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«I.N. Ulianov Chuvash State University» (FSBEI of HE «I.N. Ulianov Chuvash State University»)

Medical Faculty

Department of General, Inorganic and Analytical Chemistry

«APPROVE» Vice-rector for Academic Affairs I.E. Poverinov « 13 » 04 2022

Working programs of the discipline (module) «Химия / Chemistry»

Direction of training / specialty 31.05.03 Стоматология / Dentistry Graduate's qualification Врач-стоматолог / Dental Practitioner

Direction (profile) / specialization «Dentistry»

Form of training – очная / intramural Course – 1 Term – 2 Total academic hours/credit points – 144/4 The year of beginning the training – 2022

Cheboksary - 2022

Тhe fundamental document for compiling the working program of the discipline (module) Федеральный государственный образовательный стандарт высшего образования – специалитет по специальности 31.05.03 Стоматология (приказ Минобрнауки России от 12.08.2020 г. № 984)

Approved by: Docent, Candidate of Chemical sciences I.N. Bardasov

The working program was approved at the meeting of the Department of General, Inorganic and Analytical Chemistry,

25.03.2022, protocol № 7 Head of the department A. N. Lyshchikov

Approved by Dean of the Medical Faculty V.N. Diomidova Acting Head of the Educational and Methodological Department E.A. Shirmanova

1. The purpose and objectives of training in the discipline (module)

The purpose of the discipline - - the formation of systemic knowledge that students need when considering the physical and chemical essence and mechanisms of processes occurring in the human body at the molecular and cellular levels;

- the formation of skills to perform, if necessary, calculations of the parameters of these processes, which will allow a deeper understanding of the functions of individual systems of the body and the body as a whole, as well as its interaction with the environment;

- formation of knowledge of the relationship between the structure and chemical properties of biologically important classes of inorganic compounds, biopolymers and their structural components, i.e. platforms for the perception of biological and medical knowledge at the molecular level.

The objectives of the discipline - – highlighting the key issues of the program; which is designed to encourage students to further independent work;

- formation of skills and abilities for solving problematic and situational problems;

- the formation of practical skills for setting up and performing experimental work.

2. The place of practical training in the structure of the educational program of higher education

The discipline «Химия / Chemistry» относится к обязательной части учебного плана refers to the mandatory part in the curriculum of the educational program of higher education (hereinafter referred to as the EP of HE) in the field of training / specialty 31.05.03 Стоматология, direction (profile) / specialization of the program «Dentistry».

Previous academic disciplines (modules) and (or) practices that form the knowledge, skills and abilities necessary for training in the discipline (module):

3. Planned learning outcomes in the discipline (module), correlated with the planned learning outcomes

Code and name of the competence	Code and name of the competence achievement	Descriptors for the indicator of competence achievement (learning)
ОПК-8 Способен	ОПК-8.1 Владеет	physical and chemical nature and
использовать основные	знаниями об основных	mechanisms of processes occurring
физико-химические,	физико-химических,	in the human body in normal and
математические и	математических и	pathological conditions at the
естественнонаучные	естественнонаучных	molecular and cellular levels.
понятия и методы при	понятиях и методах /	apply knowledge to calculate
решении профессиональных	He/she is aware of the basic	various chemical and biochemical
задач / He/she is able to use	physical-chemical,	processes.
the basic physical-chemical,	mathematical and natural	methods of chemical and physico-
mathematical and natural	science concepts and	chemical studies, without which the
science concepts and methods	methods	activity of a modern doctor is
in solving professional		inconceivable
problems		
ОПК-8 Способен	ОПК-8.2 Способен	physical and chemical aspects of the
использовать основные	анализировать процессы	most important biochemical
физико-химические,	описываемые основными	processes and various types of
математические и	физико-химическими,	homeostasis in the body: theoretical
естественнонаучные	математическими и	foundations of

Planned learning outcomes in the discipline (module), correlated with the planned learning outcomes

16			
	понятия и методы при	естественнонаучными	bioenergetics, factors affecting the
	решении профессиональных	понятими и методами /	shift in the balance of biochemical
	задач / He/she is able to use	He/she is able to analyze the	processes
	the basic physical-chemical,	processes described by the	predict the results of physical and
	mathematical and natural	basic physicochemical,	chemical processes occurring in
	science concepts and methods	mathematical and natural	living systems, based on theoretical
	in solving professional	science concepts and	provisions
	problems	methods	skills of independent work with
			educational, scientific and reference
			literature; search and draw
			conclusions
	ОПК-8 Способен	ОПК-8.3 Способен	physical and chemical methods of
	использовать основные	принимать решения на	analysis in medicine
	физико-химические,	основе физико-	solve situational problems based on
	математические и	химических,	theoretical principles that model
	естественнонаучные	математических и	physicochemical processes
	понятия и методы при	естественнонаучных	occurring in living organisms
	решении профессиональных	понятиях и методах /	skills of safe work in a chemical
	задач / He/she is able to use	He/she is able to make	laboratory and the ability to handle
	the basic physical-chemical,	decisions based on	chemical glassware, reagents, work
	mathematical and natural	physicochemical,	with electrical appliances
	science concepts and methods	mathematical and natural	
	in solving professional	science concepts and	
	problems	methods	

4. Structure, scope and content of the discipline (module)

Educational activities in the discipline (module) are carried out:

- in the form of students' face-to-face work with the teaching staff of the organization and (or) persons involved by the organization to implement the educational programs on other terms (hereinafter - contact work);

- in the form of students' independent work.

Face-to-face work can be classroom-based, extramural, as well as it can be conducted in an electronic information and educational environment (EIEE).

Learning sessions in the discipline (module) and interim assessment of students are conducted in the form of face-to-face work and in the form of students' independent work.

During learning sessions in the discipline (module) face-to-face work includes: lecture -type classes, seminar-type classes and (or) group consultations, and (or) individual work of students with the teaching staff of the organization and (or) persons involved by the organization to implement the educational programs on other terms (including individual consultations).

Legend:

Lec - lectures, Lab - laboratory work, Pr - practical classes, ICW - individual face-to - face work, IW - independent work.

Section name	The section's content	Formed	Competence
		competences	achievement
			indicator
Introduction to Chemistry	Basic concepts and laws of		
	chemistry		

4.1. Content of the discipline (module)

The doctrine of solutions	Solutions of electrolytes and non-electrolytes	
	Complex (coordination)	
	compounds	
	Redox reactions	
Physics and chemistry of solutions	Chemical kinetics	
	Disperse systems.	
Biogenic elements	Biogenic elements	
Individual contact work	Individual contact work	

4.2. Scope of the discipline and types of academic work

Forms of	control and types of	Labor intensity of the discipline (module)		
av	adenne work	1	total	
1. Face-to-	-face work:	64,3	64,3	
In-class le including:	arning in total,	64	64	
Лекционн	ые занятия (Лек)	32	32	
Лаборато	рные занятия (Лаб)	32	32	
Индивиду работа (И	/альная контактная КР)	0,3	0,3	
2. Indepen student:	dent work of the	43,7	43,7	
3. Interme (exam) (эн	diate certification сзамен)	Эк	Эк	
Total: academic hours		144	144	
	credit units		4	

Nº	The section's (theme's) name	Face-to face work, including in the electronic information and educational environment, academic hours				ademic	Total,
item		Lect.	Pr.	Lab.	ICW	IW, ac ho	ic hours
	Introduction to Chemistry						
1	1 Basic concepts and laws of chemistry					4	8
	The doctrine of solutions						
2	Solutions of electrolytes and non-electrolytes	8		12		7	27

3	Complex (coordination) compounds	4	4		5	13
4	Redox reactions	4	4		5	13
	Physics and chemistry of solutions					
5	Chemical kinetics	2			5	7
6	Disperse systems.				5	7
	Biogenic elements					
7	Biogenic elements	8	12		12,7	32,7
Individual contact work						
8	8 Individual contact work			0,3		0,3
Total a	cademic hours	32	32	0,3	43,7	144

4.3. Summary of the discipline (module), structured by sections (topics)

Раздел 1. Introduction to Chemistry

Тема 1. Basic concepts and laws of chemistry

Лекционное занятие. The structure of atoms. Structure of atoms. Models of the structure of the atom. The concept of quantum mechanics. Quantum model of the structure of the atom. quantum numbers. the Pauli principle. Electronic structure of atoms and the periodic system of elements. Gund's rule. The principle of least energy. Rational way of writing electronic formulas.

Лекционное занятие. The subject of chemistry. Role and its tasks. The main stages in the development of chemistry. Atomic-molecular doctrine. Simple substance and chemical element. Basic laws of chemistry. The law of constancy of composition. law of multiple ratios. The law of volumetric relations. Avogadro's law. Equivalent. The law of equivalents. consequences. Equivalence factor. Methods for expressing the concentration of solutions. Molar, normal concentration of solutions. Mass fraction (% concentration). Titer. Molality.

Раздел 2. The doctrine of solutions

Тема 2. Solutions of electrolytes and non-electrolytes

Лекционное занятие. The doctrine of solutions. basic concepts. Classification of solutions. Water as a solvent. Solubility. Mutual solubility of liquids. Laws of Henry-Dalton and Sechenov. The biological significance of the laws of Henry-Dalton and Sechenov.

Лекционное занятие. Solutions of non-electrolytes. Colligative properties of solutions. Osmosis. osmotic pressure. The role of osmosis in biological systems. Saturated vapor pressure over the solution. Raul's law. Boiling and crystallization temperature of the solution. Ebullioscopy, cryoscopy.

Лекционное занятие. Solutions of electrolytes. Arrhenius theory of acids and bases. Protolithic theory of Bronsted and Lowry. dissociation of water. Hydrogen index. pH of biological fluids. Acid-base homeostasis. buffer systems. Henderson-Hasselbach equation. buffer capacity. Calculation of pH in solutions of acids and bases.

Лекционное занятие. Hydrolysis. Basic patterns. Salt hydrolysis. Types of hydrolysis. Simple and stepwise hydrolysis. complete hydrolysis. Degree and constant of hydrolysis. Conditions for strengthening and weakening hydrolysis. The role of hydrolysis in

life processes and in medicine.

Лабораторное занятие. Safety engineering. Introduction to chemicals. Preparation of an HCl solution of a given concentration.

Лабораторное занятие. Fundamentals of titrimetric analysis. Acid-base titration. determination of the exact concentration of an HCl solution using a standard solution of sodium tetraborate.

Determination of the concentration of sodium hydroxide solution.

Лабораторное занятие. Acid-base and amphoteric equilibriums. Heterogeneous equilibria

Тема 3. Complex (coordination) compounds

Лекционное занятие. Theory of complex compounds. Basic concepts and terminology. Werner's theory of complex compounds. basic concepts. Complex formation. Ligands. Determination of the charges of the complex ion and the complexing agent. Stability of complex compounds. Instability constant. Classification c.s.

Лекционное занятие. Complex compounds and their properties. Classification of ligands. Intra-complex (chelate) complexes. Complexometry. Isomerism of complex compounds. Metal ligand balance and its disturbances. The value of complex compounds. Biological role and application in medicine. Unithiol, tetacin, cisplatin. Complex compounds in medicine and biological systems.

Лабораторное занятие. Complex compounds, preparation and properties.

Тема 4. Redox reactions

Лекционное занятие. The main provisions of the theory of redox reactions. The most important oxidizing and reducing agents. Types of redox reactions. Methods for compiling the redox reactions. Ion-electronic method (half-reaction method). Redox properties of hydrogen peroxide, sodium thiosulfate.

Лекционное занятие. Regularities of redox reactions. Electrode potential. Redox potential. Redox reactions flow criterion. Nernst equation. The direction of the redox process. Classification of biochemical redox processes. Biochemical reactions of dismutation. Free radical oxidation and the antioxidant system of the body. Biological significance of redox reactions. Influence of the medium on redox reactions. Biological significance of redox reactions.

Лабораторное занятие. Redox reactions. Direction of redox reactions.

Раздел 3. Physics and chemistry of solutions Тема 5. Chemical kinetics

Лекционное занятие. Chemical kinetics, its tasks. Basic concepts. The rate of a chemical reaction. Factors affecting the rate of a chemical reaction. Reaction order. Molecularity. Effect of temperature on the rate of a chemical reaction. The principle of adaptive rearrangements. Catalysts. Biocatalysts. Enzymatic catalysis, its features. Autocatalysis. Classification of complex reactions. Chemical kinetics and equilibrium.

Тема 6. Disperse systems.

Лекционное занятие. Disperse systems. Classification of disperse systems. Methods for obtaining and purifying colloidal solutions. The structure of colloidal particles. Punnett- Faience rule. Schultz-Hardy rule. Stability and coagulation of colloidal systems. Effect of lyophilic colloidal systems on the chemical and biological properties of biosubstrates. Body tissues, blood - dispersed systems.

Раздел 4. Biogenic elements

Тема 7. Biogenic elements

Лекционное занятие. Classification of biogenic elements according to their functional role and content in the body. The vital necessity of the element. The dependence of the dose of an element is the response of the body. Micro and macro elements. Synergism and antagonism of chemical elements. Elements are toxicants.

Лекционное занятие. Biogenic s-elements. Chemical properties, biological role. Application in medicine.

Лекционное занятие. Biogenic p-elements. Chemical properties. biological role. Application in medicine.

Лекционное занятие. Biogenic d-elements. Chemical properties. biological role. Application in medicine.

Лабораторное занятие. Chemical properties of s-elements.

Лабораторное занятие. Chemical properties of p-elements.

Лабораторное занятие. Chemical properties of d-elements.

5. Educational technologies

To implement the competence-based approach in the study of the discipline (module), extensive use of active and interactive methods of conducting classes in the educational process is provided:

To implement the competency-based approach in the study of the discipline (module), the wide use of active and interactive methods of conducting classes in the educational process is envisaged:

The main elements of educational technologies are:

- lectures, an interactive form of the lesson is also used to present new material;

- laboratory classes;

- the use of multimedia tools (projectors) to improve the quality of perception of the studied material;

- the use of distance learning technologies (moodle.chuvsu.ru) for the organization of independent collective work of students.

6. Forms of control and types of evaluation materials for the discipline (module)

Intermediate attestation - evaluation of intermediate and final results of training in the discipline (module).

6.1. Sample list of questions for the credit test Not provided

6.2. Sample list of questions for the examination

1. Solutions. Basic concepts. Classification of solutions. Biological fluids, content and distribution of water in the human body. intracellular and extracellular fluids.

2. Water is a universal solvent, reagent and product in biochemical processes. Anomalous properties of water. The value of solutions in the life of organisms. concentration homeostasis.

3. Methods for expressing the concentration of solutions: mass fraction, molar concentration of a solution, normal (equivalent) concentration of a solution. The law of equivalents and its consequences.

4. Thermodynamics of the dissolution process. Changes in the Gibbs free energy, enthalpy and entropy during the dissolution of solid ionic substances and gases. Real and ideal solutions.

5. Properties of solutions. Colligative properties of nonelectrolyte solutions.

6. Osmosis and osmotic pressure. Law and equation of van't Hoff.

7. Osmotic phenomena in biological systems. Osmolarity and osmolality of blood plasma. The contribution of blood plasma components to the maintenance of its osmolality.

8. Cells in violation of the isotonic environment. Saline. Oncotic and hydrostatic blood pressure, consequences in violation of their equality.

9. Saturated vapor pressure of the solvent over the solution. Raoult's first law.

10. Diagrams of the state of water and aqueous solutions. Raoult's second law. Cryometry and ebulliometry.

11. Colligative properties of dilute electrolyte solutions. Isotonic van't Hoff coefficient. Relationship between the degree of electrolyte dissociation and the isotonic coefficient.

12. The degree and constant of dissociation of a weak electrolyte. Ostwald's law of breeding (with conclusion).

13. Debye-Hückel's theory of strong electrolytes. Activity, activity coefficient. Factors affecting the activity coefficient. Ionic strength of an electrolyte solution. The role of electrolytes in the process of life.

14. Proton theory of acids and bases. Classification of acids and bases. Conjugated pairs of acids and bases. protolytic reactions.

15. Dissociation of water. Ionic product of water. Hydrogen index. Quantification of the strength of acids and bases.

16. Acidity of biological fluids. The pH value of the most important biological fluids. acidosis and alkalosis.

17. Buffer systems. Classification of buffer systems. Calculation of pH buffer systems. Henderson-Hasselbach equation.

18. The mechanism of action of buffer systems. Buffer tank for acid and alkali.

19. Buffer systems of blood. The contribution of blood buffer systems to the total buffer capacity of blood.

20. Hydrocarbon buffer system. Alkaline blood reserve. Gas acidosis and alkalosis, clinical manifestations, correction.

21. Solubility of gases in liquids. Henry's Law. Sechenov's equation. Caisson and mountain sickness.

22. Hydrolysis of salts. Hydrolysis of salts depending on the type of salt. Quantitative characteristics of hydrolysis. Strengthening and weakening of hydrolysis. Hydrolysis in biological processes.

23. Complex compounds. Preparation of complex compounds. Components of

complex compounds. Inner and outer spheres of a complex compound.

24.Characteristics of the central atom in complex compounds. The degree of oxidation. Coordination number and its dependence on various parameters.

24. Characterization of ligands in complex compounds. Charge, dentancy. chelate complexes. Isomerism of complex compounds.

25. The nature of the chemical bond in complex compounds. Classification and nomenclature of complex compounds.

26. Dissociation of complex compounds. Instability constant. Destruction of complex compounds.

27. Biological role of complex compounds. Hemoglobin, chlorophyll, porphyrin, metalloenzymes. The use of complex compounds in medicine - unithiol, tetacin, cisplatin..

28. Water hardness. Temporary and permanent rigidity. Complexometric determination of the total hardness of water.

29. Redox reactions. Change in the oxidation state of elements. Selection of coefficients in equations by the electronic balance method. Redox properties of H2O2, Na2S2O3.

30. Typical oxidizing and reducing agents. Selection of coefficients in the equations of redox reactions by the method of electron-ion half-reactions. Oxydimetry.

31. Types of redox reactions. Influence of the medium on redox reactions. Biological significance of OVR.

32. Electrode potential, potential difference. Standard hydrogen electrode. Quantification of the strength of oxidizing and reducing agents.

33. Criteria for the occurrence of redox reactions under standard conditions. Nernst equation. The criterion for the completeness of the reaction.

34. Reversible and irreversible reactions. The equilibrium state of the system. True and metastable chemical equilibrium. Equilibrium diagram.

35. Law of acting masses for homogeneous systems. Shift in chemical equilibrium. Principle of Henri Louis Le Chatelier.

36. Influence of changes in the concentration of substances, temperature and pressure on the course of the reaction.

37. Chemical kinetics and its problems. Basic concepts of chemical kinetics, simple and complex reactions, the mechanism of a chemical reaction.

38. The rate of homogeneous chemical reactions. Average and instantaneous speed.

39. Direct and indirect methods for measuring the rate of a chemical reaction.

40. Factors affecting the rate of a chemical reaction.

41. Dependence of the rate of a chemical reaction on concentration. Basic postulate of chemical kinetics. Reaction order.

42. Classification of reactions according to their order. Zero-order reactions.

43. Kinetic equation of the first order reaction.

44. Kinetic equation of the second order reaction.

45. Effect of temperature on the rate of a chemical reaction. Van't Hoff's rule. Arrhenius equation.

46. Catalysis and catalysts. Mechanism of catalyst influence.

47. Homogeneous catalysis. Theory of intermediate compounds.

48. Heterogeneous catalysis. adsorption theory.

49. Biocatalysis. Distinctive features of enzymes.

50. Features of the kinetics of heterogeneous reactions.

51. Classification of complex reactions.

52. Parallel, sequential and conjugated reactions.

53. Photochemical, chain and reversible reactions.

54. Colloidal chemistry. dispersed systems. Classification of dispersed systems.

55. Properties of systems of various degrees of dispersion.

56. Methods for obtaining colloidal solutions.

57. Methods for purification of colloidal solutions.

58. Micellar theory of the structure of colloidal particles. Panetta-Faience rule.

59. Electrothermodynamic and electrokinetic potential of micelles.

60. Sedimentation and aggregation stability of colloidal solutions.

61. Factors causing coagulation of colloidal solutions. coagulation threshold. Schulze-Hardy rule.

62. Additivity, antagonism and synergism in the coagulation of colloidal solutions with mixtures of electrolytes. Protection of colloids from coagulation.

63. Biogenic elements. Classification of biogenic elements according to their functional role and content in the body. The vital necessity of the element. The dependence of the dose of the element is the response of the body.

64. Properties and biological role of s-elements in the life of the organism. Sodium, potassium, magnesium and calcium. Application in medicine. Synergism and antagonism of chemical elements.

65. Properties and biological role of p-elements in the life of the organism. Carbon, oxygen, nitrogen, sulfur, phosphorus and chlorine. Application in medicine.

66. Properties and biological role of d-elements in the life of the organism. Iron, zinc, manganese, cobalt, chromium and copper. Application in medicine

6.3. Suggested themes of term papers (projects)

Not provided

6.4. Suggested themes of term projects

Not provided

6.5. Suggested topics of calculation and graphic works

Not provided

7. Educational, methodological, informational and software support of the discipline (module)

The electronic catalog and electronic information resources provided by the scientific library of the FSBEI of HE "I. N. Ulianov Chuvash State University" are available at the link http://library.chuvsu.ru/

7.1. Regulatory documents, standards and rules

7.2. Recommended basic educational and methodological literature

№ item	Name
1	

7.3. Recommended supplementary educational and methodological literature

№ item	Name
1	

7.4. List of resources of the "Internet" information and telecommunication network

№ item	Name	Link to the resource
1		

7.5. Software, professional databases, information and reference systems, electronic educational resources and electronic library systems

Software, professional databases, information and reference systems provided by the Informatization Department of the FSBEI of HE "I.N. Ulianov Chuvash State University" are available for download at the link http://ui.chuvsu.ru //. The Unified Register of Russian programs for electronic computers and databases, including freely distributed ones, is available at the link reestr.minsvyaz.ru/reestr /.

7.5.1. Licensed and freely distributed software

Microsoft Windows operating System and/or Unix-like operating system and/or mobile operating system;

Office software packages: Microsoft Office and/or LibreOffice and (or) OpenOffice and (or) analogues; Browsers, including Yandex.Browser. List of software:

7.5.2. Lists of professional databases and (or) information reference systems and (or) electronic library systems and (or) electronic educational resources

8. Material and technical support of the discipline

Classrooms for lecture-type classes in the discipline are equipped with a teacher's automated workplace consisting of: a personal computer/laptop, multimedia equipment with a screen and (or) SMART interactive whiteboard/SMART TV.

The premises for students' independent work are equipped with computer equipment enabling to connect to the Internet and provide access to the electronic information and educational environment of the FSBEI of HE "I.N. Ulianov Chuvash State University".

№ item	Lesson type	Brief description and characteristics of the composition of installations, measuring and diagnostic equipment, computer equipment and experimental automation tools
1		

9. Means of adapting the discipline teaching to the needs of persons with physical conditions

If necessary, persons with physical conditions can be offered one of the following options for perceiving information, taking into account their individual psychophysical characteristics:

1) using e-learning and distance learning technologies.

2) using special equipment (enginery) and software in accordance with the students' health restrictions in the Training Centers for Persons with Disabilities and Physical Conditions (hereinafter referred to as special needs) available at the university.

In the course of training, if necessary, the following conditions are provided for persons with visual, hearing and musculoskeletal disorders:

- for persons with visual impairments: educational and methodological materials in printed form in enlarged font; in the form of an electronic document; in the form of an audio file (conversion of educational materials into audio format); in printed form in Braille; individual consultations involving a tactile interpreter; individual assignments and consultations.

- for people with hearing impairments: educational and methodological materials in printed form; in the form of an electronic document; video materials with subtitles; individual consultations involving a sign language interpreter; individual assignments and consultations.

- for persons with disorders of the musculoskeletal system: educational and methodological materials in printed form; in the form of an electronic document; in the form of an audio file; individual assignments and consultations.

10. Guidelines for students to perform independent work

The purpose of the student's independent work (IW) is to consolidate the theoretical knowledge gained and to acquire practical skills in using and performing research of algorithms and data structures when designing application software programs. IW includes independent study of educational issues, preparation for laboratory classes, performing calculation and graphic work, preparation for a test and an exam.

The list of questions and tasks for independent work to prepare for laboratory classes is given in the corresponding methodological instructive regulations in the description of each laboratory work.

The list of questions and tasks for independent work to carry out calculation and graphic work is given in the relevant methodological instructive regulations.

11. Methodological instructive regulations for students studying the discipline (module)

11.1. Methodological instructive regulations for preparing for seminar-type classes

11.2. Methodological instructive regulations for preparing for an examination

11.3. Methodological instructive regulations for preparing for a test

11.4. Methodological instructive regulations for performing computational and graphical

- 11.5. Methodological instructive regulations for performing a control work
- **11.6.** Methodological instructive regulations for performing a course work (project)

List of additions and changes

The name and details (if any) of the document attached to the Working Program of the discipline (module) containing the text	Department's decision		Full name of department head:	
of updates	Date	Protocol №		