturbances. Methods of correction of ABB (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.16	The Stuart’s theory . The role of ABB in the hemostasis regulation. Connection between ABB imbalance and water and electrolyte imbalance (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	

4.17	Blood and hemostasis system. Morphological, functional, electro-physiological properties of peripheral blood cells. Group antigens of erythrocytes of human blood (AB0 system). Rh-antigens system (Rh-0). The value of antigens of trombocytes and leucocytes in transfusiology. The methods of testing of blood group and Rh factor, the compatibility test performance of the donor and recipient's blood. Errors when doing blood grouping and transfusion. Physiology and mechanisms of regulation of the hemostasis system (vascular, trombocytes and plasma components). Methods of lab investigation of the components of the hemostasis system. Main clinical types of hemostasis disturbances: DIVC, TELA, hereditary coagulopathy and trombocytopathy. Diagnosis and correction of hypo- and hyper-coagulation syndromes. The characteristics of the main drugs, indications for use. Basic principles of IC (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.18	Minor antigens of humans erythrocytes. Modern concept of the blood compatibility between donor and recipient. Cell concept of the homeostasis system regulation. Lab express diagnosis of blood values (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.19	Water and electrolyte (WE) balance (exchange)-WE balance. Water sector of the organism: volume and ion's components. Physiological criteria. Regulation of WEB. The definition: osmolarity (osmolality). Blood electrolytes values. Pathological loses of water and electrolytes. Diagnosis of main WE imbalances. Prophylaxis and main principles of correction of WE imbalances, in combination with acid base imbalances and blood imbalances. Medicines for WE imbalances correction (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.20	The evaluation of Central Venous Pressure dynamics, 24-hours and hourly diuresis, hemodynamic values during WE balance dysfunction. The definition of iso-osmolarity and iso-neutrality (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.21	INFUSION AND TRANSFUSION THERAPY. NUTRITION SUPPORT (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	

4.22	INFUSION AND TRANSFUSION THERAPY (ITT). Definition of ITT. Main aspects of transfusiology. Basics of ITT: evaluation of the volemia status, indications for ITT. Principles of Infusion therapy: corrective and basic types. Special methods of ITT (rehydration, detoxication etc). Main ITT solutions: crystalloids, colloids, combined solutions. Crystalloid solutions: electrolytes and non-electrolytes. Heterogeneous volume restoration with colloid solutions: made of dextran, starch and gelatin. Colloid solutions made of blood: albumin, plasma etc. Methods of execution and ITT control methods. ITT complications, its prophylaxis and treatment (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.23	Catheterization techniques of central and peripheral veins. The creation of infusion program based on patient's needs in water, electrolytes, deficit of blood volume etc. using simple formulas. Indications and protocols for blood transfusion and its components (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.24	Nutrition support (NS). Nutrition status. Status of protein's compound (trophic status), balance of energy (energy needs, calculations). Nutrition failure (protein, energy). Modern concept of NS: provision of energy and plastic materials. Evaluation of nutrition failure grade. Indications and contraindications for NS. Main principles, variants, techniques, methods of NS provision. The features of NS in various organic dysfunctions. Monitoring of metabolic needs and evaluation of the NS efficacy. Complications, prophylaxis, treatment. Characteristics of nutrients (drugs for enteral and parenteral nutrition) (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.25	Syndrome of enteral (intestinal) failure (SEF). The protocol for administration of the NS medicines. Three-components of parenteral feeding with additions (when needed) of multivitamins, electrolytes and micro-elements (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.26	ACUTE EXOGENOUS POISONING (Lec)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6,	0	

4.27	Acute exogenous poisoning (AEP). Definition. Classification of AEP. Entering routes of the toxic substances into the organism. Pathophysiology. Clinical syndromes of the AEP. Exo-toxic shock. Differential diagnosis of the symptoms and syndromes of AEP from other cerebral and organic dysfunctions of another reasons. Collection of the biological materials (urine, blood, vomit etc) to perform chemical and toxicological investigation. Main principles of complex treatment of AEP: to limit or cease of poison entering, incorporal detoxication (removal of poison), extracorporal detoxication (hemosorbtion, plasma sorbtion, plasmaferesis etc), treatment with antoidotes (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.28	Screening express-tests. The features of IC and resuscitation when dealing with most common poisons and unknown poisons (intoxication with alcohol and its surrogates, sleeping and sedative drugs, phosphor substances, mushrooms, snakes, insects etc) /ISW/	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.29	Emergency conditions in the clinic of internal diseases. Acute heart failure: acute left ventricular failure (small cardiac output syndrome, pulmonary edema), severe (life threatening) rhythm disturbances. Etiology. Pathogenesis. Clinical course. Complications. The features of intensive care (IC). Special methods of IC. Hypertensive crisis. Etiology. Pathogenesis. Classification: type I, adrenal type, (hyper-kinetic form, neuro-vegetative form); type II, nor-adrenal type, hypo-kinetic form, water electrolyte form). Clinical course. Complications. Features of IC depending on type of Hypertensive crisis. Complications of diabetes mellitus: hyperosmolar, ketoacidotic, lactate- acidemic, hypo-glycemic coma forms. Features of IC. Thyreoid-toxic crisis. Etiology. Pathogenesis. Clinical course. Features of IC. Seizure syndrome. Etiology. Pathogenesis. Clinical course. Complications. The features of IC (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.30	Electric impulse therapy: defibrillation, cardioversion, electric cardiac stimulation. Acute failure of brain circulation: ischemic and hemorrhagic stroke. Etiology. Pathogenesis. Classification. Clinical course. Complications. The features of IC. (Pr)	12	4	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	

4.31	Drowning in salted and non-salted water. Pathophysiology. Clinical course. Complications. The features of resuscitation and intensive care. Electric trauma. Pathophysiology. Clinical syndromes. Complications. The features of resuscitation and intensive care. Overheating. Heat and sun strike. Pathophysiology. Clinical syndromes. Complications. The features of resuscitation and IC. Cold exposure. Freezing, cold trauma. Pathophysiology. Clinical syndromes. Complications. The features of resuscitation and IC. Crush syndrome. Pathophysiology. Clinical syndromes. Complications. The features of resuscitation and IC. Strangulation asphyxia. Pathophysiology. Clinical syndromes. Complications. The features of resuscitation and IC (Pr)	12	3	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.32	Hyperthermia syndrome. Etiology. Pathogenesis. Clinical course. Complications. The features of IC (ISW)	12	2	PC-6 PC-11 PC-13	Л1.1 Л1.2 Л1.3, Л1.4, Л1.5, Л1.6, Л2,1	0	
4.33	(Zachet) differential set offs	12	2	PC-6 PC-11	Л1.1 Л1.2	0	

5. The fund of Evaluation Means

5.1. Control tests and assignments

Examples of tests for current control. Choose one correct answer.

Which drug is for inhalation anesthesia:
1. Isofluran
2. Diprivan
3. Ketamin
4. Tiopental Na

The monitoring of external breathing during operation is including:
1. Pulseoxymetry
2. Oscillometry
3. Plethismography
4. Scintigraphy

The risk of anesthesia is performed by using of :
1. ASA scale
2. MNOAR scale
3. Balagin scale
4. Apgar scale

The narcotic analgetics are:
1. Fentanil
2. Drotaverin
3. Droperidol
4. Diazepam

Absolute indication to put the patient into the resuscitation ward is the presence of:
1. Acute respiratory failure
2. Decompensated chronic respiratory failure
3. Decompensated chronic cardio-vascular failure
4. Acute stroke

Absolute contra indication to put the patient into the resuscitation ward is the presence of:
1. Highly contagious infectious disease, when there is no isolation room.
2. Chronic disease on the ground of development of acute organs and systems failure.
3. Poly-organic failure.
4. Severe narcotic or alcoholic intoxication.

Critical condition syndrome includes:
1. Acute cerebral failure
2. Decompensated chronic respiratory failure
3. Decompensated chronic cardio-vascular failure
4. Acute stroke

Critical condition syndrome includes:
1. Acute imbalance of water and electrolyte balance and acid base balance.
2. Iron deficiency anemia of severe degree
3. Terminal stage of chronic renal failure
4. Iron deficiency anemia of medium degree

If patient has cardiac arrest in the surgical department, the resuscitation must be started:
1. At the scene
2. In the ICU
3. In the resuscitation ward
4. In the dressing room

Who makes the decision regarding the transfer of the patient to the ward:
1. The doctor reanimatologist working in the ward
2. Treating doctor in the treating department
3. The head of treating department
4. The deputy of the chief doctor of the hospital

Examples of situational tests for current control.

Task 1.
Learn the situation and give full answer to question:
In the surgical department: the surgery is planned to drain the abscess of the 2 finger of the right hand in a young man (panaricium).

Question/Assignment
1. What type of anesthesia is indicated in such case
2. What alternatives may be used
3. Is there a need of anesthesiologist?

Answer etalons:
1. Local anesthesia
2. The block of brachial plexus can be used, but it is irrational
3. Local anesthesia can be done by surgeon, so there is no need of anesthesiologist

Task 2.
Learn the situation and give full answer to question:
The 50 y.o. patient with myocardial infarction was in cardiology department. Suddenly the patient opened his mouth, lost his consciousness, skin color became cyanotic. Pulse was absent.

Question/Assignment
1. What must be done to start CPR?
2. What are next steps?
3. How to place palms of the hands for chest compression?
4. What must be done by the doctor-reanimatologist who first arrived to the scene?
5. What must be done in case of confirmed fibrillation?

Answer etalons:
1. To tilt the head and keep it in such position

2. Start breathing and chest compressions
3. Palms must be placed right on the center of the sternum, 2 cm above the junction of sternum and processus xiphoideus
4. To record ECG for defining the type of cardiac arrest
5. To perform the defibrillation

Task 3.
Learn the situation and give full answer to question:
The 60 y.o. patient with ileus had a surgery 5 days ago. The crystalloid solutions were infused during the surgery and post-operative period. The total amount of solutions was 7 liters. During the first night the arterial hypotension and respiratory failure with low PO2 and PaCO2 have been developed.

Questions/assignments:
1. What is the most possible mechanism of arterial hypotension
2. What are the most possible electrolyte imbalances of the plasma
3. What is the respiratory failure mechanism
4. What are possible fluids distribution in the water sectors of the body.
5. What diagnostic measures are necessary to confirm the diagnosis of syndrome dysfunctions.

Answer etalons:
1. Hypovolemia
2. Low sodium and low potassium in the blood
3. Interstitial lung edema
4. Hyper hydration of the interstitial space, hypovolemia
5. Evaluation of electrolyte content of the blood, measuring of central venous pressure, measuring of blood gases, chest X-ray, ECG, measuring the water sectors of the organism – if there is an opportunity.

5.2. Themes of course work (projects)

Themes of course work (projects)

Course work – individual work/assignment prepared during the semester in the shape of:
=report or presentation of the patient's medical history / syndrome
=report or presentation of the reanimation protocol
=report or presentation of the cure of the pathological syndrome
=report or presentation of the subject of the learning discipline

1. Basis and perspectives of the modern anesthesiology. Concepts and trends.
2. Deontology issues in anesthesiology and reanimation. Euthanasia.
3. Complex methods of reanimation. Stages of development from experiments to realities.
4. Physiology of pain. Treatment of pain syndromes. The future of algology.
5. Shock and its mechanisms. Modern concepts.
6. Hemorrhagic (hypovolemic) shock. Emergency treatment and features of intensive care (IC).
7. Anaphylactic shock. Emergency treatment and features of IC.
8. Septic shock. Emergency treatment and features of IC.
9. Cardiogenic shock. Emergency treatment and features of IC.
10. Acute respiratory failure. Classification. Clinical physiology.
11. Asthmatic status. Emergency treatment and features of intensive care.
12. Acute respiratory distress syndrome. Features of intensive care.
13. Aspiration pneumonitis (Mendelson's syndrome). Features of IC.
14. Acute cerebral failure. Monroe – Kelly's doctrine.
15. Hemato – encephalic barrier. Edema – swelling of the brain.
16. Acute cerebral circulation failure. Modern concepts of IC.
17. Diabetic comas. Types of comas and features of IC.
18. Hepatic comas. Emergency treatment and features of IC.
19. Uremic comas. Emergency treatment and features of IC.
20. Modern solutions for infusion and transfusion: crystalloids, colloids and mixed solutions.
21. Modern solutions for nutrition (farmaco - nutrients)
22. Dehydration. Its types.IC and principles of infusion therapy.
23. Main types of acute exogenous poisoning. Features of IC. Antidotes.
24. Main groups of anti- arrythmic drugs. Strategy of administration of them during life – threatening rhythm dysfunctions.
25. Overheating. "Heat" and "sun" strokes. Emergency treatment and features of intensive care.
26. Cold injuries. Overexposure to cold and cold trauma. Emergency treatment and features of intensive care.

5.3. The fund of means of evaluation

The fund of means of evaluation.

The fund of means of evaluation (FME) is a combination of control and measurement materials for current control and interim

attestation on discipline. It also includes other methodological tools containing the description of evaluation criteria, forms and procedures of evaluation. All of the above are focused on quality of student's preparation during the whole period of preparation.

The FME is an integral part of the provision of norms and methodology for the student's quality evaluation system - how they learn their main high professional education program.

Current control:
- Verbal talk in the form of interview
- Answers to the questions of the lesson
- Specific question and expert evaluation "learner-to-learner"
- Test control on the theme of the lesson
- Situational tasks solution
- Assignment for self - control
- Learning tasks (projects)
- Current debts of the lessons

- Borderline control (it is a part of current control)
- Computer-based or paper-based testing
- Verbal talk of the student with teacher when needed

- Interim control/attestation
- Questions for attestation
- Situational tasks
- Differential off-set (Differential zachet)

5.4. The list of types of evaluation means

The List of types of evaluation means:

- The scale of current control of learning theoretical and practical materials. Appendix #4, #5
- The scale of answers of the borderline control tests. Appendix #6, #7, #8
- The scale of the interim control/attestation. Appendix #12
- Differential off-set (Differential zachet).
- The scale of evaluation of the points-rating system. Appendix #13

6. The provision of educational, methodical and informative materials of the discipline (module)

6.1. Recommended literature

6.1.1. Main literature

	Authors	Title	Publishing org., year
Л1.1	Butterworth J., Mackay D., Wasnick J.	Morgan and Michail's Clinical Anesthesiology: Textbook of Anesthesiology and Intensive Medicine	Lange Publishing 2018
Л1.2	Barash P.G.	Clinical Anesthesia: Textbook in Anesthesiology	Wolters Kluwer 2017
Л1.3	Steiner J.	Anesthesia Made Easy: Textbook in Anesthesiology	Two Pugs Publishing, LLC 2015
Л1.4	Robinson N., Hall G.	How to survive in Anesthesia. A guide for trainees.: Textbook in Anesthesiology	Blackwell publishing 2007
Л1.5	Kloeck W. G. J.	A Guide to the Management of Common Medical Emergencies	Ed.: Division of Emergency
Л1.6	American Heart	Advanced Cardiac Life Support, USA, 2015, Resuscitaion,	American Heart Association

6.1.2. Additional literature

	Authors	Title	Publishing org., year
Л2.1	American Heart	BLS for Healthcare Provider	American Heart Association

6.3. The list of informative and educational technologies	
6.3.1 Competence-oriented educational technologies	
6.3.1.1	Traditional educational technologies - these are lectures, practical sessions, seminars, out of class sessions; all of them are mostly focused on delivery of knowledge and actions transferred to the students as a whole object for further assimilation. Practical sessions are conducted mainly in the surgical clinics with compulsory visits to the patients.
6.3.1.2	Innovative educational technologies – these are sessions which forms systematic thinking and ability to generate ideas
6.3.1.3	Innovative educational technologies – these are sessions which forms systematic thinking and ability to generate ideas when solving various tasks. Interactive methods of conducting lessons: to form skills with mannequin-trainers, testing, use of multimedia to demonstrate videos and materials. Practical sessions are also possible, when brain-storming technique is used.
6.3.1.4	Informative educational technologies - these are ISW with computer equipment and internet resources to perform
6.3.1.5	Informative educational technologies - these are ISW with computer equipment and internet resources to perform practical assignments and work, to read internet-sources, photo and video materials on related chapter. The preparation of lectures-presentations by teacher is also included.
6.3.2 The list of informative directory system and program software	
6.3.2.1	The list of informative directory system and program software.
6.3.2.2	The list of informative directory system and program software.
6.3.2.3	1. APK Pirogov (АПК Пирогов) – it is an interactive teaching software, which allows to build the logical pathway when teaching students and doctors natural-and- scientific disciplines: topographic anatomy, pathologic anatomy, surgery.
6.3.2.4	2. Electronic library of the medical high school – www.studmedlib.ru
6.3.2.5	3. Electronic medical library – www.rosmedlib.ru
6.3.2.6	4. Electronic medical library of the publishing house Vidar (Видар) – www.vidar.ru/Library.asp
6.3.2.7	5. Medical literature – http://www.medbook.net.ru
6.3.2.8	6. Electronic library of the high medical school – http://www.studmedlib.ru/

7. Material and technical provision of the discipline (Module)	
7.1	Material and technical provision of the discipline (Module)
7.2	Material and technical provision of the discipline (Module)
7.3	The Chair of Hospital Surgery (CHS) is located in the National Hospital of the Ministry of Health of Kyrgyz Republic in the clinic named after prof. I.K. Akhunbaev (Bishkek, Togolok Moldo street #1). The number of rooms and facilities meets the requirements of the teaching process.
7.4	Material and technical provision of the CHS
7.5	Material and technical provision of the CHS provides all types of student's preparation, in accordance with curriculum, sanitary and hygienic norms. Lecture room has 200 seats, it is equipped with projector and interactive board. Practical sessions take place in the clinic's rooms, each room has 15 seats.
7.6	For the provision of the teaching process
7.7	For the provision of the teaching process the CHS has: multimedia projects 2 pcs, video camera- 3, TV -1, PC – 3, notebooks -2, the set of thematic tables and set of videos on CDs and USB drives, the collection of testing assignments and situational tasks, teaching and methodical text books, adult mannequin for the patent airways provision training (inserting airways, intubation of the trachea), set of airways (oropharyngeal and nasopharyngeal), laryngeal masks, face masks, laryngoscope and set of blades, set of intubation tubes with introducer, intravenous catheters (central and peripheral), Ambu bag (Artificial Manual Breathing Unit), drug samples for inotropic and vasotropic therapy, samples of solution for infusion and transfusion therapy.

8. Methodical directions for learners of the discipline (module)
Methodical directions for learners of the discipline (module). Technological map of the discipline – Appendix 14. Methodical materials for learning the discipline "Anesthesiology, reanimatology and intensive care". The main forms of learning the discipline (module) "Anesthesiology, reanimatology and intensive therapy" are in-class sessions (108 hours): course of lectures, clinical practical sessions (active and interactive), out-of-class sessions – ISW. The teacher have to put the data regarding student's

attendance of lectures and practical sessions into HS Chair's log-book. This log-book must display the content of the lesson, student's knowledge of the subject every day, the student-and-curator work results. The general characteristics of the group, including weak and strong students have to be recorded too.

Course of lecture (18 h), as a part of in-class sessions, is one of the main forms of learning of the discipline. The objective of the lecture is to give key information of the subject to the students, to formulate the basis for further assimilation of the material through the independent work.

The content of the lecture must meet the following didactical requirements: the delivery of the material must be given from simple to complex, from known to unknown; logic, sharpness and clearness; the ability to disclose the problem, discussion and dialogue with aim to involve students; the pillar of the lecture must stand on real facts, events and statistical figures; close connection of theoretical ideas with practice and future work of the students.

On lectures students must learn how to write briefly and schematically the summary of the lecture; gradually fix main statements, formulations and general ideas; to mark important ideas, summaries; to stress out key words and terms. All of the above helps better learning of theoretical materials and finally to obtain necessary professional skills and abilities.

The learner must know that half of the lecture is delivered through intonation. It is necessary to keep in mind that first attention crisis starts on 15th-20th minute, second attention crisis is on 30th-35th min.

Material presentation via computer files (pictures, graphs, tables) and projector are widely used during lectures.
Clinical practical sessions (54 hours) – is a part of teaching process, it is a group form of education with active involvement of students. In-class sessions (seminars) promote deeper learning of the complex problems of the discipline, in-class sessions are focused on developing independence and gaining of skills and abilities, and serves as main form of summarizing the ISW.

The main portion of learning time is devoted to clinical practical learning how to diagnose critical conditions and practical skills for the first-aid provision and resuscitation. Practical sessions are performed in the shape of interview-discussion, solving clinical situations at patient's bedside in the ICU and/or in the classroom, by using demonstration materials, mannequins, trainers, solving situational tasks and tests.

On seminars students learn to describe the problem, to express their thoughts and ideas, to run discussions, to insist, to prove, to rule out etc. when dealing with concrete situation related to clinical case or situational task. All of the above help to strengthen practical skills which are needed for modern specialist. It must be remembered that one of the form of preparation for seminar can be writing a report or case description with further discussion.

The seminar is performed on the core and most difficult issues (themes, chapters) of the working program. It can be built on the material of the lecture or on the certain theme without preliminary lecture. The most important and decisive point of any seminar – the existence of elements of discussion in dialogues between the teacher, students, between students.

The most complex form of situational test is the role play. It is a method of modeling the professional activity, when students are not simply choose one option to solve various tasks, but "play" them in action. For instance, they act in the role of doctor, patient, head of the department. Very often this method requires several team buildings. All of teams compete with each other when solving various tasks.

The role play requires knowledge, skills, team work, ability to find the solution in difficult situations. The students in the team work will develop collective feeling and communication. Students will develop communication skills based on ethical features of patient's disease. This type of education will help the student to learn the pathology, even if there is no patient in the clinic.

Independent student's work (ISW, 36 hours) are out-of-class sessions, it is a form of preparation for practical clinical lessons. ISW includes: independent work with material, preparation and defense of thesis or presentation, the work at the patient's bedside in the ICU, and preparation for interim and current control.
The work with textbook (basic and auxiliary) is a type of learning work on the discipline Anesthesiology, reanimatology and intensive care; the work with textbook must be done in the designated time frame (check the chapter ISW). First of all, it is necessary to use lecture materials, in order to see key issues, which the student have to disclose and workout during practical sessions. Next step is to use the basic literature, textbooks, monographs, methodical recommendations developed by staff of the HS Chair.

During the preparation for practical session, it is necessary to refresh the knowledge of the previous disciplines, e.g. anatomy of the organ, its location in the body, function of the organ in normal and pathological conditions etc. The use of auxiliary literature is also needed to cover the needs of certain students. Every student must have an access to university and HSC libraries.

Thesis (referat) it is the form of writing assignment. It is a short form of presentation of scientific data and literature regarding certain problem. During the thesis preparation the student has to work through several literature sources independently (monographs, journal articles etc.) devoted to certain theme (omitted on the lecture), devoted to systematization of the material and its short reproduction.

The objective of the thesis is to teach the student the skills of brief and laconic presentation of the collected materials and facts, compliant with requirements for scientific publications, reports and articles.

Presentation – it is a form of display of the material prepared with computer software (MS Power Point). It is a review of certain issue with use of medical resources in the internet and laconic presentation with slides. Presentations develop skills of verbal delivery of the material, its validation, necessity and importance of information to be presented. It also gives the student skills of scientific and research work.

Curation (курация) – it is an ISW with patient. During curation the student writes the protocols of the patient's observation, makes conclusion about patient's condition and about the risk of anesthesia and surgery, fills out the IC sheet or protocols of resuscitation. The correct and meticulous filling out of medical documents (juridical papers) will help the student to gain and reinforce practical skills and abilities. It will finally help to form adequate professional behavior, accuracy and discipline.

Methodical materials of FOS which defines shape, procedures and criteria for evaluation of the knowledge, skills and characterizing the stages of forming the competences are presented in the Appendix 15.