**Ministry of Health of Ukraine**

**Kharkiv National Medical University**

**Department of Emergency Medicine, Anesthesiology and Intensive Care**

SYLLABUSE

of the

«Anesthesiology and Intensive Care»

(name of academic discipline)

Academic year 2020/2021

Field of knowledge 22 "Health carу\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(code and name of the direction of training)

Specialty / EQL 222 "Medicine", the second (master's) level

(code and name of the specialty)

OPP "Medicine"

Course V\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| The program was approved at the meeting  of the department of Emergency medicine, anesthesiology and intensive care  Protocol «\_27\_»\_august\_\_2020 № \_14\_  Head of Department  \_\_\_\_\_\_\_\_\_\_\_\_\_\_ prof. Yu. Volkova  (signature) (surname and initials)  «\_27\_»\_\_\_\_august\_\_\_\_\_\_\_2020 | The program is approved by the methodical commission KNMU  on problems of a surgical profile  (name)  Protocol « \_28\_ » \_\_\_august\_\_\_ 2020 № \_1\_  Head of the methodical commission on problems of a surgical profile  \_\_\_\_\_\_\_\_\_\_\_\_\_\_ prof.V.O. Syplyvyi  (signature) (surname and initials)  «\_\_\_\_28\_\_»\_\_\_\_\_august\_\_\_\_\_\_ 2020 |

General information about the discipline:

Course title: Anesthesiology and Intensive Care. Anesthesiology and intensive care.

PROGRAM DEVELOPERS:

1. Assoc. prof., PhD, Baranova Nadiia Viktorivna

(surname, name and patronymic, position, academic title, academic degree)

2. Prof., M.D., Volkova Julia Viktorivna - Head of the Department of Emergency Medicine, Anesthesiology and Intensive Care

(surname, name and patronymic, position, academic title, academic degree)

Information about the teacher (s) (professional interests, trajectory of professional development) with reference to the teacher's profile (on the department's website, in the Moodle system)

Contact phone and E-mail of the teacher

|  |  |
| --- | --- |
| surname, name and patronymic | Baranova Nadiia Viktorivna  Волкова Yuliia |
| Contact phone | +380958759932  +380953196463 |
| E-mail: | nadezhdav.baranova@gmail.com  dryu.volkova@gmail.com |
| Timetable | According to the schedule of the educational department |
| Consultations |  |

Practical classes - classroom of the Department of Emergency Medicine, Anesthesiology and Intensive Care on the basis of KNP City Clinical Hospital of Ambulance and Emergency Care named after Prof. A.I. Meshchaninov (Lane Balakireva 3a), building 2, floor 4.

Class time: Monday, Tuesday, Wednesday, Thursday, Friday (according to the timetable);

Reception of tests and face-to-face consultations are conducted by teachers of the department daily from 8am to 3pm o'clock, on Saturdays by the another teacher from 9am to 3pm o'clock.

**Discipline information.**

**Description of the discipline**.

The discipline "Anesthesiology and Intensive Care" is studied by 5th year students (9-10 semesters). During the course, practical classes are held, covering a wide range of important issues of anesthesiology and intensive care, and lectures are given. Students also study while working independently.

The main tasks of studying the discipline "Anesthesiology and Intensive Care" are the acquisition by students of competencies in accordance with the general and professional competencies of the educational-professional program "Medicine" of the second (master's) level of higher education in 222 Medicine qualification Master of Medicine.

The study of the discipline will allow students to assess the patient's condition, identify disorders that threaten the patient's life, have a holistic view of the principles of intensive care of the main systems of the body and anesthesiological support of surgical interventions. At the end of classes, each student must have a clear knowledge of intensive care for acute disorders of the main systems of the human body, during resuscitation, have basic methods of resuscitation and intensive care, care and observation of critically ill patients, assess the patient's condition, know the principles of anesthesia. in patients of different age groups and with concomitant pathology.

Students should learn general methods of clinical, laboratory and instrumental diagnosis of insufficiency of organs and systems of the body, provide emergency care for acute respiratory disorders, circulatory disorders, acute kidney damage, acute water-electrolyte disorders and acid-base imbalance and acute chemical poisoning. The main objectives of the discipline are the acquisition by students of competencies in accordance with the general and professional competencies of the educational-professional program: to solve complex specialized tasks and practical problems, to apply professional skills, medical means, interventions and actions to ensure patient dignity, privacy, confidentiality, protection of his rights, physical, psychological and spiritual needs on the basis of transcultural communication, tolerant and irrational behavior. Make informed decisions, demonstrate the ability to work in a team, act socially responsibly and consciously.

**The purpose and objectives of the discipline**

The purpose of teaching the discipline "Anesthesiology and Intensive Care" - to prepare students for the ability to provide emergency care in extreme and urgent conditions that occur in medical practice and affect the development of psycho-emotional state, complicating the critical situation and contributing to post-traumatic stress disorders.

**Task.** The main objectives of the discipline "Anesthesiology and Intensive Care" are:

• Have methods for diagnosing disorders of vital functions of the body in critical conditions that occur during injuries, man-made disasters, poisoning, complications of somatic pathology and emergency care.

• To interpret the main clinical and laboratory indicators of disorders of vital functions of the body of patients of different ages.

• Learn and use the basic principles of organizing emergency care for victims. their transportation, monitoring.

• Features of the discipline: normative, format of the discipline: can be both full-time - the discipline provides only traditional forms of classroom learning, and mixed - the discipline is accompanied by Moodle, teaching the discipline involves a combination of traditional forms of classroom learning with elements of e-learning. information technologies such as computer graphics, audio and video, interactive elements, online consulting

• Prerequisites of the discipline (list of disciplines, the study of which must precede this discipline)

Normal anatomy, normal physiology, biochemistry, pathological anatomy, pathological physiology, clinical pharmacology, laboratory diagnostics, functional diagnostics, propaedeutics of internal diseases

• Learning Outcomes:

As a result of studying the discipline the student must

**know:**

• Anatomical and physiological features of different age groups of patients.

• Pathophysiological, biochemical changes in the body in critical conditions.

• Basic pharmacological drugs and substances used in emergencies.

• Patient severity scales APACHE -2, SOFA, ISS, RIFLE.

• Probable complications of anesthesia, its effect on the psycho-emotional state.

• The main urgent conditions that occur in the practice of the doctor: in surgery, traumatology, neurology, therapy.

**be able:**

• Assess the patient's condition, diagnose terminal conditions, clinical death.

• Evaluate and interpret clinical and laboratory and instrumental examinations, radiographs, non-invasive monitoring data.

• Cardiopulmonary resuscitation (closed heart massage), defibrillation techniques for patients of different ages.

• Wash the restoration of airway patency, methods of artificial lung ventilation at the pre-hospital and hospital stage of emergency care;

• Justify the choice of pharmacological drugs and substances for emergency care in case of shock, respiratory failure, poisoning.

• Master the tactics of preparing the patient for surgery under general and regional anesthesia.

**A list of practical skills that a student must master when studying the discipline**

1. Safe position on the side.

2. Triple reception of Safar.

3. Introduction of oropharyngeal and nasopharyngeal airways.

4. Ventilation "mouth to mouth / nose".

5. Ventilation with an Ambu breathing bag and a face mask.

6. Indirect heart massage.

7. Use of manual / automatic defibrillator.

8. Intraosseous access.

9. Laryngeal mask.

10. Laryngeal tube.

11. Conicotomy.

**Description of the discipline**

|  |  |  |  |
| --- | --- | --- | --- |
| Name of indicators | Field of knowledge, direction of training, educational and qualification level | Characteristics of the discipline | |
| **full-time education** | |
| Number of credits -3 | Training direction  (code and name) | Normative | |
| Total hours - 90 | Specialty:  222  (code and name) | Year of preparation: | |
| 5th | |
| Semester | |
| 9th | 10th |
| Lectures | |
| Hours of study:  classroom - 40  independent student work - 40 | Educational qualification level(EQL):  magister | 10 h | |
| Practical classes | |
| 40 | |
| Independent work | |
| 40 | |
| Type of control: diff. credit | |

The content of the discipline

Curriculum.

**Topic 1. Cardio-pulmonary and cerebral resuscitation (CPCR).**

Terminal states: preagony, agony, clinical death. Causes of primary cardiac arrest. Signs of clinical death. Signs of biological death. Stages of cardiopulmonary and cerebral resuscitation. Immediate stage of CPCR. Indirect heart massage. Ensuring airway patency and artificial lung ventilation at the immediate stage of CPCR. Complications and evaluation of the effectiveness of resuscitation measures at the immediate stage.

Specialized stage of CPCR. ECG signs of different types of cardiac arrest. Determination of indications for defibrillation and open heart massage. Defibrillation techniques and safety rules when performing defibrillation. Ensuring airway patency at a specialized stage of CPCR. Rationale for pharmacotherapy and routes of administration of drugs in cardiac arrest. After resuscitation. Pathogenesis, clinical course of post-resuscitation disease, intensive care. Brain edema, intensive care, restoration of integrative brain function. Decortication, decerebration and brain death. Clinical features, biochemical and instrumental methods for determining brain death. The concept of vegetative state, euthanasia. The problem of life and death Peculiarities of the anesthesiologist's relationship with the patient's relatives and specialists in related specialties. Socio-legal, ethical, deontological problems of CPCR.

**Topic 2. General issues of anesthesiology**

Modern methods of anesthesia and anesthesia. Features of preparation of the patient for anesthesia and surgical intervention in outpatient, planned and urgent interventions. The importance of premedication and psychological methods in preparing the patient for surgery under anesthesia.

*Types of anesthesia:*

• Inhalation anesthesia. Inhalation anesthetics (halogen-containing: sevoran, isoflurane, halothane), nitrous oxide, xenon. Advantages and disadvantages of inhalation anesthesia.

• Non-inhalation anesthesia (ketamine, sodium oxybutyrate, sodium thiopental, propofol). Advantages and disadvantages of non-inhalation anesthesia.

• Regional anesthesia. Types and methods of regional anesthesia (spinal, caudal, epidural, anesthesia of nerve plexuses and trunks). Advantages and disadvantages of regional anesthesia.

General principles of multimodal anesthesia. The influence of different methods of anesthesia on the cognitive functions of the patient. Occupational burnout syndrome in anesthesiology.

**Topic 3.Methods of diagnose and correction of violations of water-electrolyte exchange and acid-basic state**(ABS)

Physiology mechanisms of maintenance of internal environment of organism, methods of its control. Physiopathology of water-electrolyte exchange and acid-basic state. Concept about the homoeostatic functional system, molarity. Types of violations of exchange of water, their reason, and methods of diagnostics and correction. Exchange of basic electrolytes - sodium, potassium, chlorine, calcium, are reasons of possible violations, methods of correction. Physiology and buffer systems of ABS. Types of violations of the acid-basic state, methods of laboratory diagnostics and intensive care of metabolic acidosis, metabolic alkalosis, respirator acidosis and respiratory alkalosis.

Features of adjustment of active reaction of organism for children and older people. Methods of determination of deficit of water volume. Description of preparations of hemodynamic infusions, indication and contra-indication to their application.

Ways of introduction. Features of infusion therapy for children and older people. Complication of infusion therapy. Bases of parenterally feeding. Description of preparations of parenterally feed governed and control after its efficiency. Features of parenteral feed for children and older people.

**4. Acute respiratory failure**

Physiology and breathing physiopathology. Unrespirative functions of lungs. Anatomical feature of the breathing system for children and older persons.

Aetiology and pathogen of ARI, classification, clinical motion. Algorithms of diagnostics. Hypoxia, its kinds, clinical signs, diagnostics. Hypercapnia, clinical signs.

Methods of intensive care of ARI. Backer-ups free communicating of respiratory tracts and improvement of drainage function of lungs. Methods of oxygen therapy. Testimony to application of the spontaneous breathing under constantly by positive pressure and artificial ventilation of lungs, its contra-indication, and complications. Application of hyperbaric oxygenation .

Intensive care of children with acute respiratory insufficiency.

Disease of the respiratory system Intensive care of acute respiratory insufficiency in a preoperative period, at the asthmatic state,

lungs edema, sinking, tromboembolia of pulmonary artery and itsbranches, aspiration syndrome, respiratory  dysstress syndrome of the adults and   newborn.

**Topic 5. Acute violations of circulation of blood. Shock states**

Physiology and physiopathology of circulation of blood. System transport of oxygen, as an index of adequacy of function of the cardiac-vessel system.

Mechanisms of development of acute circulator insufficiency. Determination of types of critical disorders of hemodynamic of cardiac and vascular insufficiency, hypovolemia. Criteria of disorder of microcirculation.

Reasons of origin, clinical signs and diagnostics of acute cardiac insufficiency, violations of cardiac rhythm. Basic directions of intensive therapy. Age-old features of the cardiac system and mechanisms of development of critical disorders of hemodynamic and their treatment.

Physiopathology, diagnostics, features of motion, and intensive care at dizziness and collapse.

Shock, types of shock. Physiopathology, diagnostics, features of motion, intensive care of the different types of shock (hemorrhagic, traumatic, anaphylactic, septic). Features of infusion therapy of different types of shock, description of infusions solutions. A physiopathology, diagnostics, intensive care and measures of prevention of complications, in patients with heavy craniocerebral trauma, polytrauma, electrotrauma .

**Topic 6. Acute kidney and hepatic failure**

Anatomy and physiology of the urinary system. AKI, its forms, physiopathology, clinical motion and biochemical disturbances. Methods of diagnostics.

Algorithms of intensive care (IT) of the different stages of AKI.  Methods of the out renal cleaning (haemodialysis, hemofiltration, ultra filtration, peritoneal dialysis).

Etiologic factors, physiopathology of development, clinical motion of acute hepatic insufficiency. Methods of IT of acute hepatic insufficiency.

**Topic 7.**  **Comatose states. Traumatic injuries**

Types of comatose states: hypo- and hyperglycemic coma; hyperosmolar; hepatic; uremic; ketoacidotic. Methods of diagnosis of comatose states, Glasgow com scale, monitoring. Pathogenetic intensive care for insects of different genesis (hypo- and hyperglycemic coma; hyperosmolar; hepatic; uremic; ketoacidotic). Etiology, pathophysiological processes in trauma. General principles of providing assistance to victims of severe injuries.

Traumatic brain injury, pathogenesis, clinical manifestations, diagnosis, monitoring and correction of intracranial pressure, principles of infusion therapy. Skeletal trauma: immobilization, anesthesia, principles of intensive care of victims. Fat embolism. Hypothermia: pathophysiology, emergency care, specialized care. Emergencies associated with heat exposure: sunstroke and heat stroke. Emergency aid. The choice of a rational method of analgesia for traumatic injuries.

**Topic 8. Diff. credit**

**3. The structure of the discipline**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Names of sections of the discipline and topics** | Number of hours | | | | | |
| full-time education | | | | | |
| Total | Including | | | | |
| Lec | Pr | Lab | Individual | IW |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|  | | | | | | |
| Topic 1Cardio-pulmonary and cerebral resuscitation. |  | - | 5 | - | - | 5 |
| Topic 2Common questions of anesthesiology and intensive care  General questions of anesthesiology |  | 2 | 5 | - | - | 5 |
| Topic 3  Methods of diagnose and correction of violations of water-electrolyte exchange and acid-basic state (ABS) |  | - | 5 | - | - | 5 |
| Topic 4Acute respiratory insufficiency. Disease and defeat of the respiratory system |  | 2 | 5 | - | - | 5 |
| Topic 5 Acute violations of circulation of blood. Shock states |  | 2 | 5 | - | - | 5 |
| Topic 6. Intensive care of acute kidney and hepatic insufficiency |  | 2 | 5 | - | - | 5 |
| Topic 7 Comatose states. Traumatic injury |  | - | 5 | - | - | 5 |
| Diff. credit. |  |  | 4 | - | 1 | - |
| Total hours of discipline - 90 | | | | | | |

**4. Thematic plan of lectures “Anaesthesiology and intensive care”.**

|  |  |  |
| --- | --- | --- |
| № | Topic | Amount  hours |
| 1 | General principles of the anaesthetic   providing of operative interferences | 2 |
| 2 | Intensive care of acute respiratory insufficiency | 2 |
| 3 | Intensive care of acute kidney and hepatic insufficiency | 2 |
| 4 | Shock. Pathogen, classification, clinical signs and intensive care of different types of shock. | 2 |
| 5 | General principles of intensive therapy of the acute poisoning | 2 |
|  | TOTAL | 10 |

**6. Thematic plan of practical lessons of the module «Anesthesiology and intensive care».**

|  |  |  |
| --- | --- | --- |
| № | Topic | Amount  of hours |
| 1 | Cardio-pulmonary and cerebral resustitation. | 5 |
| 2 | Common questions of anesthesiology and intensive care  General questions of anesthesiology | 5 |
| 3 | Methods of diagnose and correction of violations of water-electrolyte exchange and acid-basic state (ABS) | 5 |
| 4 | Acute respiratory insufficiency. Disease and defeat of the respiratory system | 5 |
| 5 | Acute violations of circulation of blood. Shock states. | 5 |
| 6 | Intensive care of acute kidney and hepatic insufficiency | 5 |
| 7 | Comatose states and traumatic damages. | 5 |
| 8 | Diff. credit | 4 |
|  | TOTAL | 40 |

**8. Independent work**

|  |  |  |
| --- | --- | --- |
| № | Topic | Amount  of hours |
| 1 | Intensive care of acute poisoning. | 1 |
|  | TOTAL | 1 |

**9. Individual tasks**.

- Preparation of refinement on the subject of discipline.

- Preparation of student scientific work on the subject of discipline

**10. Tasks for independent work.**

Intensive care of acute poisoning. Definition of "poison" and "antidote". Classification of poisonings. General principles of intensive care in acute poisoning. Intensive therapy of acute poisoning by tranquilizers, barbiturates, opiates, organophosphorus substances, ethyl and methyl alcohols, carbon monoxide, cauterizing liquids, poisonous mushrooms. Intensive care for insect and animal bites.

Principles, indications and contraindications to the use of detoxification methods.

**11. Teaching methods**

The basic types of educational activity of students according to the curriculum are:

- verbal (lecture, explanation, story, conversation);

- visual (observation, illustration, demonstration);

- practical (different types of management: performing manipulations, assisting the doctor in clinical situations, drawing up a treatment plan).

**12. Methods of control**

Control forms and evaluation system are carried out in accordance with the requirements of the program of discipline and instruction about the system of evaluation ofeducational activity of students at the creditmodule system of organization of educational process, Ukraine ratified Health Care Ministry

**Include:**

 - oral control;

- written control, test control;

- practical skills check;

**Types of control:**

- previous (incoming);

- current;

- final modular control.

List of questions to diff. credit, tasks to test practical skills during diff. (including texts of lectures and methodical instructions for students that can be used for preparation and which are placed on the page of the department in the reposition of KhNMU, materials on the page of the department in the distance education system Moodle).

***Discipline policy.*** To achieve the goals of training and successfully complete the course, it is necessary to: join the work from the first day; attend lectures regularly; read the material in advance, before its consideration in a practical lesson; not to be late and not to miss classes; come to the department dressed in a medical gown, have changeable shoes, clothes for work in the operating room and intensive care units, have a phonendoscope, notebook, pen. Perform all necessary tasks and work every day; be able to work with a partner or in a group; ask for help and get it when you need it. When working at the department or in clinical departments, all work requirements should be carefully observed in the conditions of COVID 19 distribution.

To successfully work in the distance learning system, the student must register in advance, find a web room for lectures or practical classes on the page of the department in the Moodle system.

Academic mobility, interchangeability of credit credits (volume of 1 credit of 30 hours) is provided. Students can discuss different tasks, but their performance is strictly individual. You are not allowed to write off, use any kind of software, tips, use a mobile phone, tablet or other electronic gadgets during the lesson. Students are not allowed to be late for practical classes. Omissions of practical classes are worked out hour by hour to the teacher of group or the next teacher.

Students with special needs should meet with the teacher or warn him before the start of classes, at the request of the student it can be done by the head of the group. If you have any questions, please contact the teacher.

**13. Evaluation of students' academic success in the ects of the organization of the educational process (credit, differential credit, exam) - Differential credit**

13.1 Evaluation of current learning activities

Control forms and evaluation system are carried out in accordance with the

requirements of the program of discipline and instruction about the system

of evaluation of educational activity of students at the creditmodule system of organization of

educational process, Ukraine ratified Health Care Ministry

Conversion of the current rating, given on the traditional 4-point scale, into a

multivariate one at each session. At the end of all sessions, the module calculates the average score of current performance on the traditional scale, which is converted into points for current performance (table. 1).

Table 1

**Matching the average score of your current performance to the traditional 4- a point scale of the total assessment of current performance per module**

|  |  |  |  |
| --- | --- | --- | --- |
| The average score current success by 4-points scale | Scores for the current one success after conversion the average score | The average score current success on a 4-point scale | Scores for the current one success after conversion the average score |
| 2,00 | 0 | 3,55 | 85 |
| 2,05 | 49 | 3,60 | 86 |
| 2,10 | 50 | 3,65 | 87 |
| 2,15 | 52 | 3,70 | 89 |
| 2,20 | 53 | 3,75 | 90 |
| 2,25 | 54 | 3,80 | 92 |
| 2,30 | 55 | 3,85 | 93 |
| 2,35 | 56 | 3,90 | 94 |
| 2,40 | 58 | 3,95 | 95 |
| 2,45 | 59 | 4,00 | 96 |
| 2,50 | 60 | 4,05 | 97 |
| 2,55 | 61 | 4,10 | 98 |
| 2,60 | 62 | 4,15 | 99 |
| 2,65 | 64 | 4,20 | 101 |
| 2,70 | 65 | 4,25 | 102 |
| 2,75 | 66 | 4,30 | 103 |
| 2,80 | 67 | 4,35 | 104 |
| 2,85 | 69 | 4,40 | 106 |
| 2,90 | 70 | 4,45 | 107 |
| 2,95 | 71 | 4,50 | 108 |
| 3,00 | 72 | 4,55 | 109 |
| 3,05 | 73 | 4,60 | 110 |
| 3,10 | 74 | 4,65 | 111 |
| 3,15 | 75 | 4,70 | 113 |
| 3,20 | 77 | 4,75 | 114 |
| 3,25 | 78 | 4,80 | 115 |
| 3,30 | 79 | 4,85 | 116 |
| 3,35 | 80 | 4,90 | 118 |
| 3,40 | 82 | 4,95 | 119 |
| 3,45 | 83 | 5,00 | 120 |

**13.2 Conducting and assessing a differentiated test or exam (table 3, 4 or 5 of the "instructions for assessing the educational activities of students").**

**The final control**

Final control is carried out on completion of study all subjects topics on the last control employment from the module. The final control students who attended all the prescribed curriculum for classroom training during the study module scored score not less than the minimum (50 points).

The form of the final control include control of theoretical and practical training.

1. Test of theoretical knowledge:

-Individual survey (for the tickets in writing or orally)

-Test control (using tests of different formats)

-Common decision of situational problems

2. Control practices and their results.

The maximum number of points that a student can get during the final module control is 120. Final control is considered passed if the student scored at least 80 points.

**13.3 Assessment in the discipline**

Evaluation of the assessment of the discipline is put only to students who have completed all modules of discipline.

The maximum number of points is awarded to students at the module (test credit ECTS) - 200 Number of points (score) that came with student discipline, defined as the average number of points from all modules of discipline.

Student, who had good reason blanks classes, introduced to individual curriculum and academic debt permitted to work up to a certain limit. For students who missed training sessions without good reason, the decision taken on their working dean.

Student assessment can improve the discipline by retaking of final module control (no more than 3 times for the entire period of study), I may rector for educational work. Students who are enrolled in one specialty, are ranked on a scale based on the number of ECTS points gained in the discipline.

Current student evaluation is based on a 4-point scale. Assessment of performance is integrated (all types of student work are evaluated both during the preparation for the class and during the class) according to the criteria that are made known to the students at the beginning of the study of the respective discipline. The following criteria are used to evaluate students' knowledge:

- *"excellent"* - the student has at least 90% knowledge of the subject as under

both survey time and test time. Well oriented in the subject terminology. It clearly states the answers to the questions asked. Practical the work is done in full.

- *"good"* - the student has knowledge of at least 75-89%, makes minor mistakes, which he corrects when answering the questions. Under test time answers 75-89% of the questions. Practical work made in full, minor errors are allowed.

*- "satisfactory"* - the student possesses knowledge on a subject in volume not less

60-74% answer 60-74% of the questions during the test.

The answers are not accurate enough, the guidance questions do not correct them. Not in full practical work has been done.

- *"unsatisfactory"* - the student has not acquired the required minimum knowledge of topics of study and testing within 59%. Unable to respond to guidance question, operates with inaccurate formulations. Test task controls were performed by less than 59%. He has no practical skills.

**13.4 Technology of discipline assessment (table 6 of the "instructions for assessing the educational activities of students…").**

The maximum score of the total module control is 80 points. The minimum score of the total modular control with which the control is considered to be folded is 50 points. The scale of conversion of the number of points per module in the traditional assessment on a 5-point scale is carried out according to table 2.

Table 2

**Assessment ECTS converted to a traditional four-point scale as follows:**

|  |  |  |
| --- | --- | --- |
| Full mark points of the discipline | **ЕСТS mark** | **Evaluation of the national scale** |
| 180-200 | A | Excellent / 5 |
| 160-179 | B | Very well, Good / 4 |
| 150-159 | C | Good / 4 |
| 130-149 | D | Satisfactory / 3 |
| 129-129 | E | Satisfactory / 3 |
| Less then 120 | FX | Poor / 2, with the possibility of re-drafting |
| Less then 120 | F | Poor, with obligatory repeated course |

In details:

**A.** -the student shows special creative abilities;

-student is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information;

-student is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and propensity.

**B.** -the student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standard situations, independently corrects mistakes, the number of which is insignificant.

**C.** -the student is able to compare, summarize, systematize information under the guidance of a teacher;

-as a whole to apply it independently in practice;

-control their own activities;

-to correct mistakes, among which there are significant ones, to choose arguments to confirm opinions.

**D.** -the student reproduces a significant part of the theoretical material, shows knowledge and understanding of the basic principles; student can analyze the educational material, correct mistakes, among which there are a significant number of significant ones with the help by teacher.

**E.** -the student has the educational material at a level higher than the initial, a significant part of it is reproduced at the reproductive level

**FX.** -the student has the material at the level of individual fragments, which is an insignificant part of the study material

**F.** -the student has the material at the level of elementary recognition and reproduction of individual facts, elements, objects.

Grade "FX" assigned to students who score a minimum number of points for current educational activity, but who are not enrolled in the final credit control. This category of students has the right to retake control of the final credit approved schedule.

Repeat of final credit control allowed no more than two times.

Grade "F" is assigned to students who attended all sessions of lecture, but do not meet the minimum number of points for current educational activity and is not admitted to the final credit control. This category of students has the right to re-study module in accordance with the regulations.

**14. Methodical support**

1. Curriculum;

2. Plans of lectures, practical classes and independent work of students;

3. Abstracts of lectures on the discipline;

4. Methodical developments for the teacher;

5. Methodical instructions for practical classes for students;

6. Methodical materials that provide independent work of students;

7. Test and control tasks for practical classes;

8. Questions and tasks to control the assimilation of the section;

9. List of questions for the exam or diff. test, a task to test practical skills during an exam or diff. credit.

10. Videos;

11. Multimedia presentations.

LIST OF PRACTICAL SKILLS OF DISCIPLINE

|  |
| --- |
| The module “Anaesthesiology and intensive care” |
| 1.    Providing of communicating of respiratory tracts.  2.    Lead through of artificial ventilation of lungs by the simplest methods ("mouth to the mouth", "mouth to the nose").  3.    Lead through of the massage of heart.  4.    Lead through of electric defibrillation  5.    Artificial ventilation of lungs by the sack of Ambu and by a S-shape tube.  6.    Methods of oxygen therapy.  7.    Determination of kind and degree of respiratory insufficiency  8.    Measuring of CVP.  9.    Calculation of day's water balance, determination of degree of dehydration.  10.   A calculation of deficits of basic electrolytes (potassium, sodium, chlorine), choice and calculation of amount of solutions for the correction of electrolyte violations.  11.  Determination of type of disorder of ABC and calculation of volumes of infusions for correction.  12. Methods of detoxication (lavage of stomach,  forced diuresis )  13. Estimation of the state of consciousness.  14. Methods of artificial ventilation of lungs in newborn and children of early age.  15. Massage of heart in newborn and children of early age. |

8. A LIST OF QUESTIONS  FOR FINAL CONTROL

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| “Anesthesiology and intensive care” |
| Semantic module 1. |
| 1. Clinical death, determination, diagnostics.  2. Immediate stage of CPR.  3. Signs of efficiency of reanimation.  4. The stages of CPR.  5. Types of stopping of circulation of blood and their diagnostics.  6. Medications, which are used on the specialized stage of cardio-pulmonary and cerebral resustitation, their dose.  7.  Ways of introduction of medicines during resuscitation.  8.   Technique of electric defibrillation.  9.   Testimony to the direct massage of heart.  10. Complications of resuscitation.  11. Post resuscitative period.  12. A concept about a decortications, decerebration, death of brain.  13. Basic directions of treatment in post reanimation period.  14. Intensive care of cerebral oedema.  15. Classification of types of anaesthesia.  16. Basic knots of anaesthesia vehicle.  17. Measures of prevention of explosions  in an operating room.  18. Respiratory contours, advantages, failings.  19. Inhalation anaesthetics: pharmacokinetics, clinical motion.  20. Components of general anesthesia.  21. Stages of the anaesthetic providing.  22. Premedication, its kinds.  23. Preparation of patients to the operation and anaesthesia.  24. Clinic of anaesthesia by ether.  25. Mask method of general anaesthesia.  26. Intratracheal anaesthesia. Testimony, method of lead through.  27. Pharmacology of muscular relaxants  28. Complication of general anaesthesia.  29. Uninhalation anaesthetics: pharmacokinetics, clinical motion.  30. Kinds and methods of regional anaesthesia.  31. Features of general anaesthesia are in ambulatory and urgent terms.  32. Features of preparation of patients are to the operation and anaesthesia.  33.Physiology and physiopathology features of lead through of general anaesthesia for children |
| Semantic  module 2. |
| 1. A role of water and electrolytes is in an organism.  2. Concept about osmolarity, its correction.  3. Clinical signs of dehydration and overhydratation.  4. Hypertensive dehydration.  Reasons of origin, clinical signs, methods of correction.  5. Isotonic dehydration. Reasons of origin, clinical signs, methods of correction.  6. Low blood pressure dehydration. Reasons of origin, clinical signs, methods of correction.  7. Hypertensive overhydratation. Reasons of origin, clinical signs, methods of correction.  8. Isotonic overhydratation. Reasons of origin, clinical signs, methods of correction.  9. Low blood pressure overhydratation. Reasons of origin, clinical signs, methods of correction.  10. Reasons and signs of hypo- and hypernatremias, methods of treatment.  11. Physiopathology violations at hypo- and hyperkaliemia, clinic, diagnostics, correction.  12. Violation of exchange a chlorine.  13. Buffer systems of organism.  14. Concept about acidosis, diagnostics, correction.  15. Concept about an alkalosis, diagnostics, correction.  16. Description of solutions is for infusion therapy.  17. A testimony to the parenterally feed.  18. Features of infusion therapy and correction of violations of water-electrolyte and ABC at diabetes mellitus.  19. Features of infusion therapy and correction of violations of Water-electrolyte and ABC are in a postoperative period.  20. Features of infusion therapy and correction of violations of Water-electrolyte and ABC in patients with stenos of goalkeeper.  21. Features of infusion therapy and correction of violations of Water-electrolyte and ABC in patients with intestinal impassability.  22. Features of infusion therapy and correction of violations of Water-electrolyte and ABC in patients with peritonitis.  23.  Features of infusion therapy and correction of violations of Water-electrolyte and ABC in patients with pancreonecrosis.  24. Reasons of origin and pathogen of acute kidney insufficiency (ARI).  25. Differential diagnostics of prerenal, renal and postrenal anuries. Laboratory diagnostics of ARI.  26. Stages of clinical motion of ARI.  27. Basic principles of treatment of ARI.  28. Uremic comma, principles of intensive therapy.  29. A testimony to haemodialysis.  30. A calculation of day's requirement is in the liquid of patients ARI.  31. Reasons of origin of acute hepatic insufficiency.  32. Clinical signs of acute hepatic insufficiency. Laboratory diagnostics.  33. Basic principles of treatment of defeat of liver.  34. Hepatic comma, principles of intensive therapy  35. Basic principles of IT of the acute poisoning.  36. Basic principles of the forced diuresis.  37.Extracorporal methods of detoxication, testimony and contra-indication, hardwares, technique of execution.  38. Principles of antidote therapy.  39. Pathogenesis, clinic and IT of poisoning by a methyl alcohol.  40. Pathogenesis, clinic and IT of poisoning by ethyl spirit and its substitutes.  41. Pathogenesis, clinic and IT of poisoning by opiats and barbiturates.  42. Pathogenesis, clinic and IT of poisoning  by phosphoorganicmatters.  43. Pathogenesis, clinic and IT of poisoning by acids and meadows.  44. Pathogenesis, clinic and IT of poisoning by smeech gas.  45.  Pathogenesis, clinic and IT of poisoning by mushrooms.  46.  Features of the first aid in the case of the bites of insects and animals.  47. Types of violations of consciousness, estimation of depth of violations of consciousness.  48.  Principles of IT are at the comatose states of different origin.  49.  Pathogens, clinic and IT of hypoglycemic comma.  50.   Pathogens, clinic and IT of hyperglicemic comma.  51.  Pathogens, clinic and IT of hyperosmolar comma.  52.  Pathogens, clinic, IT of hyperthermal syndrome for children. |
| 53.  Classification of hypoxia, clinic, differential diagnostics of different types of hypoxia.  54.   Hypercapnia, clinic.  55.   Hypokapniya, clinic.  56.  Classification of ARF.  57.  Basic principles of intensive care of ARF.  58.  Oxygen therapy: methods, testimonies, toxic action of oxygen.  59.  ALV, testimony, methods, criteria of efficiency.  60.  Methods of proceeding in communicating of respiratory tracts and improvement of drainage function of lungs.  61.  Sanitation of tracheobronchial tree.  62.  Principles of the differentiated therapy of the asthmatic state.  63.  The first aid at the different types of pulmonary oedema.  64.  Aspiration syndrome, pathogeny, clinical signs, intensive   therapy.  65. Intensive care of postoperative ARV.  66.   A reanimation and intensive care at the different types of sinking.  67.  Respiratory dysstress syndrome of adults, aetiology, pathogeny,  clinical signs, intensive therapy.  68. Reanimation and intensive care of thromboembolic of pulmonary artery and its branches.  69. Types of acute disorders of circulation of blood.  70.  Pathogeny, clinical signs and IT of acute cardiac insufficiency  71.  Pathogeny, clinical signs and IT of acute violations of cardiac rhythm.  72. Physiopathology, diagnostics, features of motion, and intensive care at dizziness and collapse.  73.  Pathogeny, clinical motion and IT of traumatic shock.  74.  Pathogeny, clinical motion and IT of hemorragic shock.  75. Pathogeny, clinical motion and IT of burn shock  76. Pathogeny, clinical motion and IT of anaphylactic shock.  77. Pathogeny, clinical motion and IT of septic shock.  78.  A reanimation and IT at electrotrauma.  79.  A reanimation and IT at polytrauma. |

**15. Recommended reading**

**Basic** literature

1. Anestesiology and intensive care: підручник для мед. внз. — 2-ге вид., випр. / за ред. Ф.С. Глумчера. — к., 2017. — 312 с.

2. Miller RD (ed.) miller’s anesthesia. Eighth ed. 2 v. 2015, - 3377 рр.

3. Miller RD, Pardo mc. (eds.) basics of anesthesia.– 6th ed. Elsevier inc. 2011, - 813 pp.

4.Barash Clinical Anaesthesia.  4th ed. K.: High School, 2009. - 399 p.

5.Guide to intensive therapy. Ed. AI Treschynskoho, FS Glumcher K.: High School, 2004. - 582 p.3. Emergency medical care.

6. Sumin SA Urgent states. Moscow: OOO "MNA", 2010. - 752 p.

7.  Handbook for practical training in anaesthesiology and critical care medicine. Parts I and II / ed. L.V.Usenko. - K.: Health 2009.1995.

8. Paul L. Marino Intensive care / M.: Heotar Medicine, 2008. - 726 p.

9. Safar P. Byher ND Resuscitation. - Moscow: Medicine, 2008. - 216 p.

10. Handbook of  Critical  Care  Medicine,     First  edition  2009.- 270 p.

11. ANESTHESIA AND RESUSCITATION, MCCQE Review Notes and Lecture Series, Dr. H. Braden David Grynspan, Virjanand Naraine and Elsie Nguyen, editors Neil Fam, associate editor. 2000. – 26 p.

**Auxiliary**

**1**. Advanced Trauma Life Support (Atls) Program for Physicians, Committee On Trauma, American College of Surgeons. 9th Edn. Chicago: American College of Surgeons; 2012.

2. Allman Kg, Wilson Ih. Oxford Handbook of Anaesthesia. Oxford University Press. 2006, 1228 Pp.

3. Anaesthesia, Trauma and Critical Care. Course Manual. The Atacc Group Eighth Edition, 2014, - 460 Pp.

4. Buchenmaier C, Nahoney Pf (Eds.). Combat Anesthesia: The First 24 Hours. Textbooks of Military Medicine. Fort Sam Houston, Texas. 2015, - 977 Pp.

5. Cantillon P, Wood D (Eds). Abc of Learning and Teaching in Medicine. – 2nd Ed. Wileyblackwell, 2010. -98 Pp. 24

6. Corey S. Anesthesia for Trauma. Scher, Ed. Springer Science+Business Media New York, 2014. 461 Pp.

7. Danilo Jankovic, Philip Peng. «Regional Nerve Blocks in Anesthesia and Pain Therapy» Traditional and Ultrasound-Guided Techniques. Fourth Edition. Springer Cham Heidelberg New York Dordrecht London. Springer International Publishing Switzerland. 2015, 1002 Pp.

8. Gisela Meier, Johannes Buettner. «Atlas Of Peripheral Regional Anesthesia: Anatomy and Techniques.» 3rd Ed. Stuttgart; New York . 2016.

9. Hadzic Admir, Ed. New York School of Regional Anesthesia. «Textbook of Regional Anesthesia and Acute Pain Management» New York: Mcgrawhill Education, 2016.

10. Hasan A. Handbook of Blood Gas/Acid-Base Interpretation. Springerverlag London, 2013, - 345 Pp.

11. Marcucci Ce, Schoettker P (Eds). Perioperative Hemostasis. Coagulation for Anesthesiologists. Springer-Verlag Berlin Heidelberg, 2015, - 456 Pp.

12. Paw H., Shulman R. Handbook of Drugs in Intensive Care. 4-Th Ed. Cambridge University Press, 2010.-320 Рр.

13. Pilbeam’s Mechanical Ventilation: Physiological and Clinical Applications, 6th Ed. Edited by J.M. Cairo 2016, - 589 Pp.

14. Richard A. Jaffe, Clifford A. Schmiesing, Brenda Golianu. «Anesthesiologist's Manual of Surgical Procedures», 5th Edition. 2014.

15. Samer N. Narouze. «Atlas of Ultrasound Guided Procedures in Interventional Pain Management». 2012.

16. Scher Cs (Ed). Anesthesia for Trauma. New Evidence and New Challenges. Springer, New York 2014, - 461 Pp.

17. Shnider and Levinson’s Anesthesia for Obstetrics. 5th Ed. Lippincott Williams & Wilkins, A Wolters Kluwer Business. 2013.

18. Snyder D, Tsou A, Schoelles K. Efficacy of Prehospital Application of Tourniquets And Hemostatic Dressings To Control Traumatic External Hemorrhage. 2014, -147 Pp. Available At: [Www.Ems.Gov](http://Www.Ems.Gov).

19. Tisherman Sa, Forsythe Rm (Eds).Trauma Intensive Care. Oxford University Press 2013, - 350 Pp.

20. Van De Velde M, Clark V, Fernando R. Oxford Textbook of Obstetric Anaesthesia. Oxford University Press. 2016, 1072 P

21.Anthony J. Handley, Rudolph Koster, Koen Monsieurs at all / Adult basic life support and use of automated external defibrillators. European Resuscitation Council Guidelines for Resuscitation 2005.

22.Cohen А.J. Physiologic Concepts in the Management of Renal, Fluid and Electrolite Disorders in the Intensive Care Unit // Intensive Саrе Medicine / Edited Bу J. М. Rippe, R. S. Irwin, М. Р. Fink, F. В. Cerra. - Vo1. - Boston; New York; Toronto; London: Little, Brown & Со., 950 p.

23.Deitch Е.А. Burn Management // Intensive Care Medicine / Edited Bу J.М. Rippe, R.S. Irwin, М.Р. Fink, F.В. Cerra. - Vol. I.I.- Boston; New York; Toronto; London: Little, Brown & Со. – 1965 p.

24.Hosenpud Jeffrey D. Congestive Heart Failure. Third Edition. Lippincott Williams & Wilkins, 2007. 833 p.

25.International Liaison Committee on Resuscitation. / Adult basic life support. European Resuscitation Council Guidelines for Resuscitation 2005.

6.Irwin R.S., French С.Т., Mike R.W. Respiratory Adjunct Therapy // Intensive Care Medicine / Edited By J.М. Rippe, R.S. Irwin, М.Р. Fink. Р.В. Сеrrа.- Val. I.-Воstоn; Nеw Уоrk; Toronto; London: Little, Brown &Со. – 787 p.

7.Irwin R.S., Рrattеr М.R. А Physiologic Approach to Managing Respiratory Failure / Ibid. – 587 p.

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9.Paraskos J.А. Cardiopulmonary Resuscitation ∕∕ Intensive Care Меdicinc ∕ Edited Bу J.М. Rippe, R.S. Irwin, М.Р. Fink, F.В. Сеnа. Val. 1. - Boston; New Уork; Toronto; London: Little, Brown & Со., Р. 307336

10.Peter J.F. Baskett, Jerry P. Nolan, Anthony J. Handley at all / Principles of training in resuscitation. European Resuscitation Council Guidelines for Resuscitation 2005.

11.Taylor R. Cardiovascular Diseases: A Handbook. Springer, 2005. 294 p.

12.Topol Eric J, Califf Robert M, Prystowsky Eric N, Thomas James D, Thompson Paul D. Textbook of Cardiovascular Medicine. 3rd ed. Lippincott Williams & Wilkins, 2006. 1664 p.

**16. Information resources**

1. Official Site Of The European Resuscitation Council - <Https://Www.Erc.Edu/>

2. Official Site Of The Association Of Anesthesiologists Of Ukraine - <Http://Aay.Org.Ua>

3. Official Site Of The Association Of Anesthesiologists, Kyiv - Http: // Http: //Criticalcare.Kiev.Ua

4. Official Site Of The European Association Of Anesthesiologists -Http: //Www.Euroanesthesia.Org

5. Official Site Of The European Intensive Care Association - Http://Www.Esicm.Org 25

6. Official Site Of The American Association Of Anesthesiologists <Http://Www.Asahq.Org/Homepageie.Html>

7. Official Site Of The International Scientific Periodical Emergency Medicine Journal - <Https://Emj.Bmj.Com/>

8. The Fictitious Website Of The International Scientific Periodical, Journal Of Emergency Medicine, <Https://Www.Jem-Journal.Com/>

9. The Official Journal Of The American Journal Of Emergency Medicine - <Https://Www.Jamjournal.Com/>

10. Official Site Of The International Scientific Periodical Anesthesiology - <Http://Www.Anesthesiology.Org>

11. Official Site Of The International Scientific Periodical Anesthesia And Analgesia - <Http://Www.Anesthesia-Analgesia.Org>

12. British Journal Of Anaesthesia Official Website Of The British Scientific Periodical - <Http://Www.Bja.Oupjournals.Org>

13. British Medical Journal Official Website - <Http://Www.Bmj.Com>

14. Canadian Journal Of Anaesthesia Official Website Of The Canadian Scientific Periodical - <Http://Www.Cja-Jca.Org>

15. Official Site Of The International Scientific Periodical The Lancet - <Http://Www.Thelancet.Com>

16. Official Site Of The British Scientific Periodicals History Of Anesthesia Society - <Http://Www.Histansoc.Org.Uk>

17. Scopus Scientific Literature Search Resource - <Https://Www.Scopus.Com>

18. Web Os Science Fiction Search -Http: //Ipscience.Thomsonreuters.Com/Product/Webof-Science/

19. Cochrane Collaboration Medical Literature Search Resource - <Http://Www.Cochrane.Org>

20. Pubmed Medical Literature Search Resource - <Http://Www.Ncbi.Nlm.Nih.Gov/Pubmed/>

21. Medical Literature Search Resource (Anesthesiology And Intensive Care Unit - Http://Www.Twirpx.Com/Files/Medicine/Anaesthesiology/Anesthesio