

# Programs on speciality “General Medicine”

## ANESTHESIOLOGY AND REANIMATOLOGY

«Anesthesiology - Reanimatology - is a science about anesthesia and control of the vital functions of organism and about regeneration and time their prosthetic repair in the acute situations in surgical practice at operative measures and trauma, and in wide clinical practice at infringements of the part of respiratory organs, circulation, endocrine system, processes of metabolism, etc., i.e. a science about resuscitation of organism, pathogenesis, prophylaxis and treatment of terminal states» - the citation from programs (page 3). Studying of this discipline lasts 30 hours (the 6 th year). The program on Anesthesiology and Reanimatology consists of the following sections:

### 1. Basic and particular problems of Anesthesiology.

- Definition of Anesthesiology as a discipline about the methods of anesthesia and protection of organism against surgical aggression, control or time replacement of the vital functions of the patient during operation and in the nearest postoperative period.
- Physiology of pain.
- Estimation of a physical state of the patient before anesthesia, an assessment of the operation - anesthesiological hazard. Choice of a method of anesthesia. Premedication, its purposes, means of premedication.
- Classification of the methods of anesthesia.
- General Anaesthesia. Theories of narcosis. Clinic of narcosis. Grades of anesthesia.
- The equipment for narcosis. The scheme of the narcotic apparatus. Respiratory contours. Auxiliary instruments. Rules of preparation and manipulation with narcotic apparatus. The prevention of explosions, safety precaution regulations.
- The constituents of General Anaesthesia.
- Inhalation of narcosis. Inhalation of anesthetics (ether, nitrous oxide, trileum, florotanium, ethrane). Procedure of application, the indication, contraindication, complication, their prophylaxis and treatment.
- Muscular relaxants. The mechanism of activity, classification, clinical application.
- Non- inhalational narcosis. Classification of types and methods
- Non- inhalational narcosis. Pharmacodynamics and the comparative characteristic of non-inhalational anesthetics. Chloroformium. Procedure of application, the indication, contraindication, complication, their prophylaxis and treatment.
- Combined methods of general anaesthesia.
- The basic stages of general anaesthesia.
- Local anaesthesia. Local anaesthetics, the mechanism of activity, the comparative characteristic of local anaesthetics. Chloroformium. Types of local anaesthesia - terminal, infiltrative, conduction, spinal, epidural.
- Complications in general and local anaesthesia.
- Safety of a patient during general and a local anesthesia. Monitoring of vital functions of an organism during anaesthesia and operations.
- Clinical anesthesiology.

### 2. General and particular problems of reanimatology.

- Definition of Resuscitation as the part of medicine studying the theory and developing methods of regeneration of the vital functions of the organism at apnoea, at clinical mors, providing simulated replacement, control and regeneration of vital functions - treatment of the patients who are in terminal states.

- The organization of departments of intensive care and reanimation. Equipment and apparatuses. Indications for hospitalization to the department of intensive care and reanimation. Classification of terminal states. Physiopathology of terminal states. Clinical manifestations of terminal states.
- Failure of circulation. Types of a cardiac failure, diagnostics.
- Complex cardiopulmonary and cerebral reanimation.
- Electroimpulsive therapy - a defibrillation, cardioversion, electrocardiostimulation.
- «Cerebral death», indications to stop the reanimation management.
- Deontological, ethical and social - legal questions, connected with reanimation. Concept about illness of a brisk organism. Methods of reanimation and an intensive care at acute respiratory failure.
- Artificial ventilation of lungs, indications, methods of carrying out.
- Tracheostomy, indications, taking care of tracheostomy. A hyperbaric oxygenation, indications, contraindications. The basic forms of acido-alkali balance disorders and their clinical manifestations. Principles of therapeutical management. Infringements of water ballance, clinic and therapy.
- Parenteral feeding in an intensive care, reanimation and an intensive care of the complicated myocardial infarction. Thromboembolia of a pulmonary artery, intensive care. An intensive care of various kinds of shock. An intensive care of an electrotrauma, overflown, strangulative asphyxia.
- An intensive care in early postoperative period. Features of infusional-transfusion therapy.

The 6<sup>th</sup> year student should know:

1. History of an Anesthesiology and Reanimatology.
2. Physiology of pain. Theories of narcosis.
3. Types and methods of anesthesia.
4. Concept about clinical death.
5. Complex cardiopulmonary and cerebral reanimation.
6. The organization and principles of work of an anesthesiological, reanimation and intensive care department.
7. Features of anesthesia at various types of surgery.
8. Complications in anesthesiology at the early postoperative (postanesthetic) period.
9. Principles of intensive care at acute respiratory failure.
10. Principles of intensive care at acute circulatory inefficiency.

The 6<sup>th</sup> year student should be able:

1. To define a state of a clinical death.
2. To carry out respiration "from a mouth into a mouth", "from a mouth into a nose", with the aid of artificial airways and an 8-shaped tube, manual respiratory apparatuses.
3. To carry out an indirect cardiac massage.
4. To define duration and the arrest of reanimation actions.
5. To define indications for electrical defibrillation and to be able to carry it out.
6. To carry out oxygen therapy by means of nasal catheters or masks.
7. To define a central venous pressure.
8. To assist at a pre-hospital stage at asphyxia, overflow, electric traumas.
9. To define indications to artificial ventilation of lungs.
10. To define medical management at cupping of a convulsive syndrome, asthmatic states, mechanical obstruction of trachea or bronchi.
11. To carry out an artificial diuresis.

12. To stop a pain syndrome.

## BIOCHEMISTRY

### **1. Physical-chemical properties of protein.**

Amino acids. Acids, bases, pH, buffers and ionization of amino acids.

### **2. Structure of a protein molecule.**

Peptide bond. Primary structure. Secondary structure. Tertiary structure. Quaternary structure. Protein folding. Hemoglobin and myoglobin.

### **3. Methods of protein purification.**

Principles of protein purification. Selection of protein source. Homogenization and solubilization. Ammonium sulfate precipitation. Dialysis. Fractionation techniques. Chromatography of proteins: gel filtration chromatography, ion exchange chromatography, affinity chromatography. Electrophoresis of proteins: native PAGE, SDS-PAGE, isoelectric focusing.

### **4. Enzymes. Structure and properties. Kinetics of enzymatic reactions.**

Enzymes as catalysts. Active site. Substrate specificity. Enzyme classification. Enzyme assays. Enzyme units. Coenzymes and prosthetic groups. Isoenzymes. Activation energy and transition state. Enzyme kinetics: substrate (Michaelis-Menten model, Lineweaver-Burk plot) and enzyme concentration, temperature, pH.

### **5. Enzyme inhibition. Regulation of enzyme activity.**

Inhibitors. Irreversible inhibition. Reversible competitive inhibition. Reversible non-competitive inhibition. Feedback regulation. Allosteric enzymes. Reversible covalent modification. Proteolytic activation. Regulation of enzyme synthesis and breakdown.

### **6. Medical enzymology.**

Plasma proteins. Total protein. Albumin. Specific proteins. Serum enzymes in disease. Isoenzyme determination.

### **7. Methods of estimation of protein metabolism.**

### **8. Biological membranes. Introduction in a metabolism. Biochemistry of power supply and digestion.**

Membranes. Membrane lipids (glycerophospholipids, sphingolipids, sterols, fatty acid chains). Lipid bilayer. Membrane fluidity. Fluid mosaic model of membrane structure. Integral membrane proteins. Peripheral membrane proteins. Cytoskeleton. Membrane carbohydrate. Membrane permeability. Passive transport. Simple diffusion. Facilitated diffusion. Active transport. ATP-driven active transport (structure and action of the  $\text{Na}^+/\text{K}^+$ -ATPase). Ion-driven active transport. Intermediate metabolism. Organisms differ in the sources of energy, reducing power, and starting materials for biosynthesis. Pathways show functional coupling. Catabolism, or degrading metabolism. Biosynthesis, or anabolism. Introduction to digestion and absorption. Basic metabolic pathways process the major products of digestion.

### **9. Bioenergetics.**

Free energy is useful energy in a system. Biologic systems conform to the general laws of thermodynamics. Endergonic processes proceed by coupling to exergonic processes. High-energy phosphates play a central role in energy capture and transfer. The intermediate value for free hydrolysis energy of ATP compared to other organophosphates has important bioenergetic significance. High-energy phosphates act as "energy currency" of the cell. ATP allows the coupling of thermodynamically unfavorable reactions to favorable ones.

### **10. Biologic oxidation. Organization of the electron transport (respiratory) chain. Oxidative phosphorylation.**

Structure of the mitochondrial membranes and organization of the electron transport (respiratory) chain. Oxidative phosphorylation of ADP. Hypotheses of oxidative phosphorylation mechanism. Oxidative systems are not developing with energy production.

**11. Common catabolism ways**

Citric acid cycle (sequences of reactions, energy yield, enzymes, regulation). The oxidation of pyruvate to acetyl-CoA (sequences of reactions, enzymes, regulation).

**12. Carbohydrate metabolism. Glycolysis under anaerobic and aerobic condition.**

The main carbohydrate in tissues of a human, biologic role. Digestion of carbohydrate. Glucose is a major metabolite of carbohydrate metabolism. Glycolysis under anaerobic condition (sequences of reactions, energy yield, enzymes, regulation). Glycolysis under aerobic condition. Fates of pyruvate (entry into the citric acid cycle, conversion to fatty acid or ketone bodies, conversion to lactate, conversion to ethanol).

**13. Pentose phosphate pathway. Gluconeogenesis.**

Pentose phosphate pathway of conversion of glucose (sequences of reactions, energy yield, enzymes, regulation). Gluconeogenesis (sequences of reactions, energy yield, enzymes, regulation). Cori cycle.

**14. Metabolism of glycogen, fructose and galactose.**

Roles of glycogen metabolism. Glycogen degradation and synthesis. Control of glycogen metabolism (allosteric control and covalent modification, hormonal control by epinephrine, glucagon and insulin, calcium control). Metabolism of fructose and Galactose. Genetic diseases caused by damaging of galactose and fructose metabolism.

**15. Methods of carbohydrate metabolism estimation.**

**16. Lipids metabolism. Digestion of lipids. Transport and oxidation of fatty acids.**

Structure and properties of fatty acids. Prostaglandins. Digestion of lipids. Transport of lipids. Structure and function of lipoproteins (chylomicrons, VLDLs, IDLs, LDLs and HDLs). Fatty acid breakdown (activation, transport into mitochondria,  $\beta$ -oxidation pathway, regulation, energy yield).

**17. Biosynthesis of lipids.**

Ketogenesis. Biosynthesis of cholesterol. Fatty acid synthesis (mechanism of synthesis and regulation). Formation of double bonds. Synthesis of triacylglycerols. Synthesis of glycerophospholipids.

**18. Biochemistry of atherosclerosis.**

The exogenous lipid cycle. The endogenous lipid cycle. Clinical disorders of lipid metabolism. Classification (primary and secondary hyperlipoproteinaemia). Atherogenic profiles. Hyperlipidaemia. Dietary management. Drug therapy.

**19. Digestion of proteins, transamination and deamination of amino acids.**

Digestion and absorption of proteins. Biosynthesis of amino acids. Amino acid degradation. Transamination. Oxidative deamination of amino acids. Oxidative deamination of glutamate.

**20. Amino acids metabolism. Urea cycle. Amino acids decarboxylation.**

Amino acids decarboxylation. Ammonia intoxication is life-threatening. Formation and secretion of ammonia maintain acid-base balance. Inter-organ exchange maintains circulating levels of amino acids. Ammonia excretion. The urea cycle. Link to the citric acid cycle. Hyperammonemia.

**21. Metabolism of amino acids. Transmethylation. Metabolism of phenylalanine and tyrosine.**

Transmethylation. S-adenosyl methionine (synthesis of creatine, epinephrine, phosphatidylcholine). Metabolism of phenylalanine and tyrosine. Inborn errors of metabolism: phenylketonuria, alkaptonuria.

**22. Methods of carbohydrates lipids and protein metabolism estimation.**

**23. Colloquium "Metabolism of carbohydrate and lipids".**

**24. Structure of nucleic acids. Metabolism of purine and pyrimidine nucleotides. Seminar: Nucleic acid metabolism. Replication. DNA repair. Transcription. Translation. Regulation of gene expression. Mutations.**

Types of nucleic acids. Nucleotide structure. Primary polymeric DNA structure. Secondary structure. DNA dissociation and reassociation. DNA higher order (tertiary) structure. Chromatin: histones, nucleosomes, fiber. Higher order chromatin structure. RNA (mRNA, rRNA, tRNA, hnRNA, sRNA): structure, functions, location.

Metabolism of purine nucleotides. Synthesis of purine synthesis nucleotides inhibitors. Purine nucleotides synthesis regulation. Salvage pathways for purine nucleotides. Degradation of purine nucleotides. Disorders of purine metabolism. Metabolism of pyrimidine nucleotides. Synthesis of pyrimidine nucleotides. Regulation of pyrimidine synthesis. Degradation of pyrimidine nucleotides. Disorders of pyrimidine metabolism

DNA replication. Basic requirements for DNA synthesis. Origin of replication. Basic molecular events at replication forks. Eukaryotic replication. Telomeres. The cell cycle. Drugs that affect replication. Damage and DNA repair. Transcription. Post-transcriptional RNA. Reverse transcription.

Genetic code. Amino acids activation. Protein synthesis proper. Post-translational modifications (proteolytic degradation, covalent modification). Chaperones and protein folding. Inhibitors of protein synthesis. Regulation of gene expression.

## **25. Mechanism of hormone action. Hormone of hypothalamus and pituitary. Hormonal regulation of carbohydrates, lipids and protein metabolism: insulin, glucagon, catecholamines, glucocorticoids.**

Endocrine, paracrine and autocrine hormones. Neurotransmitters. Pheromones. Classification of hormones based on the chemical nature based on the mechanism of action mechanism of group I hormones action. Action mechanism of group II hormones. Hormone-receptor interaction. cAMP – the second messenger. Phosphatidyl inositol/calcium system as second messenger. cGMP as a messenger. Hypothalamus hormones. Pituitary hormones.

INSULIN: structure, biosynthesis, regulation of secretion, degradation. Metabolic effects of insulin. Mechanism of insulin action. Time course of insulin action. Diabetes. Non-insulin dependent diabetes mellitus (NIDDM). Metabolic changes in diabetes. Long term effects of diabetes. Management of diabetes. Biochemical indices of diabetic control. GLUCAGON. Regulation of glucagon secretion. Metabolic effects of glucagons. HORMONES OF ADRENAL MEDULLA: synthesis of catecholamines, storage and release of catecholamine, biochemical functions of catecholamines. Mechanism of action of catecholamines. Metabolism of catecholamines. Abnormalities of catecholamine production. GLUCOCORTICOIDS. Synthesis and transport of corticosteroids. Biochemical functions of glucocorticoid hormones. Mechanism of action of glucocorticoids.

## **26. Hormonal regulation of anabolic processes, growth and development.**

THYROID HORMONES. Biosynthesis of thyroid hormones. Storage and release of thyroid hormones. Transport of T<sub>4</sub> and T<sub>3</sub>. Biochemical functions of thyroid hormones. Regulation of T<sub>3</sub> and T<sub>4</sub> synthesis. Metabolic fate of T<sub>3</sub> and T<sub>4</sub>. Abnormalities of thyroid function. GROWTH HORMONE. Abnormalities of GH production. HORMONES OF GONADS. ANDROGENS. Biosynthesis of androgens. Metabolism of androgens. Physiological and biochemical functions of androgens. Mechanism of androgens action. ESTROGENS. Synthesis of estrogens. Transport of estrogens. Metabolism of estrogens. Physiological and biochemical functions of estrogens. PROGESTERONE. Metabolism of progesterone. Biochemical functions of progesterone. Mechanism of action of estrogens and progestins.

## **27. Minerals. Metabolism and regulation of calcium and phosphorous metabolism. Regulation of electrolyte and water balance.**

Minerals. General functions. Classification. Calcium: biochemical functions, dietary requirements, sources. Phosphorus: biochemical functions, dietary requirements, sources. Regulation of calcium homeostasis: calcitriol, parathyroid hormone, calcitonin. Sodium and potassium: biochemical functions, dietary requirements, sources. Water balance. Regulation of water and electrolyte balance.

## **28. Vitamins overview. Fat-soluble vitamins.**

Structure, metabolism, biological functions, recommended dietary allowance, deficiency.

**29. Water-soluble vitamins: C, P, B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, niacin.**

Structure, metabolism, biological functions, recommended dietary allowance, deficiency.

**30. Water-soluble vitamins: biotin, folic acid, B<sub>12</sub>, pantothenic acid.**

Structure, metabolism, biological functions, recommended dietary allowance, deficiency.

**31. Methods of express-diagnosis.**

**32. Colloquium “Integration of metabolism. Regulation of metabolism”.**

**33. Metabolism of iron and copper. Blood proteins. Hemoglobin. Biochemistry of kidney and urine.**

Iron: biochemical functions. Factors affecting Fe absorption. Transport of Fe in the plasma Storage of iron Disease states. Copper. Biochemical functions. Dietary requirements Sources Absorption. Disease states. Blood. Importance of blood. Albumin: functions. Globulins. Hemoglobin. Structure of hemoglobin. Biosynthesis of heme. Regulation of heme synthesis. Hemoglobin derivatives. Structural diversity of hemoglobin. Sickle cell anemia. Features of erythrocytes metabolism. Degradation of heme to bile pigments. Jaundice.

**34. Cancerogenesis. Oncogenes. Growth factors. Metabolism of xenobiotics. Biochemistry of liver.**

Incidence. Etiology. Chemical carcinogens. Mechanism of action. Ames assay. Promoters of carcinogenesis. Radiation energy. Carcinogenic viruses. DNA – the ultimate in carcinogenesis. Molecular basis of cancer. Oncogenes. Activation of proto-oncogenes to oncogenes. Mechanism of action of oncogenes. Growth factors. Antioncogenes. Tumor markers. Characteristics of growing tumor cells. Metastasis.

**35. Partial control of practical skills.**

**36. Seminar: Extracellular matrix. Muscle. Nerve tissue.**

Collagen. Posttranslational modification of collagen. Genetic diseases of collagen synthesis. Elastin. Fibrillin. Fibronectin. Laminin. Proteoglycans and glycosaminoglycans.

Structure of the muscle. Proteins of muscle. Muscle contraction. Contraction cycle. Relaxation. Types of skeletal muscle fibers.

## BIOORGANIC CHEMISTRY

1. Classification of organic compounds. General laws of organic compound systematic nomenclature. Replacing and radical-functional nomenclature.

Electronic structure of chemical bonds in organic compounds.  $\sigma$  and  $\pi$ -bonds, types of element atom hybridization – organogens ( $sp^3$ ,  $sp^2$  -,  $sp$ -hybridization).

Covalent bond formation. Covalent carbon-carbon bonds (single bonds, double bonds and triple bonds). Inductive and resonance effects.

2. Stereoisomerism. Conformations of the molecule, Newman projection formulas, staggered and eclipsed conformations of ethane and butane. Their the least stable and the most stable conformations. Torsional barrier. Conformations of cyclohexane. Chair conformation. Axial and equatorial bonds. Stereoisomers: enantiomers and diastereomers. The chiral molecule, the stereocenter. CIS- and trans-isomers. Molecules with one stereocenter. Fischer's projection formulas. Enantiomers nomenclature: the (R-S) system and the (D-L) system. Molecules with more than one stereocenter (isoleucine). Enantiomers and diastereomers. Meso compounds.

3. Acidity and basis of organic compounds. The Brehnsted and Lewis theory. The strength of acids and bases;  $K_a$  acidity and  $pK_a$ . Predicting the strength of acids and bases. Relationship between structure and acidity. The hybridization effect. Influence of inductive effects.

4. Homolysis and heterolysis of covalent bonds. Reactive intermediates in organic chemistry. Ionic reactions and radical reactions. Organic reaction terminology. Classification of

reagents in organic reactions. Substitution, adding and eliminating reactions. Classification of the hydrocarbons.

5. Reactions of alkanes and cycloalkanes (common cycles).  $S_R$  reactions. Reactions of alkenes and alkadienes.  $A_E$  reactions addition of hydrogen halides to alkenes. Markovnikov's rule. Addition of water to alkenes: acid-catalyzed hydration. Addition reactions of conjugated alkadienes. Reactions of aromatic hydrocarbons.  $S_E$  reactions. Orientation rule in benzene ring.

6. Reactions of alcohols. Factors affecting the rates of  $S_{N1}$  and  $S_{N2}$  reactions. Conversion of alcohols into alkyl halides. Alcohols as acids. Alkyl phosphates. Alcohol oxidation. Alcohol dehydration. Ether synthesis:  $S_{N2}$  reactions. Alcohol nucleophilicity. Mechanism of alcohol dehydration:  $E_1$  reaction. Synthesis of alkenes. Phenols. Phenol acidity.

7. Formation of quinines by oxidation of phenols. Hydroquinone – quinone oxidation-reduction equilibria. Thiols. Amines. Naming, Basicity and amine reactions.

8. Aldehydes and ketones: nomenclature and reaction centres. Basis of aldehydes and ketones. Nucleophilic addition to the carbon-oxygen double bond of aldehydes and ketones. Addition of water and alcohols: hydrates acetals and hemiacetals, ketals and hemiketals. Cyclic ketals. Thioacetals and thioketals. Addition of ammonia derivatives. Imines, 2,4-dinitrophenylhydrazones, semicarbazones, oximes. Keto and enol tautomers of aldehydes and ketones. Aldehyde and ketone oxidation. Iodoform test.

9. Carboxylic acids: nomenclature and reaction centers. Carboxylic acid acidity. Carboxylic salts. Dicarboxylic acids. Nucleophilic substitutions at the acyl carbon. Relative reactivity of acyl compounds. Esters. Ester synthesis: esterification. Acid-catalyzed and base-promotes ester hydrolyses. Reactions and mechanisms.

Carboxylic acid derivatives: esters, carboxylic anhydrides, acyl chlorides, amides, nitriles. Amide hydrolyses. Acyl transfer reactions of anhydrides, thioesters and esters. acyl transfer reactions in living systems.

Dicarboxylic acids. Carboxylic acid decarboxylation.

10. Heterofunctional compounds classification: amino-alcohols and amino-phenols. Hydroxy and aminoacids. Oxo acids. Keto-enol tautomerism of acetoacetic ester.

Heterofunctional benzene derivatives as pharmaceutical substances. Para-aminobenzoic, sulphanilic and salicylic acids and their derivatives.

11. Classification of carbohydrates. Monosaccharides. Aldose. Ketose. Fischer projection formulas. Monosaccharide stereoisomerism. D and L monosaccharide designations. Structural formulas. Naturally occurring monosaccharides. Cyclic forms of monosaccharides. Haworth formulas for the cyclic hemiacetal forms. Pyranose and furanose forms. Examples. Reactions of monosaccharides. Glycoside formation and hydrolysis. Ether and ester formation. Acylation reactions. Keto—enol tautomerizations. Oxidation monosaccharide reactions. Benedict's or Tollens' reagents: reducing sugars. Oxidation monosaccharide reactions. Bromine water: Synthesis of aldonic acids. Nitric acid oxidation: aldaric acids. Monosaccharide reduction: alditols. monosaccharide derivatives: uronic acids, deoxy sugars, glycoselamine, amino sugars.

12. Nonreducing disaccharide. The structure of sucrose. Configuration of glycoside linkage. Hydrolysis and methylation of sucrose. Disaccharide reduction. The maltose structure. Configuration of glycoside linkage. Maltose anomers. Glycoside formation. Hydrolysis and methylation of maltose.

The structure of cellobiose. Configuration of glycoside linkage. Cellobiose anomers. Glycoside formation. Hydrolysis and cellobiose methylation.

The structure of lactose. Configuration of glycoside linkage. Lactose anomers. Glycoside formation. Hydrolysis and lactose methylation.

Homopolysaccharides. Starch. Amylose and amylopectin. Glycogen. Configuration of glycoside linkage. Biological role of starch and glycogen.

Heteropolysaccharides. Heparin. Hyaluronic acid. Chondroitin sulphates and their biological role. Alternating units of heparin, hyaluronic acid. Chondroitin sulfate.

13. Amino acids. Structure and naming. Non polar, polar, negative and positive charged amino acids. Essential amino acids. Amino acids as dipolar ions. Isoelectric point (pI) of an amino acid. Carboxyl reaction and amino group of amino acids. Deamination and transamination reactions. Aminotransferases and pyridoxal phosphate.

Stages of aminotransferase-catalyzed transamination reactions of amino acids.

14. Structure of peptides and proteins. Peptide bond. Amino acid mixture analysis. Cation-exchange resins, reaction with ninhydrin. Amino acid sequence and covalent structure (or primary structure) of polypeptide). Partial hydrolysis. Methods for determination the N-terminal amino acid residue of peptides and proteins: Sanger method and edman degradation. Polypeptide and protein synthesis. Protecting groups. Activation of carboxyl group. Secondary structures of proteins : $\beta$ -pleated sheet and an  $\alpha$ -helix Tertiary structures of proteins.

15. Nucleic acids, Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). Nucleosides and nucleotides that can be obtained from DNA. Nucleosides and nucleotides that can be obtained from RNA. 3',5'-cyclic adenylic acid. Deoxyribonucleic acid: DNA. Primary and secondary structures. Nucleic acids and protein synthesis. Messenger RNA, genetic code. Ribosomes RNA. Transfer RNA.

16. Lipids. Fatty acids and triacylglycerols. Biological functions of triacylglycerols. Hydrogenation and saponification of triacylglycerols. Synthetic detergents. Reactions of fatty acids carboxyl group. Reactions of saturated fatty acid alkyl chain and unsaturated fatty acid alkenyl chain. Phospholipids and cell membranes . Phosphatides. Sphingosine derivatives.

17. Terpens and terpenoids. Steroids. Structure and systematic steroid nomenclature. Names of steroid hydrocarbons. Cholesterol. Ergosterol. D vitamins. Sex hormones. Adrenocortical hormones. Bile acids. Cholic acid. Conjugated bile acids.

## BIOPSY-SECTION COURSE

Aim of the course - master method of clinical-anatomic analyses of biopsy, operational, sectional material, principles of diagnostics.

The main demands for students' knowledge and skills:

- bases of legislation on Health care system and documents, regulating activities of health organizations;
- general questions of pathologic-anatomy service organization, directive, normative, methodic documents on the discipline "Pathological Anatomy";
- judicial problems in pathologist's activity;
- doctrine of disease, etiology, pathogenesis, nosology; organopathology, syndromologic and nosologic principles in disease research;
- analyses of clinic and pathologic diagnosis;
- principles of formulation of pathologic diagnosis; filling in death certification according the demands of International diseases classification;
- forms and methods of sanitary enlightenment.

Sectional work.

Steps of autopsy, general technical ways of autopsy by Abricosov, Shoru and etc. Rachitomy. Autopsy in different cases of surgical, therapeutic specialization. Trepanation of stillborns. Peculiarities of autopsy after quarantine and infectious diseases. Special methods of diagnosis on sectional table. Taking swabs, taking material for bacteriologic research. Description of section material. Filling in the pathology record, death certificate. Formulating of pathologic diagnosis, clinic-anatomy epicrisis. Safety technic in the work of pathologic department.

Biopsy work.

Steps of taking material for gystology research and sending it to prosectorium. Taking biopsy and filling in the documentation. Macroscopic description.

Hystology work.

Taking material for hystology research. Preparing of the main chemical substances used in hystology and cytology laboratories. Methods of painting the material. Getting acquaintance with contemporary methods of morphology research. Cytology diagnosis.

Preparing the result documents on section and biopsy.

Filling in and serving the documents.

## **CARDIOLOGY AND FUNCTIONAL DIAGNOSTICS**

Rheumatic disease, the modern idea of its etiopathogenesis. A clinical pattern of the basic manifestations. Diagnostic methods.

Classification of rheumatic disease. The formulation of the diagnosis. Measure of degrees of activity, variants of flow. Principles treatment. Prophylaxis.

Mitral stenosis (an etiology, a hemodynamics, clinic, diagnostics). Failure of the mitral valve (an etiology, a hemodynamics, clinic, methods of diagnostics). Mitral fault with predominance of failure or a stenosis, without precise predominance. Tricuspidal heart diseases.

Aortal stenosis (an etiology, a hemodynamics, clinic, diagnostics). Failure of the aortal valve (an etiology, a hemodynamics, clinic, diagnostics). Aortal fault with predominance of a stenosis or failure, without precise predominance.

Differential diagnostics of the got heart diseases with an atherosclerotic lesion of valves, cardiomyopathies, пролапсом the mitral valve.

Differential diagnostics of the got faults with congenital faults (the open arterial duct, a coarctation of an aorta, a stenosis of an ostium of a pulmonary artery, Fallot's tetrad).

Classification of cardiomyopathies, hypertrophic, dilitative, restrictive. Abundance, the social significance. A pathogenesis of infringements of an intracardiac hemodynamics. The basic clinical exhibitings. Opportunities of diagnostics, информативность methods of diagnostics, a role echocardiographical examinations, biopsies of a myocardium. Flow and complications. Opportunities of conservative treatment, the indication to operative treatment.

Definition of a myocardial dystrophy. An etiology and a pathogenesis. The modern classification. The basic clinical exhibitings and diagnostic measure. Differential diagnostics. Treatment. Prophylaxis. Examination of a working capacity.

Myocardites, etiopathogenesis, classification. Diagnostic measure. Differential diagnostics. Treatment, prophylaxis.

Tactics of the doctor at revealing a pain set of symptoms in range of heart. Definition of angina pectoris, the idea of syndroms, its causes. Differential diagnostics of angina, cadialgia of a noncoronal origin.

Etiopathogenesis of a myocardial infarction. Abundance. Clinic of a myocardial infarction. Atypical kinds. Methods of diagnostics (ECG, laboratory).

Differential diagnostics of a myocardial infarction, a pericarditis, a stratifying aneurysm, etc.). Treatment of a uncomplicated myocardial infarction. Medical tactics during different periods of a myocardial infarction. Diet and motorial regimen.

Complications of a myocardial infarction. Treatment of complications, the emergency help. Prophylaxis of complications. Thrombolytic, anticoagulative, antiagrigrative therapy, indications and contraindications, complications. Relapsing and repeated myocardial infarction. The physical

aftertreatment of patients with a myocardial infarction. A psychological, social aftertreatment, deontological aspects. Indications and contraindications for a direction in abjuncting an aftertreatment.

The modern representations about a pathogeny of arrhythmias. Classification of arrhythmias. Methods of diagnostics. Sinus of arrhythmia, bradycardia, tachycardia, sick sinus syndrome; clinic, diagnostics, the forecast, medical labour examination. Tactics of the doctor at revealing an arrhythmia. Methods of treatment. Indications to a stationary value cardiostimulation. Extrasystoly, the causes, pathogenesis, methods of diagnostics, their informativeness. Tactics of the doctor at revealing of extrasystoly, principles of treatment. Classification of antiarrhythmic preparations. Indications to administration of antiarrhythmic preparations, complications, arrhythmical effect.

Bouveret's disease, etiopathogenesis, clinic, methods of diagnostics, treatment. Fibrillation of auricles, the causes, clinic, diagnostics, treatment. Indications and contraindications to regeneration of a sinoatrial rate. A flutter and a ventricular fibrillation, an asystolia, the causes, clinic, diagnostics, treatment. Rendering of the emergency help at paroxysmal infringements of a cardiac rhythm.

Etiopathogenesis of blockages, classification. Sinoauricular blocks, degrees, clinic, diagnostics, treatment. Intraatrial, atrioventricular blocks, blockages of legs of a ventriculonector, clinic, degrees, diagnostics, treatment.

Heart failure, definition. Etiopathogenesis of a heart failure, the modern idea of it. Classifications of a heart failure. Clinic of an acute and chronic heart failure, ventricular and auricular. Diagnostics of a heart failure. Treatment of an acute heart failure.

Principles of treatment of a chronic circulatory inefficiency. A regimen. A diet. Medicamental therapy.

Arterial hypertension (AH), definition, methods of revealing. Classification of arterial hypertension. The plan of examination of a patient with AH. Differential diagnostics of the symptomatic AH. Renal (renovascular, nephritic, renal tumors). Endocrine (illnesses and an Icenso-Cushing syndrome,  $\beta$ - $\frac{1}{4}$  Con's, a pheochromocytoma). Hemodinamical (atherosclerosis of aorta, a coarctation of an aorta). Characteristic of the treatment of the symptomatic AH.

Etiopathogenesis of AH. The role of the central infringements of a regulation of the arterial pressure, sympathetic nervous system, humoral and hormonal and depressive factors in development of AH. Classification, clinic, hemodinamical types. Complications of AH. The principles of treatment

Hypertonic crises, definition. Promoting factors. Clinic, classification. Complications. Treatment of hypertonic crises. Rational and irrational combinations of hypotensive preparations.

## **“CHILDREN INFECTIONS”**

1. Acute respiratory diseases of children of virus etiology. Analyses of patients.
2. Measles. Rubella.
3. Diphtheria. Principles of organization of work for the patients with suspicion on diphtheria.
4. Different diagnosis with infectious mononucleosis, peritonsillitis, purulent anginas.
5. Treatment of diphtheria toxic forms. Prophylaxis. Analysis of patients. Infectious mononucleosis.
6. Children's parotid infection. Whooping cough.
7. Scarletina. Chicken-pox.
8. Meningococcal infection. Urgency problems. Urgent condition and principles of their removing. Treatment of various clinical forms. Prophylaxis. Analyses of patients.

## **CHILDREN SURGERY, TRAUMATOLOGY AND ORTHOPEDICS”**

### **1. Aims of the discipline. Its place in educational process.**

Students are to be ready to render emergent assistance, are to know methods of clinic and special diagnostics, medical and surgical tactics used in general practitioner work.

### **2. Contests of the discipline.**

Children inspection with surgical diseases. Acute appendicitis of children. Peritonitis of children.

Acquired intestinal obstruction of children: obstruction of an intestine, invagination strangulated inguinal hernia.

Semeiology and diagnostics of purulent – inflammatory diseases of children. Purulent – inflammatory diseases of newborn and thoracic children. Sepsis.

Osteomyelitis of children.

Inherent faults of development and disease of esophagus, stomach (ventriculus) and fine (thin) intestine. Complications of esophagus and their complication.

Faults of development of thick intestine, anorectal range.

Faults of development of lungs and pleura inflammatory diseases of children: the inherent lobar emphysema, cyst mild, bronchoectasias, lungs pulmonary complications of bacterial destruction. Inherent diaphragma hernia.

Children's out-patient-polyclinical surgery. Groups of dispensary observation of surgical pathology of children.

Inherent biliary and urinary ducts anomalies. Urinology of children's age.

Traumatology and orthopedics of children's age.

## **CLINICAL LABORATORY DIAGNOSTICS**

1. Laboratory examinations of physical, biochemical and microscopic properties of urine, feces, pleural contents.

Methods of protein, glucose, ketone particles determination in urine.

Microscopy of urine sediment.

Physical properties of feces. Diagnostic significance of macro- and microscopic research. Feces examination for latent blood.

Sputum examination. Diagnostic significance.

Diagnostic examination of pleural contents. Laboratory differences of exudates from transudate, their diagnostic significance.

2. Hematological laboratory examinations: common clinical blood analysis. Laboratory anemias examination. Cell morphology of peripheral blood normally and pathologically.

Clinical significance of protein, glucose and bilirubin level determination in the blood serum.

Rules of taking blood for common analysis.

Erythrocytes determination, its clinical – diagnostic significance.

Leucocytes, erythrocytes, coloring index level determination and diagnostic significance.

Reticulocytes amount determination, diagnostic significance.

General rules of interpreting findings of glucose, protein and bilirubin examination.

## **CLINICAL LABORATORY DIAGNOSTIC**

1. Laboratory research and clinical commenting of the urine, mucus, sweaty liquids results. Clinical significance of non-protein nitrogen compounds for kidney pathology estimation.

Clinical – diagnostic significance of sweat liquid laboratory research.

Main laboratory indications of urine and their clinical – diagnostic significance at diseases and pathologic conditions.

Clinical estimation of the results of mucus laboratory research.

Clinical – diagnostic significance of determination of non-protein nitrogen components in the blood serum and urine.

Laboratory methods of estimation of filtrative and reabsorptive kidney function.

Hyperazotemia (retentive, productive), hypoazotemia, pathogenesis, laboratory diagnostic.

2. Hematologic laboratory research. Main indications of general blood analysis as laboratory criteria of general body state. Diagnostic laboratory signs of diseases of the blood forming system organs.

2.1. Clinical – diagnostic information of general blood analysis laboratory indications.

Anemias diagnostic according to the results of laboratory definition of hemoglobin in the blood, qualitative and quantitative erythrocytes composition.

Clinical estimation of thrombocytes, reticulocytes and pathologic cell forms change in the blood.

Clinical-diagnostic significance of changes in the blood of leucocytes amount, their cellular composition and qualitative properties.

Clinical-diagnostic estimation of the results of cytochemical investigations of the blood and marrow at hemoblastoses.

Cytochemical laboratory indications at anemias and their diagnostic information.

3. Laboratory approaches, methods and clinical estimation of the results of hormones investigations and their derivatives. Clinical estimation of water-mineral balance.

3.1. Laboratory estimation of thyroid gland functions.

Diagnostic significance of functioning system indices hypothalamus-hypophysis-adrenals.

Clinical significance of laboratory indices of functioning system hypothalamus-hypophysis-genitals.

Laboratory diagnostic of disturbances of endocrine glands, regulating calcium and phosphorus level.

Regulation of water-salt exchange, laboratory signs of regulation disturbance.

Diagnostic meaning of mineral substances concentration definition (sodium, potassium, calcium, copper, iron).

4. Clinical estimation of general enzymes activity in the blood serum. Clinical estimation and interpretation of the results of laboratory investigations of protein, carbohydrate, lipid and pigment exchanges.

4.1. Enzymodiagnostic of heart diseases: myocardial infarction, myocarditis and others.

Enzymodiagnostic of liver diseases.

Enzymodiagnostic of bony tissue diseases.

The role of changes of carbohydrate exchange laboratory indications in diseases diagnostic.

Dislipoproteinemias laboratory types and their clinical-diagnostic significance at pathological states.

Diagnostic and differentiated diagnostic of the main jaundice types.

Clinical change significance of common protein contents in the blood. Hyper-, hypo-, para- and defectoproteinemias.

Clinical-diagnostic significance of defining protein fractions and separate proteins in the blood serum.

Proteins of acute phase and sediment samples as indications of inflammation and pathological processes.

## CLINICAL PHARMACOLOGY

### Distribution of academic load on seminars:

1. Introduction to clinical pharmacology. Medical, deontological, legal, social, economic, and organizational aspects of clinical pharmacology. Drugs development, clinical evaluation, and registration. – 1 hour.
2. Clinical pharmacodynamics and pharmacokinetics as a basis for rational drug choice. – 2 hours.
3. Drugs interaction. – 1 hour.
4. Side effects of drugs. – 2 hours.
5. Clinical pharmacology of drugs acting on central nervous system. – 6 hours.
6. Clinical pharmacology of drugs used in bronchial obstruction. – 6 hours.
7. Clinical pharmacology of drugs used for correction of blood vessels tone. – 6 hours.
8. Clinical pharmacology of drugs used for correction of main myocardial functions. – 6 hours.
9. Clinical pharmacology of drugs used in treatment of pathology of digestive system. – 6 hours.
10. Clinical pharmacology of steroidal and non-steroidal anti-inflammatory drugs. – 6 hours.
11. Clinical pharmacology of antimicrobial drugs. – 8 hours.
12. Clinical pharmacology of anti-histamine preparations. – 3 hours.
13. Clinical pharmacology of drugs used for correction of homeostasis and hemostasis. - 3 hours.

### Content of the program.

1. Clinical pharmacology, subject and tasks.
2. State regulation and clinical evaluation of drugs.
3. Clinical pharmacokinetics. Drug dosing regimens.
4. Clinical pharmacodynamics.
5. Drugs interaction.
6. Side effects of drugs.
7. Physiological and age aspects of clinical pharmacology.
8. Drugs acting on central nervous system:
  - neuroleptics
  - antidepressants
  - neuro-metabolic stimulants
  - tranquilizers
  - hypnotics
  - sedatives
  - psychostimulators
  - anticonvulsants
  - antiparkinsonic drugs
9. Drugs for general and local anesthesia.
  - general anesthetics
  - local anesthetics
  - analgetics of central action
  - opioid analgetics
  - non-opioid analgetics

10. Drugs acting on respiratory system:
  - expectorants
  - anti-cough preparations
  - broncholytics
  - mast-cell stabilizers
  - H1-histamine blockers
  - Glucocorticoids
  - Drugs facilitating surfactant production
  - Respiratory analeptics.
11. Clinical pharmacology of anti-allergic and immunotropic drugs. Drug allergy.
  - drugs affecting immunological stage of allergy
  - drugs affecting pathochemical stage of allergy
  - drugs affecting patophysiological stage of allergy
  - drug-induced anaphylactic shock.
12. Clinical pharmacology of cardiotonic drugs.
  - cardiac glycosides
  - non-glycoside cardiotonic drugs
13. Clinical pharmacology of drugs affecting tone of blood vessels.
  - Antihypertensive drugs
  - Antianginal drugs
  - Drugs used in hypotonic conditions.
14. Anti-arrhythmic preparations:
  - drugs used in tachyarrhythmias (classes 1-4 preparations)
  - drugs used in bradyarrhythmias
  - potassium and magnesium preparations.
15. Drugs affecting function of digestive system:
  - drugs affecting appetite
  - emetic and anti-emetic preparations
  - drugs regulating gastric secretion
  - gastrocytoprotectors
  - drugs regulating gastrointestinal motorics
  - drugs used in pancreatic diseases
  - cholagogues
  - hepatoprotectors
  - cathartic drugs
  - anti-diarrhea preparations
  - drugs restoring gastro-intestinal microflora.
16. Clinical pharmacology of drugs affecting renal function.
  - classification of diuretics
  - uricosuric drugs
17. Clinical pharmacology of drugs affecting metabolism.
  - vitamins
  - stimulators of metabolism of non-vitaminic nature
  - drugs affecting lipid exchange
  - microelements
  - antihypoxants
18. Drugs affecting endocrine system:
  - preparations of hypothalamic hormones
  - preparations of hormones of hypophysis
  - preparations of thyroid hormones and anti-thyroid drugs
  - preparations of parathyroid hormones and drugs affecting calcium exchange
  - hypoglycemic drugs

- preparations of adrenal hormones and drugs affecting their production
  - preparations of sex hormones and drugs affecting their production
  - hormonal contraceptives
  - drugs for correction of climacteric syndrome
19. Drugs used for correction of homeostasis:
- volume expanders
  - preparations for parenteral nutrition
20. Drugs affecting uterus tone:
21. Drugs regulating hemostasis:
- anti-hemorrhagic preparations
  - anti-thrombotic drugs
22. Drugs used for treatment of anemia:
23. Antimicrobial drugs:
- antibiotics
  - sulphonamides
  - quinolones
  - nitrofurans
  - antiseptics
24. Antifungal drugs.
25. Clinical pharmacology of anti-viral drugs.
26. Clinical pharmacology of anti-protozoal and anti-helminthic preparations:
- anti-protozoal agents
  - anti-malaria drugs
  - anti-helminthic drugs.
27. Clinical pharmacology of drugs for treatment of cancer.
- chemotherapeutic anticancer drugs
  - hormonally active preparations
  - anticancer antibiotics.

## **CULTUROLOGY AND RELIGION STUDIES**

### **1. Theory of Culture**

1. Culturology as the branch of science, its subject, problems. The role of culturology in the life of the society.

2. Culture as phenomenon of social being. Origins of culturological thought. Definitions of culture and culturology in different hystorical periods (Antiquity, Middle Ages). Culture in New age (17-18 cent.) and in New age (19-20 cent.).The main modern culturological conceptions. Different approaches to define “culture”. Its modern interpretation. Functions of culture.

3. The system and structure of culture. Culture as system. Material, spiritual and artistic culture. Ideals, standards, values: their role in the structure of culture. Science, religion, art as forms of spiritual culture of the society.

4. Development of culture.: optimistic and pessimistic approaches. The problem of “crisis in culture”: appearance, contest, modern presentations. Culture and nature. Culture and civilization. Social types of culture (mass, youth, etc.) Definitions of subculture, contrculture, marginal culture. Ethnoterritorial cultures (national, regional, etc.) National-cultural mentality and culturological problem “East – West”, “North – South”. Cultural identification, its types. Nationalism. Internationalism. Marginalism. Hierarchy of cultures and its equality. Europecentrism, americanism, elitarism, pluralism.

## **2. History of Culture.**

5. Culture of primitive society. Definition, periods. Problems of anthropo- and sociogenez. Culturegenez. Myth and magic, their role in archaic society. The main features of ancient culture.

6. Culture of Ancient civilizations. Transfer from archaic, primitive development to civilized. Characteristic features of cultures of ancient Mesopotamy (Babilon). Culture of ancient Egypt. Culture of ancient India. The peculiarities of culture of Ancient China.

7. Ancient culture. Contest, periods, the main features and peculiarities. Culture of ancient Greece. Culture of greek archaic period. Mythology of ancient Greece, its role in the development of literature and art all over the world. Culture of Ancient Greece in classical period. Peculiarities of Ellin culture. The culture of Ancient Rime (early period, period of republic). The culture of Rime empire. Crisis and beginning of Christian transformation of antique culture.

8. Middle Ages Culture and culture of Revival epoch. Conditions of formation, main features and peculiarities of European cultures of Middle Ages. Christian regiousness and symbolism as main dominates of culture. Spiritual world of the person of Middle Ages epoch. Formation and peculiarities of culture of Arabic countries. Social-economic and spiritual prerequisites of culture of Revival epoch formation. Definitions "humanism", "reformation", "renaissance", "protestantism"; their historical and cultural contents. The main features of Renaissance culture.

9. Culture of New Age. Prerequisites of formation, general characteristics of culture of that period (XVII-XIX cent.). Scientific and intellectual revolution in New Ages period. Origin of classical science, its role in the development of European and North-american civilizations. Culture of XVII-XVIII centures. Intellect apology and Age of Enlightenment phenomenon. Barocco, Classicism. Culture of XIX-beginning XX cent. Achievements and contradictions of technogen civilization. Romantism. Realism. Decadence in literature and art in Western Europe and the USA (end XIX-beg. XX cent.): contests, manifestations. Formation of new trends, directions, styles in culture of New ages. Culture of XX cent.: general characteristics, peculiarities. Artistic styles of modernism and avangardism. Postmodernism in the culture of XX cent. The problem of cultural relativism.

10. Cultures of modern East. National and global in culture of XX-beg. XXI cent. (review of cultural processes on the example of countries and regions of the world: India, China, Japan, Africa, Arabic countries etc.). Modern sociocultural situation. Global problems of mankind and perspectives of development of the world culture.

11. Easten European culture. Origin and peculiarities of formation of Russian culture, its characteristic features. Peculiarities of formation of national culture of Byelorussia. The problem of cultural interconnection with Russia and European countries. The main achievements of Byelorussian culture (science, education, health care system, art). Contemporary culture of BY. Ideology of strong BY and priorities of cultural development.

## **DERMATOLOGY AND VENEREOLOGY**

### Dermatology

Method of the observation of the skin patient. Primary and secondary elements of the skin. General principles of the therapy of the skin diseases.

Bacterial infections of the skin: pathogenesis, etiology, classification. Clinical peculiarities of the different forms of pyodermas: superficial and chronic folliculitis, sycosis, impetigo,

staphylococcal scaled skin syndrom. Pyoderma gangrenosum. Principles of general and topical treatment of bacterial infections of the skin, prophylaxis.

Scabies: etiologic agent, transmission, clinical forms, complications. Tuberculosis of the skin. Clinical picture of the main forms of the TB of the skin: lupus vulgaris, scrofuloderma, TB verrucosa, papulo-necrotic TB: diagnosis, treatment, prophylaxis.

Leprosy: etiology, transmission, classification, clinical forms, diagnosis, treatment. Pediculosis: epidemiology, treatment, prophylaxis.

Dermatomycoses. Biology of dermatofites. Classification. Laboratory diagnosis of the fungi infections (microscopy, cultural method). Tinea versicolor: pathogenesis, clinical features, diagnosis, treatment. Erythrasma: pathogenesis, clinical features, diagnosis, treatment.

Tinea cruris: pathogenesis, clinical features, diagnosis, treatment. Tinea pedis: pathogenesis, clinical features, clinical forms, diagnosis, treatment. Tineas caused by *Trichofitum rubrum*. Candidiasis of the skin, nails, periungual area: pathogenesis, clinical features, diagnosis, treatment.

Tinea capitis caused by *Microsporum* and *Trichophyton* species: pathogenesis, clinical features, forms, diagnosis, treatment. Tinea favus: pathogenesis, clinical features, diagnosis, treatment.

Laboratory diagnosis of tinea capitis. Treatment of tinea capitis. Antifungal drugs (griseofulvin, ketokonazole, itraconazole, terbinafine). Topical antifungal agents. Prophylaxis of fungi infections.

Viral infections of the skin. Molluscum contagiosum, warts, papillomas, herpes simplex, herpes zoster: pathogenesis, clinical features, diagnosis, treatment.

Contact and allergic dermatitis: pathogenesis, clinical features, forms, diagnosis, treatment. Toxiderma: pathogenesis, clinical features, diagnosis, treatment. Stevens Jonson syndrom and Layell syndrom. Allergic vasculitis.

Eczema: pathogenesis, clinical features, forms, diagnostics, treatment.

Itch as a symptom of the skin diseases and as a defined disease: etiology, secondary signes, localisation, treatment. Urticaria, oedema Quinke, prurigo, lichen simplex: pathogenesis, clinical features, forms, diagnosis, treatment, prophylaxis of relapses.

Professional skin diseases: contact dermatitis, allergic professional dermatitis, professional folliculitis, professional papillomas and hyperkeratosis, photodermatitis, candidiasis: pathogenesis, clinical features, diagnosis, treatment.

Psoriasis: pathogenesis, clinical features, main clinical forms, diagnosis, treatment. Arthropathic and erythrodermic forms of psoriasis. Lichen planus: pathogenesis, clinical features, diagnosis, treatment.

Pemphigus vulgaris: pathogenesis, clinical features, diagnostics, treatment. Pemphigus foliaceus and seborrheal. Dermatitis herpetiformis Duhring: pathogenesis, clinical features, diagnosis, treatment.

Lupus erythematosus: pathogenesis, clinical features, diagnosis, treatment. Systemic lupus erythematosus. Scleroderma: pathogenesis, clinical features, diagnosis, treatment.

Seborrhoea, seborrhoeic dermatitis: pathogenesis, clinical features, diagnosis, treatment. Acne, seborrhoeic alopecia, rosacea: pathogenesis, clinical features, diagnosis, treatment. Alopecia areata. Pityriasis rosea.

## Venereology

Lymphomas of the skin: pathogenesis, clinical features, diagnosis, treatment. Sarcoma Caposi: pathogenesis, clinical features, diagnosis, treatment. Skin signs of HIV infection: fungi infections, viral infections, bacterial infections, seborrheic dermatitis.

Genetic dermatoses: ichthyosis, keratodermias, bullous epidermolis: pathogenesis, clinical features, diagnosis, treatment.

Method of the observation of the venereological patient. Primary period of syphilis. Clinics of the hard chancre, regional lymphadenitis. Complications of the hard chancre. Atypical forms of chancre. Laboratory diagnostics of the primary period of the syphilis (microscopy of *Treponema pallidum*, express analysis, RW, RIF, PCR).

Secondary period of syphilis. Macular syphilid, papular syphilid, pustular syphilid, alopecia in patients with syphilis, leucoderma, syphilides of the mucous membranes. Differential diagnosis with skin diseases. Laboratory diagnosis of the secondary period of syphilis (microscopy of *Treponema pallidum*, express analysis, RW, RIF, PCR).

The third period of syphilis: gummatous syphilid, tubercular syphilid. Gumms of the nose, tongue, pharynx. Syphilitic osteoarthritis, synovitis, osteomyelitis. Syphilis hereditaria. Methods of treatment of syphilis.

Hemorrhage in men. Method of the observation of complicated and non complicated hemorrhage. Microscopy and cultural diagnostics. Trichomoniasis: diagnosis, complications, treatment.

Computer test in dermatovenereology. Chlamydiosis, ureoplasmosis, candidiasis of the urogenital tract: clinical picture, diagnosis, treatment.

#### **Practical skills:**

Method of the observation of the skin patient.

Special methods of the observation of the skin patients.

Method of the observation of the patient if the venereological disease is suspected.

Primary and secondary elements of the skin.

Dermatofibroma.

Taking material for the observation for gonococcus, treponema, trichomonas.

Method of the disinfection of the shoes in fungi diseases.

Probe with the glass in urethritis.

Psoriasis phenomena.

Method of the individual prophylaxis of venereal diseases.

Microscopic observation of the scales and hairs in fungi infections.

Disinfection of the hands, instruments after the observation of venereological patients.

Filling of the ambulatory card of the patient.

## **TROPICAL DERMATOVENEREOLOGY**

### **OPTIONAL COURSE**

Topic 1. Peculiarities of the skin diseases and sexually transmitted infections in the tropical countries. Leprosy: etiology, causative agent, clinical characteristics, diagnosis, prognosis,

treatment, prophylaxis. Leishmaniasis: ethiology, causative agent, clinical characteristics, diagnosis, prognosis, treatment, prophylaxis. Hereditary skin diseases: diagnosis.

Topic 2. Tropical treponematoses: f rambesia, bedzel, pinta. Ethiology, clinical characteristics, diagnosis, treatment, prophylaxis.

Topic 3. Chancroid. Inguinal lymphogranulomatosis. Donovanosis. Epidemiology, clinical picture, diagnosis, treatment, prophylaxis. Differential diagnosis of syphilis.

Topic 4. Dermatomycoses. Peculiarities of epidemiology, clinical characteristics and treatment of dermatomycoses in the countries with the tropical climate.

## **ECOLOGY**

### **THE ENVIRONMENT AND HEALTH OF THE POPULATION.**

1. Ecology as a science, its differentiation, purpose, tasks, methods, subject of study, connection with other sciences, ecological problems.

2. Biosphere, biogeocenoses, structure and characteristics biogeocenoses, concept of an ecological niche.

3. Mutual relation in biogeocenoses. Antropocenoses.

4. Characteristic of a species, population, organicisms, environment.

5. Ecological factors, classification.

6. Adaptation, adaptive and economic-cultural types of communities of people.

7. Antropocenology, purpose, tasks, basic problems.

8. Medical ecology, environment of illness and its preventive maintenance.

### **THE ECOLOGICAL CHARACTERISTIC OF PHYSICAL PROPERTIES OF AN ATMOSPHERE.**

1. Atmosphere, as one of the basic components of biosphere. A structure of an atmosphere.

2. Atmospheric air and its ecological meaning.

3. The abiotic factors of air environment, modern ecological problems.

4. Solar radiation.

5. Temperature.

6. Humidity.

7. Movement of air.

8. Electrical condition of air.

9. Radiating background.

### **THE ECOLOGICAL CHARACTERISTIC of CHEMICAL And BIOLOGICAL PROPERTIES of an ATMOSPHERE.**

1. Atmospheric air, its chemical structure and ecological meaning

2. Ecological meaning of oxygen of atmospheric air.

3. Ecological meaning of carbon dioxide, nitrogen, inert gases.

4. Gaseous, mechanical and biological impurity of air of a natural origin.

5. Basic sources and pollutants of atmospheric air.

6. Ecological consequences of pollution of an atmosphere.

7. Protection of an atmosphere.

### **THE ECOLOGICAL CHARACTERISTIC of PHYSICAL And BIOLOGICAL PROPERTIES of HYDROSPHERE.**

1. Water, its structure, ecological meaning.
2. Water, as an inexhaustible natural resource, modern problems of water.
3. Abiotic physical factors of water sphere, influence on organism of the man.
4. Biological factors of water sphere, influence on organism of the man.
5. Ecological characteristic of open sources of water supply.
6. Ecological characteristic of open underground sources of water supply.
7. Ecological characteristic physical and biological pollutants of water sphere, influence on organism of the man.
8. Fixing of quality of water of open and underground sources of water supply.

#### THE ECOLOGICAL CHARACTERISTIC of CHEMICAL PROPERTIES of HYDROSPHERE.

1. Water, its structure, ecological meaning.
2. Water, as an inexhaustible natural resource, modern problems of water.
3. Abiotic physical factors of water sphere, influence on organism of the man.
4. Biological factors of water sphere, influence on organism of the man.
5. Ecological characteristic of open sources of water supply.
6. Ecological characteristic of open underground sources of water supply.
7. Ecological characteristic physical and biological pollutants of water sphere, influence on organism of the man.
8. Fixing of quality of water of open and underground sources of water supply.

#### THE ECOLOGICAL CHARACTERISTIC of CHEMICAL PROPERTIES of HYDROSPHERE.

1. Abiotic chemical factors of water sphere.
2. Influence of the abiotic chemical factors of water environment on organism of the man.
3. Endemic diseases connected with water using and their preventive maintenance.
4. Estimation of quality of water of sources of decentralized water supply.
5. Ecological meaning of pollution of water sphere by the nitrates нитратами.
6. Ecological estimation of water resources in the Republic of Belarus.
7. Protection of water sphere from pollution.

#### The ecological characteristic of a lithosphere.

1. Ground, as a component of a lithosphere, its structure, property.
2. Characteristic of soil resources.
3. Ground formation and development of ground.
4. Abiotic physical factors of ground.
5. Abiotic chemical factors of ground. Concept of biogeochemical provinces.
6. Biotic factors of ground.
7. Ecological meaning of ground, modern ecological problems of a lithosphere.
8. Influence of the ecological factors of a lithosphere on organism of the man.
9. Pollution of ground by sources, pollutants, ecological consequences of pollution.
10. Parameters of ground pollution.
11. Protection of ground from pollution.

#### ECOLOGY OF THE POPULATED PLACES.

1. Urbanization, reason.
2. Abiotic and biotic factors of urban environment.
3. Ecological features of urban environment.
4. Sources and pollutants of air, water and ground of the populated places.
5. Ecological meaning of gardening of the populated places.
6. Struggle with noise in large cities.

7. Ecological aspects of town-planning and lay-out of the village populated places.  
ECOLOGY of DWELLING.

1. Ecological meaning of dwelling.
  2. Ecological requirements to the ground area under construction.
  3. Ecological requirements to building materials, designs, internal furnish and equipment of dwelling.
  4. Ecological requirements to an internal lay-out of an apartment.
  5. Ecological characteristic of illumination, heating, ventilation, water supply and clearing of dwelling.
  6. Microclimate of dwelling. Measures under the prevention of superheat and dampness of dwellings.
  7. Methods of study and estimation of a lay-out, accomplishment, microclimate of dwelling.
- THE ECOLOGICAL CHARACTERISTIC of DWELLING

1. Ecological requirements to the ground area of a hostel.
2. Feature of a lay-out of a hostel.
3. Ecological requirements to an internal furnish and equipment of a hostel.
4. Ecological requirements to a microclimate of a hostel.
5. Ecological requirements to a sanitary - technical accomplishment and contents of a hostel.
6. Methods of study and estimation of a lay-out, building, accomplishment and mode of operation of a hostel.

ECOLOGICAL PROBLEMS of a NUTRITION

1. Food infections and food poisonings, their classification.
2. Food poisonings microbic and unmicrobic nature, their hygienic diagnostics and preventive maintenance. The characteristic of food poisonings not specified ethiology.
3. Investigation of food poisonings.
4. Detoxication of esenobiotics.
5. Food additives. Concept about BAA.
6. Sanitary - hygienic examination of foodstuff, stages of its realization. Concept about products, suitable for a nutrition, substandard, conditionally suitable, forged, substitutes.
7. Hygienic regulation and certification of products of a nutrition.
8. Methods definition and estimations of the contents toxic substances and microorganisms in products of a feed and high quality of foodstuff.

ECOLOGICAL AND MEDICAL PROBLEMS OF AN ENVIRONMENT

1. Pollution of an environment. Protection of an environment from pollution.
  2. Measure on protection of an environment from pollution.
  3. Pollution of air, water and ground, its ecological meaning.
  4. Radiating pollution of an environment and its ecological meaning.
  5. Radiating conditions in the world and Republic of Belarus after failure on the Chernobyl atomic power station.
  6. Protection of atmospheric air, water, ground from pollution.
  7. Measure on protection of an environment from radiating pollution.
- PROTECTION OF AN ENVIRONMENT. ECOLOGICAL MONITORING.

1. System approach to nature protection politics of the state. Government of ecological management of Republic Belarus.
2. Monitoring environmental of natural environment. Ecological consultants investigation. System of the ecological control RB.
3. Methods of clearing of atmospheric air, water and ground.
4. International cooperation in sphere of ecology.
5. Strategy OUN in the field of the decision of global ecological problems.
6. Ecological aspects of strategy of steady development of the Republic of Belarus.

## **ECONOMICAL THEORY**

### **General problems of economic theory.**

1. Economic theory: subject, method, functions.
2. Economic system of society.
3. Public manufacture, its contents. Forms of organization. Forms and features of public industry. Commodity, its characteristics. Value and price, law of value.
4. Money: history of origin, functions, ways of measuring. Development of commodity exchange, origin of money. Essence and function of money. Money circulation, law of money circulation.
5. Market. Supply and demand. Infrastructure of the market. Elasticity of supply and demand.. Market balance. Balanced price.

### **Microeconomy.**

6. Manufacture. Features, factors, results. The process of creating the value of commodity. Capital. Moving of capital. The main and circulating capital. Physical and moral wear of the main capital. Amortization.
7. Production costs and income of the firm. Contests. Structure of prime cost and price. Profit of manufacture, its formation. Profitableness.
8. Price formation. Market of labour and wages. Price as the element of industry structure. Its functions. System of prices, the main elements. Structure of retail prices. Market of labour. Wages: contents, functions, forms. System of wages. Normal and real wages.
9. A firm and its production functions. Undertaking: definition, contents, forms. Classification of undertaking firms. Joint-stock companies, holding companies, companies with restrictive responsibility. Undertaking structures in health care system, peculiarities if their function.

### **Macroeconomy.**

10. National economy: measurement of the results of economic activities. Macroeconomy, methods of measuring of the main macroeconomic results: public product, gross output (national, internal). Peculiarities of industry structure and economic dynamic in Byelarus.
11. Joint supply and demand. Macroeconomic balance. Characteristics, influenced factors, contents.
12. Macroeconomic instability. : inflation, unemployment, cyclic development. Cycle of economic development. Economic cycle, its structure. Inflation: contents, reasons, socioeconomic consequences. Unemployment. Interconnection of inflation and unemployment. Phillips curve. Social protection from inflation and unemployment in Beylarus.
13. The role of the state in market economy. Economic functions of the state. Antimonopoly policy of the state. Social policy.
14. Financial system and financial policy. Finances, their functions. Financial system, its structure. Formation of State budget. Budget deficit and state debt. System of taxation, its functions, forms of taxes.

15. Monetary policy. Banks. Structure of money- credit system. National bank, its functions. System of commercial banks, their functions. Money demand. Money supply. Balance on money market. Rapprochement of money-credit systems of BY and Russia, problem of formation of united money system.

16. World economy. World market and international trade. Structure of solvent balance. Currency market. Currency rate, influenced factors.

## ENDOCRINOLOGY

Subject of endocrinology.

General information about hormones, their constitution, biosynthesis, transport, metabolism, mechanism of action, biological effects. Regulation of function of endocrine glands.

Research of general principles of endocrine gland function-biological effects of hormones, hormones level and their metabolites determined. Biochemical and radioimmunological methods in blood and urine.

Pancreas illnesses.

Diabetes mellitus.

Insuloma.

Glucagonoma.

Thyroid gland illnesses.

Diffuse struma.

Hypothyroidism.

Endemic and sporadic struma.

Autoimmune thyroiditis.

Subacute thyroiditis.

Parathyroid glands illnesses.

Hypoparathyroidism.

Hyperparathyroidism.

Paranephroses illnesses.

Chronic failure of paranephroses cortex.

Acute failure of paranephroses cortex and adrenal crisis.

Itsenko-Kushinga syndrome

Androgenital syndrome

Hyperaldoesteronism

Pheochromocytoma.

Hypothalamo-hypophysial zone

Hypophysial failure

Hypophysial nasism

Not sugar diabetes.

Parchona syndrome.

Itsenko-Kushinga disease.

Hypotholamic syndrome of pubertal period.

Acromegalia.

Gigantism

Obesity

Sexual glands illnesses

Hypogonadizm

Clinefeldiera syndrome

Shereshevskogo-Terera Syndrome

Premature sexual development  
Virilism syndrome  
Climacterium

## EPIDEMIOLOGY

Preventive and antiepidemic work of out-patient establishments: antiepidemic measures and agents; organization of antiepidemic maintenance of the population: disinfection and sterilization (kinds, methods, agent, organization); disinfestation; deratization.

Immunoprofilaxis of infectious diseases (vaccination and emergency prophylaxis, vaccination organization, immunoprofilaxis of poliomyelitis, diphtheria, whooping cough, tetanus).

Immunoprofilaxis of infectious diseases (tuberculosis, measles, epidemic parotite, rubella, virus hepatitis B, rabies); preventive inoculations calendar.

Epidemiology, antiepidemic measures and prophylaxis of acute intestinal infections (dysentery, salmonellosis, virus hepatitis A).

Epidemiology, antiepidemic measures and prophylaxis of aerosolic infections (diphtheria, measles, meningococcal infection, scarlatina).

Military epidemiology: characteristic of antiepidemic forces and agents; bases of antiepidemic maintenance and antibacteriological protection of armies in war time.

## ETHICS (INCLUDING MEDICAL ETHICS)

### *Section I. Ethics and medicine*

#### **Theme 1. A history and a modern condition of ethics (including medical)**

Subject of ethics. Ethics as « practical philosophy » and the theory of morals. Concepts "morals", A history of ethical doctrines. Ethical doctrines of the Ancient East. Ethics of antiquity. Ethics of Hippocrates - classical medical ethics. Ethical consciousness of an epoch of the Middle Ages and Renaissance. An ethical idea of New time. Ethics in XX century. The present stage of a history of ethics (including medical). Bioethics. The ethical doctrine of " the informed consent ».

#### **Theme 2. Theoretical problems of ethics (including medical) and The supreme moral values**

Historical development of morals. Tendencies of development of morals of XX century. Morals as system of principles, norms and ideals. Frame of morals. Functions of morals. Moral values of the person in the basic categories of ethics. Freedom and the responsibility. Virtue and evil. Suffering and compassion. A duty and conscience. Honour and advantage. Meaning of the life and happiness. Love as the supreme value.

#### **Theme 3. Bases of a professional etiquette in medicine: Principles, norms, mechanisms**

Deontological ethics. Principles of biomedical ethics: autonomies, not doing harm, blessing and validity.

Ethical standards: truthfulness, privity, confidentiality, loyalty, competence. The code of medical ethics: general provisions and action of the code. The rules regulating medical practice. The doctor and rights of the patient. Relationship with colleagues. The doctor and progress of medicine.

#### **Theme 4. Ethical attributes of medical activity**

Oath of the medical worker. Hippocratic Oath and its substantive provisions. The Geneva declaration (1948) - « Hippocratic Oath in XX century. An oath of the doctor of Byelorussia. The code of medical ethics. The international code of medical ethics (1949). The code of medical ethics of the doctor of Byelorussia (1999): sections and basic articles.

Ethical committees, as instruments of influence on professional behaviour of doctors. The basic functions of ethical committee.

#### **Theme 5. « Nonconventional medicine » and ethics**

Concept « Nonconventional medicine ». A phenomenon of alternative medicine. National medicine. Sorcery. Medical okkultism. Charlatanism in medicine. Paramedicine. Features of nonconventional medicine: pointlessness, substitution of connections, methodological features.

#### **Theme 6. Medical and ethical aspects of health and illness**

Medical and ethical aspects of health. Modern comprehension of health. Physical health. Mental health. Social health and his{its} criteria. Characteristics of the healthy person (A.Maslou). An internal picture of health.

Models of training to a healthy way of life: medical, educational, considerably political, self-intensifying. Medico-ethical aspects of illness. Modern comprehension of illness. Sociopsychosomatic approach to illness.

### ***Section II. The person of participants of medical interaction***

#### **Theme 7. Medical and ethical problems of the patient**

Features of the modern patient. Conditions of an establishment of " therapeutic cooperation » between the doctor and the patient.

An internal picture of illness. Stages of personal reaction to illness. Types of the attitude to illness: нормосоматозогнозия, гиперсоматозогнозия, гипосоматозогнозия, диссоматозогнозия. The factors influencing formation of types of the attitude{relation} to illness. Pathological reactions to illness: depressive, phobial, hysterical, hypochondrial, anosognosia.

Public associations and the organizations of patients. Rights and duties of the patient.

#### **Theme 8. Medical and ethical features of activity of a family doctor**

Modern condition and problems of family medicine. System of preparation of the family doctor. Rights and duties of the family doctor. Ethical rules of dialogue of the family doctor with the patient.

#### **A theme 9. Interjoint relationship in medicine**

Ethical aspects of relations between doctors (Hippocratis, A.Mol, T.Persival, M.J.Jarovinsky). Ideas of partnership in relations between doctors and nurses (N.I.pie, I.Hardi). Relations between teachers and students of medical university (N.I.pie, N.F.Filatov).

Ethical and psychological aspects of relationship in medical collective. A stress and its role in relations between physicians. Conflicts in medical collective and a way of their sanction.

#### **Theme 10. Medical mistakes and iatrogeny**

Medical mistakes. Concept of a medical mistake. The reasons of medical mistakes. Ways of eradication of mistakes to work of the doctor. Classification of medical mistakes. iatrogeny. Pseudoiatrogeny. Iatropahties. The factors forming iatrogeny.Sorroigeny.

### ***Section IV. A modern condition of certain medical and ethical problems***

#### **Theme 11. Medical and ethical problems of procreation**

Procreation as a problem. Particular problems in procreation. Homosexual relations. Planning of family and contraception. Ethical aspects of an artificial fertilization and a substitute maternity.

Genetic consultation. Moral - ethical aspects of a problem of artificial abortion. The status of an embryo. The legislation on abortion in the modern world. Venereal diseases and procreation.

### **Theme 12. Medical-ethical aspects of a problem of mors**

Concept of mors and ethics. Suicide. « The aesthetics of suicide ». A problem eutanasia. Taking care for dying. Ethical problems of the attitude to corpse.

### **Theme 17. Ethical aspects of experiments and clinical tests**

#### **In medicine**

Concept of experiment of medicine. Ethics of medical experiments. The Helsinki-Tokyo Declaration of doctors (1964, 1975) on carrying out of medicobiological researches with participation of people. « Confention about human rights in biomedicine » (the Council of Europe, 1996).

Clinical tests in medicine. Use of animals in medicobiological researches (Declaration BMA, 1989).

### **Theme 18. Ethical aspects of new medical technologies**

Genic engineering. « The declaration on genetic consultation and genic engineering » (Madrid, 1987). A gene of the person. Declaration BMA « About the project « the Gene of the person » (1992). Ethical aspects of cloning of the person.

Transplantology: a history of a question. Ethics of a fence of body at the alive person. Ethics of a fence of body at a corpse. About коммерциализации transplantologies. « The resolution on questions of behaviour of doctors at exercise of a transplantation of human bodies » (Stockholm, 1994).

Ethical aspects of use of fetal tissues. «The declaration on a transplantation embrional tissues» (Hong Kong, 1989).

Ethics of application in medicine of psychotropic therapy.

## **FORENSIC MEDICINE**

### **Aim of discipline studying:**

The main purpose of studying the subject “Forensic medicine” is training of a general practitioner for carrying out duties of a medico-legal expert for judicial – inquiry organs and solving health service problems on further quality increase of medical-preventive help to the population.

### **Tasks of subject studying:**

Forensic medicine studies questions, touching activities of various outer factors effecting the human organism and their judicial-inquiry diagnostic; level determination of bodily injuries burden; statement of death limitation, life injuries, person’s identification according to his steps and a number of other questions arising in legal practice.

The problems while studying forensic medicine are students subjoining to amendment drafting of scientific bases and methods of research in all spheres of the subject.

Students must also study:

- laws aimed at protection of a person’s immunity in Belarus;
- rights, duties and responsibility of medical workers for professional delinquencies, main laws, regulating the work of health workers.

### **Organization-methodic instructions:**

Lecture course of forensic medicine must show the latest scientific data and methodological directivity of the main forensic medicine divisions. Lectures must be accompanied by evident examples from the medico-legal practice and must be followed by demonstration of instructional gratuities with the help of technical devices. Method of carrying out every class must include basic knowledge control on test questions, stage of knowledge correction, self-directed practical task fulfillment by the students, test of independent work (stage control) and final level.

## Thematic lecture plan

- 1 Introductory lecture. Notion of forensic medicine and forensic medical examination. Brief information from the history of forensic medicine development. Organization and structure of State service forensic medical examinations in Belarus.
- 2 General questions about medico-legal traumatology.
- 3 Road accident.
- 4 Forensic medical examination of gunshot wounds.
- 5 Injuries and death from effect of high and low temperatures, electricity, other physical factors.
- 6 Forensic medical examination of mechanical asphyxia.
- 7 Forensic medical examination of injuries and deaths from the influence of poisoning substances.
- 8 Dying and death. Corpse phenomena. Corpse examination at the point of detection
- 9 Final lecture. Forensic medical examination on the cases of medical workers delinquency.

## Thematic plan of practical and self-directed classes

- 1 Introductory class. Forensic medical examination of injuries by blunt and sharp objects
  - 2 Demonstrational and independent corpse examination, examination of an infant corpse. Corpse changes. Paper work
  - 3 Expertise of victims, suspects, accused and other people. Expertise of sex conditions. Making of "professional conclusion"
  - 4 Expertise of road accident, gunshot injuries
  - 5 Expertise of injuries and death from acute anoxaemia, from affect of outermost temperatures and other physical factors
  - 6 Expertise of poisonings
  - 7 Expertise of exhibits of biological origin
  - 8 Final class. Expertise on the cases about professional and professional-official law violations of medical staff. Tested control of the whole course in forensic medicine
- Total

Demands for the level of students efficiency (knowledge, abilities and skills), after having passed the course in forensic medicine

In the end of forensic medicine course the students must **know**:

- laws aimed at protection of person's inviolability in Belarus;
- rules of the legislation about forensic medical examination, rights, duties and responsibilities of medical workers for professional law violations and also basic laws regulating activity of medical workers;
- modern scientific data in all branches of forensic medicine, and basic used methods of objects research of forensic medical examination (expertise of corpses, living people and material evidence).

After finishing classes in forensic medicine students should **be able**:

- To give qualified help to case investigator at corpse examination at the place of incident: to state the fact of death coming, to fix in the protocol, made by case investigator, the corpse pose and data of his external inspection with description of clothes, corpse phenomena, injuries, to fix time of death coming;
- To help case investigator with detection, impressments and packaging of biological origin material evidence;
- To carry out corpse forensic medical examination with appropriate documents registration, to fill in medical death certificate;
- To carry out forensic medical examination of a living person with obligatory composition of «expert's conclusions ».

## EDUCATIONAL PRACTICE ON THE GENERAL CARE OF PATIENTS (THERAPY)

The subject “Educational practice on the general care of patients (therapy)” is the obligatory form of preparation on a speciality - « Medicine ».

Training of students of treatment-and-prophylactic faculty according the Program “Educational practice on the general care of patients (therapy)” is carried out on faculty of a propaedeutics of internal illnesses and puts the *purpose*:

- Explanation of mechanisms of functioning of institutions of public health services of in-patient-department (hospital) type;
- Fastening practical skills received on practical employment in a subject « the General care of patients (therapy);
- Improving of communicative skills of interpersonal relations with patients and the personnel of medical institutions.

To achieve these goals the following *problems are* provided:

- Studying the main signs of diseases of internal bodies;
- Gaining the practical skills and skills on observation and care of patients of therapeutic department, rendering the first pre-medical aid at urgent conditions;
- To train in skill of using medical equipment and instruments;
- To train in main principles of medical ethics and a deontology, bases of sanitary - educational work in medical institutions.

Obligatory amount of educational practice - 6 working days (36 hours).

Educational practice on the general care is carried out in the specialized hospitals of therapeutic department of the health care system institutions as watches (for 6 hours) during III and IV term (or after the session).

Carrying out of educational practice is based on knowledge and skills gained during classes on subject « the General care of therapeutic patients » and provide improving of practical skills.

Finishing this course the student should *know*:

- The organization and features of work of a reception;
- A sanitary-and-epidemiologic regimen of a reception;
- Rules of veneering of the medical documentation;
- Sequence of reception and a cleansing of acting patients;
- The device, equipment, an operating mode of branch;
- Duties of the hospital nurse
- The medical documentation (rules and the order of its conducting) a post of the hospital nurse;
- A medical - protective regimen of the department, the order of visiting of patients;
- Rules of prescribing and storage of medicines, narcotic and strong effective medicines;
- Rules of portional demands, dietary tables;
- A sanitary-and-epidemiologic regimen

The student should *be able*:

- To conduct admitting and registration of patients in an accident ward;
- To examine the patient on a pediculosis and a scabies;
- To lead processing a sick pediculosis at revealing;
- To lead a cleansing of the patient (complete and partial);
- To make anthropometric measurement;
- To take a temperature, arterial blood pressure;
- To transport the patient correctly (depending on a condition) ;

- To render the first pre-medical aid at various emergency conditions (bleedings, an attack of angina pectoris, a hypertonic crisis, an attack of a bronchial asthma, etc.).
- To carry out all actions of personal hygiene of patients;
- To give food to patients, to carry out a feeding of weakened patients;
- To carry out artificial feeding of patients through a probe;
- To take a body temperature and to carry out its registration;
- To measure arterial pressure, a pulse rate, frequency of respirations;
- To execute the elementary physiotherapeutic procedures;
- To carry out distribution of medicines;
- To own technic of application of external medical products;
- To carry out hypodermic, intradermal, intramuscular and intravenous bolus injections;
- To make presterilizing clearing medical instruments;
- To fill in the system for drop intravenous injection ;
- To take a biological material (a sputum, urine, a feces, etc.) for laboratory researches;
- To execute medical prescriptions on preparing of patients for various methods of research (radiological, endoscopic, ultrasonic);
- To execute medical prescriptions on various manipulations (a gastric lavage, making a colonic tube, all kinds of clysters, a catheterization of a bladder with a soft catheter, etc.);
- To assist the doctor at carrying out of a transabdominal puncture at an ascites, at a pleurocentesis;
- To render the urgent pre-medical aid at emergency situations (a pernicious vomiting, a bleeding, hypertonic a crisis, an attack of angina pectoris, etc.).

The student should master the following *practical skills*:

1. Preparation of working disinfectant solutions
2. Definition of anthropometric parameters
3. Complete and partial sanitary cleansing of a patient
4. Transportation of the patient a wheel-chair, stretcher - wheelchair and manually on a stretcher
5. Change linen and underwear to the seriously ill patient
6. Taking care of a skin, nails, hair. Prophylaxis of decubitus
7. Giving a bedpan
8. Toilet of external genitals
9. Carrying out of a toilet of an oral cavity
10. Taking care of eyes. Application of eye drops, ointments
11. Carrying out of a toilet of ears. Dropping into ears
12. Carrying out of a toilet of a nose. Dropping into nose
13. Taking care of hair at seriously ill patients
14. Catering services, feeding of patients
15. Artificial feeding of patients
16. Taking the temperature and registration of results into a temperature list
17. Making sinapisms
18. Making cups
19. Making a warming compress
20. Making a cooling compress
21. Preparation and giving of a heater to the patient
22. Preparation and giving of a bubble with ice
23. External ways of introduction of medical products
24. Prescribing, storage and distribution of medicines
25. Safety precautions regulations at work with a blood and biological liquids
26. Transportation of a blood and biological liquids
27. Processing of a skin, mucous , biological liquids
28. Presterilizing clearing of products of medical purpose

29. Testing of quality of clearing of syringes and needles from a blood and a washing solution
30. The collecting of a sterile syringe from a craft-package and from a sterile table
31. Set of a medicinal solution from an ampoule and a bottle
32. Calculation of a dose of an insulin at introduction
33. Delution of freed dried ampuled forms of medicines
34. Intradermal injection
35. Subcutaneous injection
36. Intramuscular injection
37. Intravenous bolus injection
38. Filling of system for intravenous drop injection of medicinal substances
39. Carrying out of intravenous drop injection
40. Preparation of patients for radiological and instrumental research of kidneys and urinary tract
41. Calculation of number of respiratory movements
42. Rendering of the pre-medical aid at a sudden shortness of breathing (dyspnea)
43. The collecting of a sputum for bacterioscopic research
44. The collecting of a sputum for bacteriological research
45. First-aid treatment at a pneumorrhagia, a pulmonary bleeding
46. Carrying out of an oxygenotherapy. Safety precautions regulations
47. Preparation of instruments for carrying out of a pleurocentesis
48. Checking of the pulse rate on peripheric arteries
49. Measuring the arterial blood pressure
50. Rendering of the pre-medical aid at a renal colic
51. Rendering of the pre-medical aid at a vomiting
52. Rendering of the pre-medical aid at a gastromenia and an intestine
53. Preparation of instruments for carrying out of a transabdominal puncture
54. making smears from nasal sinuses for bacteriological research
55. Technique of a gastric lavage
56. Carrying out of fractional research of a gastric juice
57. Carrying out the duodenal intubations
58. Introduction of a colonic tube
59. Giving of a cleansing enema
60. Giving of a siphon clyster
61. Giving of an oil clyster
62. Giving of a hypertonic clyster
63. Giving of a medicinal clyster
64. Making smears of feces for bacteriological research, on eggs of worms
65. Preparation of a sick feces for a capture on an occult blood
66. The collecting of urine for general analysis
67. The collecting of urine for the analysis according Nechoporenko
68. The collecting of urine for the analysis according Zimnitsky
69. The collecting of urine for carrying out of a daily urine
70. Catheterization of a bladder with a soft catheter
71. Preparation of a sick esophagus for a X-ray investigation of stomach
72. Preparation of the patient for carrying out of an irrigoscopy, proctosigmoidoscope, colonoscopy
73. Preparation of the patient for carrying out of fibrogastroduodenoscopy
74. Preparation of the patient for ultrasonic research of the organs of the abdomen
75. Rendering the pre-medical aid at an attack of angina pectoris
76. Rendering the pre-medical aid at suspicion on the tightened anginous attack
77. Rendering the pre-medical aid at a hypertonic crisis
78. Rendering the pre-medical aid at a hyperthermia
79. Rendering the pre-medical aid at an attack of a bronchial asthma
80. Rendering the pre-medical aid at an anaphylactic shock

81. Carrying out the artificial ventilation of lungs
82. Carrying out an indirect cardiac massage.

## **GENERAL CARE OF PATIENTS (SURGERY)**

### **Program contents**

#### **TOPIC № 1 Introductory class, acquaintance with a clinic. Deontology in surgery. Safety work precautions while taking care about surgical patients.**

Preventive methods of patients care. Place of general care in the system of studying the subject “General surgery”. Basic deontological positions regulating work, behavior and actions of the medical staff. Interrelations between medical staff, patients, their relatives.

#### **TOPIC: № 2. Definition of “an intrahospital infection”. Ways of distribution. Intrahospital infection prophylaxis.**

Definition of intrahospital (hospital) infection, exogenous infection. Air, as a means of infection transfer. Definition of endogenous infection. A number of actions on intrahospital infection prophylaxis.

#### **TOPIC № 3. Definition of general care of the patients and its elements. Clinical hygiene and functions of medical staff in carrying out patients care.**

Definition of patients general care at the surgical department, its organization. Nurse and the younger nurse functional duties at the surgical department. Interconnection of their work with the nurse. Clinical hygiene and functions of all ranks medical staff in carrying out patients supervision. Safety techniques. Definition of medical staff sanitations, professional care periodicity, duties carried on sanitation. Treatment of hands of medical staff in surgery (outside of preparation for operation). Theoretical bases and rules of wearing medical hygienic clothes. General toxic properties of disinfectants used in surgery. Work with washing and disinfectant chemical solutions, their preparation. First aid at disinfectants getting on skin, mucous membranes, into eyes, respiratory passages.

#### **Topic № 4. Structure of a surgical in-patient department. Operating regime in the surgical department.**

Structure of a surgical hospital, its accommodation, planning, departments. Significance of these factors in the work organization and prophylaxis of hospital infection. The role of the head of the department, ward doctors and a senior nurse, as an organizer of the correct scientifically-explained patients care. Basic officials providing patients care in an in-patient department. Definition of two-level and three-level systems of providing treatment and patients care. Functions of the middle-aged and younger medical staff in a surgical in-patient department at both systems. The patient’s regime in surgical department. Internal regulation directed on creation of most favorable psychological conditions for patients recovery (medical – saving regime). Surgical department daily curriculum. Surgical patients contact with relatives and acquaintances. Self-directed work. Work in a dressing-room under the teacher’s control.

#### **TOPIC № 5. Organization and carrying out surgical patients care in the reception-diagnostic department of the surgical hospital.**

The work organization (with surgical patients) in a reception. Structure, equipment, functions of reception-diagnostic department and principles of work organization in it. Reception staff: their function, qualification, working peculiarities. Scheduled patients hospitalization, their sanitary treatment, control of a delivered patient sanitary condition. Emergency hospitalization of patients, their sanitary treatment. Various kinds of transportation to the surgical department. Rules of transportation.

## **TOPIC № 6. Environment clinical hygiene surrounding the patient in the surgical department.**

Arrangement of wards, dressing-rooms and other structural rooms of the department. Most suitable humidity, air mobility, air exchange. Suitable temperature in structural divisions of surgical departments. Kinds of surgical hospital cleaning. Consecutive cleaning stages. Peculiarities of cleaning separate rooms. Sanitary furniture treatment, sanitary-technical, medical equipment. Control and evaluation methods of environment hygiene condition. Disinfectant sand solutions used, their concentration.

## **TOPIC № 7. Organization and sanitary meal provision of the surgical patient. Principles and kinds of surgical patients feeding.**

Sanitary regime of rooms for reception, distribution and food intake. Feeding patients with free regime, peculiarities of feeding seriously ill patients. Dependence of character and diet on a kind of operation and anesthetic method. Probe meals, its kinds. Artificial enteral meals, structure food compounds at it. The list of products allowed to be given to the patient. Control over their storage. Storage and recycling of foodstuff.

## **TOPIC № 8. Operational block and principles of work organization in it. Sanitary-hygienic regime in the operational block. Surgical patient transportation.**

Operational block, its accommodation. Definition of operational block "ash value". Operational block working regimen. Requirements given to operational block employees and medical staff taking part in the operation. Sanitary reception. Scheduled and emergency operations (definitions). Ventilation and an air conditioning. Control over air conditioning. Types of operational block and operational room cleaning. Washing-up liquids and antiseptics with which cleaning is made. Treatment of surgical instruments after an operation. Work of wall and ceiling bactericidal lamps, their regimen. Patients transportation to the operational room. Fixing the patient on the operational table. Patient's rearrangement from the operational table onto the wheelchair after the operation. Transportation and rearrangement of the patient with external drainages, continuing infusive therapy. Patients transportation in lifts and on ladders (peculiarities).

## **TOPIC № 9. Definition of scheduled and emergency operative interference. Clinical hygiene of the patient before operation.**

Definition of scheduled and emergency operative interference. Their difference. Patient hygiene. Scheduled and regular actions on hygiene of the patient's body. Change body's and bed-clothes, frequency. Principles of personal patient's things hygiene in surgery. Preparation of the patient's body for operation, consequence of procedures. Direct preparation of an operational field.

## **TOPIC № 10. Prophylaxis of complications and general peculiarities of surgical patients care.**

Primary goal of care is creation of the best conditions for recovery, i.e. prevention of complications. A number of actions on prophylaxis of intrahospital infection (sanitary-hygienic regimen): bed, bed and underwear clothes treatment, cyclicity of chambers filling. Individual things of care, their care and their treatment. Hygienic care of the patient's body with bed regimen. Washing of a bed patient. Washing of the patients having wounds, being healed by secondary tension. Prophylaxis sweatings and bruises. Taking care of the patients at enuresis, frequent defecation and during menstruations. Hygiene hair covered layer of the head, head washing in bed. Eyes hygiene. Hygienic cleansing of ears, acoustical passages and nasal passages. Help given to the patient at urination and defecation in bed. Treatment of excretory organs and skin surrounding them.

Individual relatives care after severely ill patients, its peculiarities.

## **TOPIC № 11. Organization and carrying out patients supervision in the reanimation and intensive therapy department.**

Reanimation and intensive therapy department: accommodation, structure. Operational hall equipment. Work organization of the Russian Open Society personnel. Sanitation-hygienic regime of the department. Structure and purpose of a functional bed and its treatment. Cleaning of reanimation departments and reanimation hall. Change of bed-clothes, its treatment. Patients lying in reanimation and intensive therapy department.

## **TOPIC № 12. Care of patients in unconscious and agonic conditions.**

Care of unconscious patients artificial lung ventilation: skin, eyes, ear passages, nasal passages supervision. Bruises prophylaxis. Turning the patient to different sides in bed. Care about the drainages, insert uric catheter. Enteral feeding of unconscious patients. Peculiarities of feeding patients through gastro-nasal probe. Rules of corpse treatment. Corpse transportation to the pathologic-anatomic department. Its peculiarities.

**TOPIC № 13. Organization and carrying out patients supervision after scheduled and emergency operations on the organs of abdominal cavity.**

Peculiarities of postoperative period in the patients operated on the abdominal organs both in planned and emergency cases. Definition of drainages, their purpose.

Bed preparation for the patients. Position of patients, motor regime. Prophylaxis of thrombus formation. Care of the skin, eyes, ear passages, nasal passages. Linen change of the patient. Peculiarities of feeding patients having undergone operation on the abdominal organs. Fixing of gastric-duodenal probe, its treatment. Care about drainages, control of excretions from them, recycling. Application of gas eliminating tube, its supervision, treatment.

**TOPIC № 14. Organization and carrying out general care of the patients having undergone operations on the thoracic organs.**

Peculiarities of postoperative period in the patients having undergone operations on the organs of the thorax. Definitions of complications after operations on organs of the thorax. Position of the patient in bed. Motor regimen, respiratory gymnastics. Change of bed-clothes.

Peculiarities of drainages used for pleural cavity draining, control and their supervision.

**TOPIC № 15. Organization and carrying out supervision of traumatologic patients.**

Characteristic peculiarities of traumatologic patients care. Compelled position of the patient. Main possible complications of traumatologic patients. Bed linen change of the patient with skeletal extension and a big plaster bandage. Patients feeding. Care of the patients with skeletal extension and plaster bandage. Prophylaxis of bruises in traumatologic patients.

**TOPIC № 16. Organization and carrying out patients having burns and frostbites general care.**

Definition of burns and their kinds. Sanitary-hygienic chambers regimen. Definition of closed and open methods of treatment. Most suitable environmental conditions at treatment of patients with extensive burns. Warming of patients with burns. Peculiarities of patients care with burns and frostbites. First pre-medical help at burns and frostbites.

**TOPIC № 17. Organization and carrying out general care of the patients having purulent - necrotic injuries.**

Organizational questions of treating patients with purulent wounds and diseases. Purulent - septic department operating regimen. Cleaning of purulent - septic department chambers. Treatment of medical staff hands. Peculiarities of used dressing recycling in the dressing room of purulent - septic department. Specific working regimen and its peculiarities of patients with anaerobic infection supervision.

**TOPIC № 18. Organization and carrying out proctologic patients and patients with uric fistulas care.**

Definition of proctologic patients. The common peculiarities of patients care after operations on large and small intestine. Patients after hemorrhagectomy care. Definition of colostomy. Colostomy care in the early postoperative period, skin hygiene around colostomy. Fixing of feces receiver, its preparation for work. Kinds of feces receivers. Peculiarities of patients with uric fistulas care, skin hygiene.

**GENERAL CARE OF PATIENTS (THERAPY)**

The Subject "General care of patients (therapy)" is the obligatory form of preparation on a speciality - «Medicine».

Training of students on treatment-and-prophylactic faculty according the Program " the General care of patients (therapy) " is carried out on faculty of a propedeutics of inner illnesses and puts the **purpose**: studying of theoretical bases and improving of practical skills, skills on observation and care of patients of a therapeutic department, rendering of the first pre-medical aid at urgent states in clinic of internal illnesses.

To achieve this purpose the following **problems are** provided:

1. To acquaint students with the organization of work, structure and features of functioning of health care system institutions of in-patient department type;
2. To study theoretical bases and main principles of medical ethics and deontologies, the order of carrying out of sanitary - educational work ;
3. To gain communicative skills of interpersonal relations with patients and the personnel;
4. To study theoretical bases and to learn to use medical equipment and instruments;
5. To acquaint with the main signs of diseases of internal organs;
6. To study features of taking care of patients of a therapeutic department;
7. To master principles of rendering of the first (pre-medical) aid at urgent states in clinic and the order of carrying out the cardiopulmonary reanimations.

Studying of a subject " the General Care of patients (therapy) " is based on knowledge and the skills achieved during classes on normal anatomy, normal physiology, medical microbiology, medical and biological physics, clinical and biological chemistry.

Training of theoretical bases and principles of medical management is carried out with the help of mouldages and the phantoms specially intended for these purposes. In the subsequent it is expedient to fix the got skills carrying out of manipulations and procedures immediately in a therapeutic department. Improving of practical skills can be carried out in an operating time in profile departments at time of educational practice on " to the General care of patients (therapy) ".

Having been finished the course a student should **know**:

1. The organization and features of work of a reception of a hospital.
2. Sanitary-and-epidemiologic regimen.
3. Rules of conducting the medical documentation.
4. The order of registration, cleansing and transportation of patients.
5. The device, equipment, operating mode of a medical - diagnostic department.
6. Sanitary-and-epidemiologic regimen of medical - diagnostic (therapeutic) department;
7. Medical - protective regimen of the department, the rules of visitation of patients.
8. The medical documentation (rules and the order of its conducting) at post of medical nurses.
9. Duties of a medical nurse of the department. -
10. Rules of prescribing and storage of medicines, narcotic and strong effective drugs.
11. Rules of conducting portional demands, dietary prescription.

The student should **be able**:

1. To write down all necessary information about patients and to make out the medical documentation correctly.
2. To examine the patient on pediculosis and scabies.
3. To carry out cleansing of a patient (complete and particulate).
4. To carry out cleansing of a sick pediculosis at revealing.
5. To measure weight and body height.
6. To take the temperature, arterial pressure.
7. To transport the patient correctly (in dependence of the state) into the department.
8. To carry out personal hygiene of patients.
9. To carry out distribution of nutrition among the patients, to carry out feeding of weakened patients.
10. To carry out artificial feeding through a probe.

11. To take a body temperature and to carry out its registration.
12. To measure arterial pressure, a pulse rate, frequency of respirations.
13. To carry out the elementary physiotherapeutic procedures.
14. To carry out distribution of medicines.
15. To own technics of external application of medical products.
16. To carry out hypodermic, intradermal, intramuscular and intravenous bolus injections.
17. To make presterilizing clearing of medical instruments correctly.
18. To fill in system for drop intravenous injection.
19. To make a smear of a biological matter (a sputum, urine, a feces, etc.) for laboratory researches.
20. To get patients ready for instrumental methods of research (radiological, endoscopic, ultrasonic).
21. To carry out the following manipulations (a gastric lavage, statement of gasleading tubes, giving clysters, a catheterization of urinary bladder with the soft catheter, etc.).
22. To prepare instruments and to assist the doctor at carrying out transabdominal and pleurocentesis.
23. To carry out the first pre-medical aid at urgent states (an attack of angina pectoris, hypertonic crisis, an attack of a bronchial asthma, etc.).
24. To carry out an indirect cardiac massage and ИВЛ.

The student should master the following *practical skills*:

1. Preparation of working disinfectant solutions
2. Measuring of anthropometric parameters
3. Complete and particular cleansing of the patient
4. Transportation of the patient on a wheel-chair, stretcher - wheelchair and manually on a stretcher
5. Change of the linen and underwear for the badly ill patients
6. Care of skin, nails, hair. Prophylaxis of decubitus
7. Giving of a bedpan
8. Toilet of external genital organs
9. Carrying out of a toilet of the oral cavity
10. Care of eyes. Application of ophthalmic drops, ointments
11. Carrying out of a toilet of ears. Dropping into ears
12. Carrying out of a toilet of a nose. Dropping into a nose
13. Care of a hair of badly ill patients
14. Feeding of patients
15. Artificial feeding of patients
16. measuring of a body temperature and registration of results in temperature list
17. Making of sinapismuses
18. Making of cups
19. Making of a warming compress
20. Statement of a cooling compress
21. Preparation and giving of a heater to the patient
22. Preparation and giving of bladder with ice
23. External ways of introduction of medical products
24. Prescribing, storage and distribution of medicines
25. Safety precautions regulations at work with blood and biological fluids
26. Transportation of the blood and biological fluids
27. Processing of a skin, mucous, biological fluids
28. Presterilizing, clearing the products of medical use
29. Testing of the quality of clearing syringes and needles from blood and washing solution
30. The collecting of a sterile syringe from a craft-package and from a sterile table
31. Taking of medicinal solution from the ampula and a bottle
32. Calculation of a dose of an insulin at taking into a syringe and injection
33. Delution freeze-dried ampuled forms of medicines

34. Intradermal injection
35. Hypodermic injection
36. Intramuscular injection
37. Intravenous bolus injection
38. Filling of system for intravenous drop injection with the medicine
39. Carrying out of intravenous drop injection
40. Getting ready the patients for radiological and instrumental research of kidneys and urinary tract
41. Accounting the number of respiratory movements
42. Carrying out the pre-medical aid at a shortness of breathing(dyspnea)
43. The collecting of a sputum for bacterioscopic research
44. The collecting of a sputum for bacteriological research
45. First-aid treatment at a pneumorrhagia, a pulmonary bleeding
46. Carrying out of an oxygenotherapy. Safety precautions regulations
47. Preparation of instruments for carrying out of a pleurocentesis
48. Inventory of sphygmus on peripheric arterias
49. Measuring of arterial pressure
50. Carrying out the pre-medical aid at a renal colic
51. Carrying out the pre-medical aid at a vomiting
52. Carrying out the pre-medical aid at a gastromenia and an intestine
53. Preparation of instruments for carrying out of a transabdominal puncture
54. Capture of smears from a fauces and nasal passages for bacteriological research
55. Technics of a gastric lavage
56. Carrying out of fractional research of a gastric juice
57. Carrying out of duodenal intubation
58. Introduction of a colonic tube
59. Giving a cleansing enema
60. Giving a siphon clyster
61. Giving an oil clyster
62. Giving a hypertonic clyster
63. Giving of a medicinal clyster
64. Making smears of a feces for bacteriological research, on eggs of worms
65. Preparation of a sick feces for a capture on blood
66. The collecting of urine for general analysis
67. The collecting of urine for carrying out of analysis according Nechiporenko
68. The collecting of urine for carrying out of analysis according Zimnitsky
69. The collecting of urine for carrying out of a daily urine
70. Catheterization of urinary bladder with a soft catheter
71. Preparation of esophagus for a X-ray investigation of stomach
72. Preparation of the patient for carrying out of an irrigoscopy, proctosigmoidoscope, colonoscopy
73. Preparation of the patient for carrying out fibrogastroduodenumscopy, for ultrasonic research of the organs of the abdomen
74. Carrying out the pre-medical aid at an attack of angina pectoris
75. Carrying out the pre-medical aid at suspicion of the tightened anginous attack
76. Carrying out the pre-medical aid at a hypertonic crisis
77. Carrying out the pre-medical aid at a hyperthermia
78. Carrying out the pre-medical aid at an attack of a bronchial asthma
79. Carrying the pre-medical aid at an acute anaphylaxis
80. Carrying out of artificial ventilation of the lungs
81. Carrying out of an indirect cardiac massage.

## GENERAL CHEMISTRY

### Elements of chemical thermodynamics and bioenergetics

1. Relationship between processes of metabolism and energy in the organism. Chemical thermodynamics as theoretical basis of bioenergetics. Systems: isolated, closed, open, homogeneous, heterogeneous.
2. The first law of thermodynamics. Internal energy. Isobaric and isochoric heat effects. Enthalpy.
3. Hess's law of heat sum. Thermochemical equations. Standard formation enthalpy and standard combustion enthalpy. Thermochemical accounts and their use for energetic characteristic of biochemical processes.
4. The second law of thermodynamics. Entropy. Standard entropies of substances. Gibbs's free energy.
5. Conditions of thermodynamic equilibrium. Criterium of spontaneously proceeding processes direction. Enthalpy and entropy effects. Exo - and endorganic processes in organisms. ATP hydrolysis as universal energy source in the organism.
6. Reversible and nonreversible chemical reactions. Chemical equilibrium. Equilibrium constant and ways of its expression:  $K_c$ ,  $K_p$ ,  $K_a$ . Examples.
7. Mass action law for chemical equilibrium. Equilibrium constant. Isotherm equation of chemical reaction.
8. Predicting direction of reaction. Le - Chatelier's principle.

### Physico-chemical bases of kinetics

#### Biochemical reactions

1. Subject of chemical kinetics. Chemical kinetics as a basis for study of rates and mechanisms of biochemical processes. Reactions single-stage (simple), multiphase (complex), homogeneous, heterogeneous. Examples. Photochemical reactions and their role in vital activity of the organism and environment.
2. Rate of homogeneous chemical reactions and methods of its definition. Mass action law for rate of reaction. Rate constant of reaction, its definition.
3. Molecularity and order of reaction.
4. Equations of 1<sup>st</sup>, 2<sup>nd</sup> and zero order reactions. Half - life of the chemical reaction.
5. Dependence of reaction rate on temperature. Temperature coefficient of reaction rate and its peculiarities for biochemical processes. Arrhenius equation.
6. Activation energy. Collision theory. Theory of transition state.
7. Homogeneous and heterogeneous catalysis. Acid-base catalysis and its role in biological systems. Enzymes as biological catalysts. The Michaelis - Menten equation.

#### Doctrine about solutions

1. Solutions. Role of solutions in vital activity of the organisms. Water as a universal solvent. Concentration of solutions and ways of its expression.
2. Thermodynamics of dissolving. Enthalpy and entropy effects of dissolving and their relation to the mechanism of dissolving. Influence on solubility of components nature and external conditions. Importance of dissolving phenomenon in metabolism processes.
3. Solubility of gases in liquids and its dependence on various factors. Henry's and Dalton's law. Effect of electrolytes on solubility of gases: the Sechenov's law. Solubility of gases in blood. "Bends" condition.
4. Vapor pressure and Raoult's law. Boiling point elevation and freezing point depression. Cryometry and ebulliometry.
5. Osmosis and osmotic pressure in solutions. The Vant - Hoff's law. Hypotonic, hypertonic, and isotonic solutions.

6. Colligative properties of light electrolytes solutions. Isotonic coefficient. The role of osmosis and osmotic pressure in biological systems. Plasmolysis and hemolysis.
7. Osmotic pressure of biopolymers solutions. Polyelectrolytes. Isoelectric point and its definition. Oncotic pressure of blood plasma and serum.
8. Base positions of strong electrolytes solutions theory. Activity and coefficient of activity. Ionic power of solutions. Electrolytes in the organism.
9. Theory of acids and bases. Protolytic theory of acids and bases. Force of acids and bases. Acid and base ionization constant. Ostvald's law.
10. water autoionization. Water autoionization constant ( $K_w$ ). pH and pOH.
11. Types of protolytic reactions: neutralization, hydrolysis, ionization. Hydrolysis constant. The role of hydrolysis in biochemical processes.
12. Buffer systems. Capacity of buffer solutions and factors of its determination. Capacity comparative size of blood buffer systems.
13. Buffer systems, their classification and mechanism of their action.
14. hydrocarbonate buffer solution. Henderson-Hasselbalch equation.
15. Stability of biopolymers solutions. Salting-out of biopolymers from solutions. Solutions HMS jellification. Properties of jellies.
16. Feature of HMS dissolving. Structure and shape of macromolecules. The mechanism of swelling. Influence of various factors on the degree of swelling.
17. Abnormal viscosity of HMS solutions. Staudinger's equation. Viscosity of blood and other biological liquids.
18. Polyphase equilibrium. Solubility product constant of slightly soluble electrolyte. Conditions of formation and dissolving of deposits. Influence of resembling ion on deposit solubility. Compounds of calcium in an osteal tissue. Heterogeneous processes proceeding in the organism at pathology.

### **Complexes**

1. Complexes. Werner's coordination theory. Classification and naming of complexes. Complexing ability s-, p-, d-elements.
2. Chelates. Formation and dissociation of complexes. Constants of instability and stability of complexes.
3. Metalloenzymes. Reactions of iron, cobalt, nickel ions complex formation, their biological role. Complex nature of hemoglobin, catalase, cyanocobalamine.
4. Mechanism of heavy metals (mercury, lead) toxic action. Application of complexes formation reactions in therapy of diseases. Chelatotherapy.

### **Physico-chemistry of superficial phenomena**

1. Superficial phenomena and their importance in biology and medicine. Surface active and surface inactive substances.
2. Free superficial energy and interfacial tension. Isotherm of interfacial tension. Superficial activity. Thraube's rule.
3. Adsorption on relative phase boundaries: liquid - gas and liquid - liquid. Gibbs equation. Orientation of SAS molecules in the surface layer and structure of biological membranes.
4. Adsorption on fixed phase boundaries: solid - gas and solid - liquid (solution). Monomolecular and polymolecular adsorption. Lengmur's and Frenclikh's equation.
5. Adsorption of strong electrolytes: selective, ion-exchange. Ionites and their usage in medicine.
6. Chromatography. Classification of chromatographic methods. Application of chromatography for separation of substances (on an example of laboratory work) and in medical - biological research.

### **Physico - chemistry of disperse systems**

1. Disperse systems, their classification. Nature of colloidal state. Preparation of colloidal solutions.
2. Purification of colloidal solutions. Filtration, dialysis, electrodialysis, ultrafiltration.

3. Kinetic properties of colloidal systems: Brownian movement, diffusion, osmotic pressure. Ultracentrifugation.
4. Optical properties of colloidal systems: light scattering (Rayleigh's equation), ultramicroscopy, Tyndall effect.
5. Mechanism of occurrence of colloid particles electric charge. Structure of double electrical layer. Micelle, colloidal particle.
6. Electrokinetic potential of a colloid particle. Influence of electrolytes on value of electrokinetic potential. Recharge phenomenon of colloid particle.
7. Electrokinetic properties. Electrophoresis and electroosmosis. The Helmholtz – Smoluchowski equation. Potential of course and potential of sedimentation. Importance of specified phenomena for biology and medicine.
8. Kinetic and aggregate stability of lyosols. Stability factors.
9. Coagulation. Sluggish and fast coagulation. Critical coagulation concentration, its definition. Schulze - Hardy rule.
10. Intercoagulation of colloids. Processes of coagulation at water purification. Colloidal protection. A peptization. Importance of these phenomena in medicine.
11. Aerosol, preparation and properties. Aerosols as a medicinal form. Aerosols as the reason for occurrence of some diseases (silicosis, anthracosis etc.).
12. Suspension, preparing and properties. Application.
13. Emulsion, preparing and properties. Application.
14. Colloidal SAS: soaps, detergents, cholic acids, their application. Micellformation in solution of colloidal SAS (spherical and plate micelles).

#### **Laboratory works:**

1. Concentration of solutions and ways of its expression. Discussion of laboratory work. How to express concentration of solution by different ways for composition 10g NaHCO<sub>3</sub> and 150g of water ( $\rho = 1,2\text{g/ml}$ ).
2. Definition of oxidation reaction rate constant in reaction with hydroiodine acid and hydrogen peroxide (discussion of laboratory work).
3. Influence of dilution and ratio of components concentration on pH of buffer solutions (contents of laboratory work and explanations of specific factors influence).
4. pH definition of solution by calorimetric method (buffer and unbuffered methods). pH definition of saliva by unbuffered method (contents of laboratory work).
5. Reception of lyophobic colloids: colophoniums, iron hydroxide (III), iron (III) hexacyanoferrate (II) by condensation method (on an example of laboratory work).
6. Optical properties of colloidal solutions (discussion on the laboratory work example).
7. Lyophobic colloids purification by dialysis (on the laboratory work example).
8. Definition of critical coagulation concentration of an sol and comparison of experimental data according to Schulze - Hardy rule (on an example of laboratory work).
9. Definition of critical concentration of micell formation (CCM) in soap solution (discussion of laboratory work).
10. Peptization. Change of iron (III) hexacyanoferrate (II) deposit in a colloidal solution (on on the laboratory work example).
11. Study of pH effect on the degree of swelling and definition of gelatin isoelectric point.

#### **Practical skills in general chemistry**

1. Preparation of solution of the given concentration.
2. pH solution definition by a colorimetric (unbuffered) method.
3. pH solution definition by potentiometric method.
4. Definition of substance equivalent molarity and its contents in decomposed solution by titration.

## GENERAL HYGIENE WITH ECOLOGY

Introduction to the subject “General hygiene”.  
Methodological bases of hygiene.  
Hygiene of environment.  
Hygiene of meal.  
Hygiene of treatment-and-prophylactic establishments.  
Hygiene of work.  
Hygiene of children and teenagers.  
Personal hygiene.  
Military hygiene.

Introduction to the subject “Ecology”.  
General and medical ecology.  
Ecological factors.  
Ecological and medical consequences of atmosphere pollution.  
Ecological and medical consequences of hydrosphere pollution.  
Ecological and medical consequences of lithosphere pollution.  
Ecological problems of food.  
Protection of environment.  
Biological resources.  
Normative-legal bases of environment protection. Ecological monitoring.

## GENERAL PHARMACOLOGY

### **Course description.**

Basic pharmacology course deals with wide range of questions starting from approaches to novel pharmaceutical compounds development to their clinical use. The aim of the course is develop critical understanding of experimental and clinical pharmacology, pharmaceutical development and regulation. The course is based on lectures, seminars, and independent work of the students.

### **Seminars.**

Seminars are divided into two semesters. They include deep discussion of the topics studied after preliminary self-preparation of the students. Two seminars in the first semester and one in the second are devoted to extended test control of the knowledge obtained. The total amount of seminars is 36.

### **Topics of seminars are the following.**

#### *First semester.*

- Introduction to general recepture. Solid drug definitions.
- Liquid drug definitions
- Soft and injecting drug definitions.
- Pharmacokinetics. Drug dosage principles.
- Pharmacodynamics.
- Cholinergic agonists.

- Cholinergic blockers.
- Adrenergic agonists.
- Adrenergic antagonists.
- Drugs affecting afferent innervation.
- Colloquium “Drug action on peripheral nervous system”
- Drugs for general anesthesia. Ethanol. Hypnotics.
- Anticonvulsants. Antiparkinsonic drugs.
- Opioid analgetics. Non-opioid analgetics.
- Neuroleptics. Drugs for mania treatment. Anxiolytics. Sedative drugs.
- Antidepressants. Psychostimulators. Nootropic drugs. Analeptics.
- Colloquium “Drugs affecting CNS”
- Cardiotonic drugs. Antiarrhythmics.
- Antianginal drugs. Antihypertensive drugs.

*Second semester.*

- Diuretics. Uterine drugs.
- Drugs action on respiratory system
- Drugs action on gastrointestinal system
- Drugs action on blood system
- Colloquium: “drugs acting on functions of effective organs”
- Vitamins. Antiatherosclerotic drugs.
- Endocrine drugs. Preparations of hypothalamus and hypophysis. Thyroid and antithyroid drugs. Insulin. Synthetic hypoglycemic preparations.
- Endocrine drugs (continuation). Female and male sex hormones. Contraceptives. Anabolic steroids. Preparations of adrenal cortex.
- Antiinflammatory drugs. Antigout drugs. Antiallergic and immunomodulating drugs.
- Antibiotics. Penicillins. Cephalosporins. Monobactams. Carbopenemes. Glycopeptides. Polimixines.
- Antibiotics (continuation). Aminoglycosides. Tetracyclines. Macrolides. Lincosamides. Chloramphenicol.
- Synthetic antimicrobial preparations.
- Drugs for treatment of tuberculosis. Antiviral drugs.
- Antiparasitic preparations
- Antimycotic preparations. Antihelminthic preparations.
- Drugs for anticancer chemotherapy.
- Antiseptics and disinfectants.

Lectures.

*First semester.*

- Introduction into basic pharmacology.
- Pharmacokinetic (two lectures).
- Pharmacodynamics.
- Cholinergic drugs.
- Adrenergic drugs. Local anaesthetics.
- General anaesthetics. Ethanol. Hypnotics, anticonvulsants.
- Cardiotonic drugs. Antiarrhythmics.
- Antianginal drugs.
- Antihypertensive drugs. Diuretics.
- Drugs affecting organs of the digestive system.

- Drugs affecting organs of the respiratory system.
- Drugs affecting the blood system.

*Second semester.*

- Endocrine drugs.
- Corticosteroid preparations.
- Anti-inflammatory preparations.
- Antibiotics.
- Synthetic antimicrobial preparations.
- Drugs for tuberculosis treatment.

**Independent students work.**

During the second semester a part of class time is spent on independent students' work to master practical skills in filling in prescriptions on the studied drugs, using prescription guidebooks, and on selection of analogous and generic substitutes for the given brand preparation.

**Final control.**

Final exam takes place after the second semester and consists of three parts.

- Test on practical skills includes a task on filling in prescription for the given pharmaceutical preparation, brief discussion of its belonging to particular group, indications, and appropriate analogous and generic substitute selection with the use of the prescription guidebook.
- Computer test
- Oral exam comprises detailed discussion of several questions from the list of questions covering all the studied topics.

## **GENERAL SURGERY**

### **INTRODUCTION**

Concept of surgery and surgical diseases. Succession of studying surgery in medical university. Interconnection of surgery with other medical disciplines. Preventive trends and physiological bases of modern surgery.

### **HISTORY OF SURGERY**

Ancient surgery. Surgery of Middle Ages. Surgery development in capitalists epoch. History of Russian surgery. Moscow University and Petersburg Medical-surgery Academy (P.A.Zagorski, K.P.Schepin, I.F.Bush, I.V.Bualski, E.O.Muhin). Role of N.I.Pirogov in the development of world and native surgery. Development of surgery in Russia and Byelorussia in XX century. The most outstanding surgical schools.

### **ORGANIZATION OF SURGICAL HELP IN THE REPUBLIC OF BYELORUS.**

General medical, qualified and specialized surgical help. Its organization, peculiarities of development and modern condition. Surgical help in out-patients hospitals and hospitals.

### **PECULIARITIES OF METHODS OF SURGICAL PATIENTS' EXAMINATION.**

Peculiarities of examination of patients with injures, acute and chronic surgical diseases. General view of modern methods of investigation and diagnostics in surgery. Using of instrumental and apparatus methods of diagnostics in surgery.

## ANTISEPTIC AND ASEPTIC.

Antiseptic. Definition. Ideological founders: L.Paster, I.Zemmelweis, N.P.Pirogov. Antiseptic of Lister. Development of antiseptic in Russia and Byelorussia (P.I.Pelevin, N.V.Sklifosovski). Types of modern antiseptic (mechanic, physical, chemical, biological). Aims and tasks of mechanic antiseptic: primary surgical wound processing, processing of wounds by pulsing liquid. The modern methods of physical antiseptic: wounds and cavities drainages, using ultra-violet irradiation, medical lasers, wounds vacuum, GBO, arotherapeutical plants, hemo-, plasm- and limphosorbition, plants of plasmapheresis. Chemical antiseptic: requirements for chemical substances used for antibacterial influence, groups of drugs, ways and methods of their introduction. Biological antiseptic: antibiotics (the main groups, rules of rational antibiotics therapy, complications of antibiotics therapy and their prevention). Enzymotherapy. Concept of immunotherapy.

Aseptic. Definition. Significance of antiseptic in modern conditions. Sources of infection. Endogenous and exogenous infections (air-borne, respiratory, direct, implantation). Prophylaxis of air-borne and respiratory infection. Organization of surgical department, its planning, the main apartments, their arrangement. Wards, dressing stations, their equipment. Operating-room. its arrangement and equipment: operating-room, preoperational, sterilization-room, material-room, apparatus-room, apartments for anesthetic service, endoscopic-room etc. Cleaning in operating-room and dressing-room after work. Personnel's and visitors' behavior (students and doctors) in operating-room. Arrangement and equipment of surgical room in polyclinics.

Prevention of contact infection. Surgical instruments, peculiarities of their structure, sterilization, maintenance of them. Dressing material, its main qualities. The main requirements for dressing material, preparation of dressing material, linen, their sterilization. Preparation of personnel's hands for operation. Sterilization of medical gloves. Preparation of operating sphere.

Prophylaxis of implantation infection. Sterilization of dressing material for stitches (catgut, silk, hair, kapron etc.). Sterilization of alloplastic, ksenoplastic transplants, neobiological materials in surgery and traumatology.

Concept of hospital infection.

## GENERAL QUESTIONS OF ANESTHESIOLOGY AND REANIMATOLOGY.

History of anaesthetization. The main stages of general and local anaesthetization development.

Local anaesthetization. Pharmacodynamic of anaesthetic aids. Ways of local anaesthetization (surface, transverse section, Vishnevsky's technique of local anesthesia). Block regional anaesthetization: spinal, nerve block, venous, arterial, osteal. Blockades. Indications, contraindications, difficulties, complications.

General anaesthetization. (narcosis). Mechanism of narcotic substance influence on a body (theories of narcosis). Ways of general anaesthetization: inhalation and noninhalation narcosis.

Muscular relaxants. Mechanism of muscular relaxants effect. Complications while using relaxants.

Clinical course of narcosis. Intubation narcosis. Intravenous narcosis. Indications, contraindication. Complications and their removal.

Equipment for narcosis. Ways of artificial lung ventilation, necessary equipment.

Aims and tasks of reanimatology. Concept of terminal conditions (agonic, preagonic conditions, clinical death). Rendering the first medical help. Methods of heart-lung reanimation.

## BLEEDINGS AND LOSS OF BLOOD.

Concept. Classification. Symptomalogy of bleeding. Acute anaemia after loss of blood. Organism reaction on bleeding. Hemorrhagic shock. Centralization of circulation of the blood. Factors influenced independent stop of bleeding. Reasons of death from loss of blood.

Methods of temporary and finally stop of bleeding: mechanic, chemical, physical, biological.

#### BLOOD TRANSFUSION, ITS COMPONENTS, PLASMA-SUBSTITUTING SOLUTIONS.

History of blood transfusion. Isohemagglutination. Groups of blood. Concept of Rh and Hr factors. Methods of determination of blood group and Rh.

Blood components (packed red blood cells, leukocytic, thrombocytic, plasma), blood preparations (albumin, protein), their characteristics. Mechanism of transfused blood and its components effect. Indications for blood and its components transfusion. Sources of getting blood and its components (donor-system, groups of donors). Concept of blood reinfusion, transfusion of preserved auto blood, exchange transfusion.

Methods of blood and its components preservation. Mistakes, difficulties and complications while blood transfusion. Hemotransfusion shock. Methods of prevention and treatment complications.

Plasma substitution drugs: classification. Concept of hemodynamic (antishock), desintoxicated, reological action medicine. Medicine for water-electrolitic structure correction. Medicine for parenteral feeding.

#### SURGICAL OPERATION. PREOPERATING AND POSTOPERATING PERIODS.

Concept. Ways of surgical interference. Anatomic and physiological grounds of surgical operations.

Preoperation period. Patient's examination. Patient's organs and systems preparation for operation. Peculiarities of preparation for urgent operations. Observation under a patient during operation and physiological methods of control for his state.

Post-operating period. Nursing the patient. Characteristics non-complicated post-operating period. Possible post-operating complications. Their diagnostics and treatment (complications in cardio-vascular system, lungs, kidneys, liver, nervous system, wounds). Prevention of post-operating complications.

#### SURGICAL PATHOLOGY.

Injures (traumatology). Classification. Concept of industrial, agricultural, domestic, street, sports, military traumatism. The first aid organization. General consequences of trauma and its dangers: bleedings, syncope, shock, collapse, infection. traumatic shock, its prevention and treatment.

Closed fractures. Injures of tissues: contusions, tensions, breaks. Traumatic toxicosis. General problems of skull and brain traumas (concussion, squeeze, contusion), of abdominal and thoracic cavities injures. Providing an emergent help.

Dislocations. Classification. Concept of dislocations' mechanism. Clinic, diagnostics, treatment.

Bones fractures. Classifications. Formation of osseous corns. Morphological changes in different terms after a fracture. Clinic. The first help for open and closed fractures. Transport immobilization: aims, aids, methods of conducting. General principles of open and closed fractures treatment: reposition and immobilization of fractures. Indications and contraindications for operative method of fractures treatment.

#### BURNS.

Thermal, chemical, radial burns. Classification. Burn degrees. Affection area. Body disorders after burns – burn disease, shock, toxemia, septic toxemia. Peculiarities of burn shock. Rendering the first aid for burns. General and local treatment of burnt patients. Organization of specialized departments.

## ELECTROTRAUMA.

Mechanism of current influence on an organism. Local and general manifestations. Emergent help. Method of heart defibrillation. Treatment.

## FROST-BITES.

Classifications. Contemporary conceptions of frost-bite pathogenesis. Symptoms in recreation and prerecreation period. Frost-bites degrees. First aid. Treatment.

## WOUNDS.

Classifications. Wound process currency. Types of wound healing (primary, secondary, under scab). Morphological and biochemical wound changes. General principles of fresh wounds treatment. Primary surgical wounds treatment. its grounds, technique. Primary stitch, primary delayed, provisory, secondary stitch. Principles of infection wounds treatment. Methods of general and local treatment: physical, chemical, biological.

## DESMURGY.

General principles of putting bandages. Types of bandages (gypsum, glue). Typical bandages for different parts of body. Head, neck, chest, upper and lower extremities bandages.

## GENERAL PROBLEMS OF SURGICAL INFECTIONS.

Reasons of appearance. Classification.

## ACUTE PURULENT NON-SPECIFIC INFECTION.

Stimuli. Etiology and pathogenesis. Local reaction of tissues. General reaction of a body. General principles of total and local treatment. Significance of using antibiotics.

Several types of acute purulent diseases. Acute purulent diseases of tissues and glandular organs (furuncle, furunculosis, carbuncle, mastitis, hidradenitis, abscess, phlegmon). Erysipelas. Erysipeloid. Purulent diseases of hand and fingers (paronychia, phlegmons). Acute purulent diseases of bones and joints (hematogenous and traumatic osteomyelitis, primary chronic osteomyelitis, arthritis, capsular phlegmona).

Purulent diseases of serous cavities (peritonitis, empyema of pleura). Reasons of clinical manifestations, treatment.

General purulent infection (sepsis). Classification. Pathogenesis. Diagnostics. Treatment (local, general). Bacterial-septic (endotoxic) shock.

Anaerobic infection: clostridial – gas phlegmona and anaerobic gangrene. Stimuli. Pathoanatomic picture. Clinics, diagnostics, treatment. Preventive measures.

## Necroclavicular (purulent) infection.

Stimuli. Clinics, diagnostics, treatment.

Acute specific infection. Tetanus. Etiology and pathogenesis. Clinics, diagnostics, treatment. Preventive measures.

Anthrax. Clinics, diagnostics, treatment. Preventive measures.

Diphtheria of wounds. Peculiarities of currency. Treatment.

## CHRONIC SURGICAL INFECTIONS.

Chronic specific infection. Surgical tuberculosis. Concept. Tuberculosis of bones and joints. Classification. Pathogenesis. Scheme of tuberculosis of bones and joints evolution (stages and phases). Clinical tendency of disease (general and local symptoms). Peculiarities of course of disease in different stages. Complications. Organization of sanatorium-orthopedic help. Surgical treatment. Several types of bones and joints tuberculosis: spondylitis, coxitis, gonitis.

Syphilis of bones and joints. Clinic. Frequency of affection. Differential diagnostics of bones syphilis, osteomyelitis, tuberculosis of bones.

Actinomycosis. pathogenesis. The main localizations. Clinic, diagnostic, treatment.

#### BLOOD CIRCULATION DISTURBANCE: NECROSIS, GANGRENE. ULCERS. FISTULAS.

Classification of blood circulation disturbances: arterial and venous; acute and chronic disturbances. Thrombosis, embolism. Collateral blood circulation. Types of blood circulation disturbances: obliterating atherosclerosis, obliterating endarteritis, acute and chronic venous deficiency, varicose vein disease.

Ischemia, necrosis. Types of necrosis, reasons. Dry and humid gangrene, clinical picture. general principles of treatment.

Trophic ulcers: concept, reasons. Decubitus ulcers: reasons, prevention, treatment.

Fistulas: classification, methods of diagnostics, treatment.

#### GENERAL QUESTIONS OF ONCOLOGY.

General information. Tumors innocent and malignant. Preneoplastic diseases. clinical, roentgenological, endoscopic, histological methods of diagnostics. Early diagnostics of malignant tumors. Tumors classification according to stages in the system of TNM. Tumors' treatment: surgical, radial, chemical-therapeutic, combined.

Oncological help organization.

#### ABNORMALITIES OF DEVELOPMENT REQUIRED SURGICAL HELP.

Concept. The most frequently observed inborn diseases: skull, brain and spinal marrow (craniocerebral and spinal hernias, dropsy of brain), neck (torticollis, cervical ribs, fistulars ), cardiovascular system, lungs (inborn heart abnormalities, coarctation of aorta, inborn cysts of lungs and bronchiectasia). Gastrointestinal tract (cleft lip, atresia of esophagus, pylorostenosis, biliary fistulas, atresia of anal); urinosexual system; spinal column; extremities. Principles of treatment of abnormalities of development.

#### SURGICAL PARASITICAL DISEASES.

Echinococcosis. Concept of hydatidous and alveolar echinococcosis Pathological anatomy and clinics of affection. Methods of diagnostics. Principles of surgical treatment of , its complications.

Ascariasis and caused by it surgical diseases (bowels impassability, mechanic icterus, acute appendicitis, post operational peritonitis).

#### BASES OF PLASTIC SURGERY AND TRANSPLANTOLOGY

History of development. Concept of restoration and reconstruction operations. Concept of plastics and transplantation of organs and tissues. Auto-, iso-, allo-, ksenoplastic or transplantation. Explantation.

Methods of skin plastics. Possibilities of tissues transplantation, endocrine glands and their cell structures transplantation; transplantation of organs (kidneys, heart, prostate). Biological conditions of organs and tissues transplantation.

## **HISTOLOGY, CYTOLOGY AND FETOLOGY**

Histology. Subjects and tasks. History of development of histology, fetology and cytology.

Histological, embryonal and cytologic researches.

Cytology. Cell structural components. Cytoplasm. Intercellular bonds. Organellas of general importance. Special organelles. Organellas of general importance: cytoplasmic reticulum, complex Goldjy, iysosome, peroxisome, ribosome, centrioly, microtubes. Spesial organelles. Inclusions.

Core. Basic displays of vital cells activity. Cells life cycle. Cells reproduction and cellular frames. Endoreproduction. Intracellular neogenesis.

Fetology. Bases of general fetology. Fetology of the man. Progenesis. Embryogenesis. Embryonal histogenesis.

General histology (the doctrine of tissues). Epithelial tissues and glands. Tissue of internal medium.

Blood and lymph. Hemopoiesis. Hemocytopoiesis.

Connecting tissues. Cells. Intercellular substance. Skeletal tissue. Cartilaginous tissues. Cartilaginous tissues. Cartilage as an organ. Osteal tissues. Bone as an organ.

Muscular tissue. Smooth muscular tissue. Skeletal muscular tissue. Cardiac muscular tissue. Muscle as an organ.

Nervous tissue. Neurocytes. Neuroglia. Nervous fibers. Nervous endings. Individual Histology. Nervous system. Peripheral nervous system. Central nervous system. Spinal cord. Brain. Brainstem. Hypothalamus. Cerebellum. Cortex of the large brain hemispheres. Sense organs Vision organs. Olfaction organs. Taste organs. Hearing organs and equilibrium.

Cardiovascular and lymphatic system. Circulatory vessels. Arterias. Microcirculatory vessels. Veins. Lymphatic vessels. Heart.

Hemopoiesis organs and immune protection. Central hemopoiesis and immunogenesis organs. Osteal brain. Thymus gland. Peripheral hemopoiesis and immunogenesis organs. Lymphatic units. Lymphatic follicles. Tonsils. Spleen. Morphological bases of immunological reactions.

Endocrine system. Hypothalamo-hypophysial neurosecretory system. Hypophysis. Epiphysis. Thyroid gland. Parathyroid glands. Paraneuroses. Diffuse endocrine system.

Digestive device. Stomach cavity. Salivary glands. Tongue. Teeth. Pharynx and esophagus. Stomach. Small and large intestine. Pancreas. Liver.

Respiratory device. Extrapulmonary pneumatic ways.

Liver. Acinus. General integument.

Skin. Epidermis. Derma.

Urinary organs. Kidneys. Urinary ways. Sexual bodies.

Man's sexual organs. Testicles. Female sexual organs. Ovary. Uterine tubes. Uterus. Vagina.

Thoracic lactiferous glands.

## **HISTORY OF MEDICINE AND PHARMACY**

**Topic:** «**History of medicine and pharmacy as the science and the subject of teaching. The History of Vitebsk State Medical University of the Order of Peoples' Friendship**».

1. History of medicine and pharmacy as the science and the subject of teaching; main goals and problems.
2. Main principles of an essay making.
3. Distribution of essay topics.
4. The History of Vitebsk State Medical University of the Order of Peoples' Friendship (on the base of the history of University museum).

**Topic:** «**Medical ethics. Medical symbols and emblems. Popular medicine. Medicine and pharmacy of Ancient Times: Babylon, Egypt, China, India, Greece, Rome**»

1. Periods of the history of medicine and pharmacy.
2. Sources of medicine and pharmacy studying: classification and examples.
3. Medical ethics: history, up-to-date problems, the Oath of Hippocrates.
4. Medical symbols and emblems. Examples of general and specific emblems, their meaning.
5. General characteristics of the Ancient Times period.

6. Medicine and pharmacy in Ancient Babylon: sources of medicine and pharmacy studying, religion and medicine, view on health and diseases, doctors and exorcist, Code of Hammurabi.
7. Medicine and pharmacy in Ancient Egypt: sources of medicine and pharmacy studying (papyri, pyramids), religion and medicine, embalming, ethics, anatomical and medical hygienic views, Imhotep.
8. Medicine and pharmacy in Ancient China: philosophy and medicine, diagnostics, pulse studying, acupuncture, disease prevention, medicinal herbs.
9. Medicine and pharmacy in Ancient India: sources of medicine and pharmacy studying; religion and philosophy influence on medicine (yoga, Ayurveda, Aswins, buddhism); surgery development, famous doctors (Atreya, Sushruta (Shushruta), Characa), medical ethics.
10. Medicine and pharmacy in Ancient Greece: sources of medicine and pharmacy, religion, philosophy and medicine Asclepius, medical schools. Hippocrates, the founder of medicine.
11. Medicine and pharmacy in Ancient Rome: sources of studying medicine and pharmacy studying, public position of the doctor, military medicine. Claudius Galen, the founder of pharmacy and experimental medicine.
12. General features of medicine and pharmacy of the Ancient World, its historic significance.

**Topic: «Medicine and pharmacy in the Middle Ages Period»**

1. General characteristics of the Middle Ages Period.
2. Alchemy as a philosophy and a stage of development of chemistry.
3. Medicine and pharmacy in Byzantin. Doctors-encyclopaedists. Hospitals job. Historic significance of medicine and pharmacy in Byzantin.
4. Arabic medicine and pharmacy
  - influence of islam;
  - medical schools;
  - hospital job;
  - contributions of Arabic alchemists;
  - pharmacology and pharmacy;
  - surgery and ophthalmology;
  - contributions of Arabic scientists: Rhazes, Albucasis etc.;
  - Avicenna (Ibn Sine), «Canon of medicine» («Qanum»);
5. Medicine and pharmacy in Europe (V-XIV centuries):
  - methods of treatment: bloodletting, alchemy, astrology etc.;
  - surgery: level of development, status of surgeons and barbers;
  - medical schools and universities;
  - portrait of the Middle Ages doctor;
  - epidemics of infectious diseases (plague, leprosy): causes, methods of fighting;
  - chemists shops: structure, functions, preparation of drugs..

**Topic: «Medicine and pharmacy during the Renaissance Period (XV-XVII centuries) in Europe»**

1. General characteristics of the Renaissance Period, Humanism. Reformation.
2. Establishment of experimental method in medicine
3. Theophrastus Paracels, the founder of medicinal chemistry and famous doctor.
4. Foundation of blood circulation theory: Harvey, Malpighi etc.
5. Leonardo da Vinci, the famous scientist-encyclopedist.
6. Andreas Vesalius, the founder of anatomy.
7. Ambroise Pare, the father of surgery in Europe.
8. Fracastorius and his theory about infection diseases.
9. Thomas Sydenham, the famous doctor.
6. Essays on the topic of the lesson.

**Topic: «Medicine and pharmacy in the Modern Time (XVII-XIX centuries). Development of natural sciences, anatomy, physiology, microbiology and immunology. Development of preventive medicine»**

1. General characteristics of the Modern Time period. Influence of philosophy, politics, achievements of science on the development of medicine and pharmacy.
2. Great discoveries in the realm of natural sciences (the periodic table, natural radioactivity, cellular theory, studying of evolution, hereditary laws, etc.). Development of microscopy.
3. Establishment and development normal and pathological anatomy: Giovanni Battista Morgagni, Carl Rokitansky, Rudolf Virchow.
4. Experimental and physiological trend in medicine: Claude Bernard, Karl Ludwig, Ivan Petrovich Pavlov.
5. Development of scientific microbiology and immunology: Edward Jenner, Louis Pasteur, Ilya Mechnikov, Robert Koch.
6. Development of experimental and public trend in hygiene. Establishment of international partnership in the sphere of sanitation and epidemiology: Waldemar Mordecai Haffkine, Ronald Ross, Sir Patrick Manson.
7. The first methods and apparatuses of physical examination.
  - 7.1. History of percussion method: Leopold Auenbrugger, Corvisart.
  - 7.2. History of auscultation method: Rene Laennec.
8. New methods of treatment.
  - 8.1. Chemotherapy: Paul Ehrlich.
  - 8.1. Homeopathy: Samuel Hahnemann.
9. Specialities in medicine.
10. History of surgery.
  - 10.1. Blood transfusion. Its influence on further development of medicine.
  - 10.2. Theory of local and general anaesthesia and narcosis: Michael Faraday, Crawford Williamson Long, Sir James Young Simpson, William Thomas Green Morton, Paul Broca and others. Their influence on further medicine development.
  - 10.3. History of asepsis and antisepsis: Joseph Lister. Their influence on further development of medicine.
  - 10.4. Development of surgery and anaesthesia: Percival Pott, John Hunter, Astley Paston Cooper, James Syme and others.
  - 10.5. Development of surgery of abdominal cavity: Christian Albert Theodor Billroth, Theodore Kocher, etc.
11. History of development of scientific obstetrics and gynecology: Chamberlens, Edmund Chapman, Ignaz Philipp Semmelweiss.
12. History of scientific pediatrics.
13. History of development of scientific psychiatry and neurology: Phillippe Pinel, Sigmund Freud and others.
14. International Red Cross Society: Florence Nightingale, Jean Henri Dunant.

**Topic: «Medicine and pharmacy of the Twentieth Century»**

1. General characteristics of the XX century as a history period.
2. Influence of scientific progress on the development of medicine and pharmacy: laser, ultrasound, computerized tomography, magnetic resonance imaging, electro-cardiogram, renal dialysis and renal transplant, etc.
3. Achievements of genetics: Gregor Mendel, Thomas Hunt Morgan, Hugo de Vries. Eugenics: Sir Francis Galton. History of genetic engineering. Its role for medicine and pharmacy.
4. Achievements of biochemistry (hormones, vitamins, etc.). History of insulin: Frederick Banting, Charles H. Best, John J. R. McLeod.
5. Achievements of microbiology and immunology in their fight against infection diseases.
  - 5.1. Discovery of vaccine.

- 5.2. Discovery of antibiotics: Alexander Fleming, Howard Florey and Ernst Boris Chain.
- 5.3. August von Wassermann, Gerhard Domagk.
- 5.4. History of AIDS.
6. Development of pharmacology. History of drug abuse.
7. History of hospitals. Hospice.
8. Achievements in surgeon. Development of transplantology.
9. History of blood research: Karl Landsteiner, Alexander S. Wiener, Oswald H. Robertson.
10. History of heart research. Heart-Lung Machine. Invention of new medical instruments. Surgery of heart: Ludwig Rehn, Robert E. Gross, John H. Gibbon, Christiaan Barnard, Andreas Cruentzig.
11. Nobel prizes.
  - 11.1. Nobel Prizes for physiology or medicine.
  - 11.2. Nobel Peace Prize: Albert Schweitzer, Mother Teresa, Anry Dunant.
12. Indian medicine achievements in the XX century: Dharmendra, Norman Bethune.
13. Bioethics: history, problems and prospects.
14. International cooperation in medicine and pharmacy: World Health Organization

## HUMAN ANATOMY

### Lectures

- 1 Anatomy: subject, contents, place in a number of other educational disciplines Methods of anatomical research. The anatomical nomenclature. Bone as an organ.
- 2 Anatomy: subject, contents, place in a number of other educational disciplines Methods of anatomical research. The anatomical nomenclature.
- 3 Bone as an organ. Functional anatomy of vertebral column.
- 4 Functional anatomy of bone joints.
- 5 General anatomo-functional characteristic of inner organs.
- 6 Functional anatomy of alimentary, respiratory and urogenital systems.
- 7 Angiology. Introduction. Functional anatomy of the heart and arterial system.
- 8 Functional anatomy of venous, lymphatic and immune systems.
- 9 Myology. Introduction.
- 10 Anatomy of human fasciae and topographic formations (part 1).
- 11 Anatomy of human fasciae and topographic formations (part 2).
- 12 Neurology. Introduction.
- 13 Functional anatomy of the brain (encefalon). Functional systems. Nerve fibre tracts of the spinal cord (medulla spinalis) and brain (encefalon)
- 14 Functional anatomy of the vegetative (autonomic) nervous system.
- 15 Functional anatomy of the peripheral nervous system (part 1).
- 16 Functional anatomy of the peripheral nervous system (part 2).
- 17 Functional anatomy of the sensory organs
- 18 Development of inner organs and abnormalities (part 1).
- 19 Development of inner organs and abnormalities (part 2).

### Laboratory classes

- 1 Organization of educational process on the chair. Anatomical nomenclature. Trunk bones. Vertebrae and their structure.
- 2 Cervical, thoracic, lumbar vertebrae, sacrum, coccyx. The breast-bone (*sternum*) and ribs (*costae*)

- 3 Bones of the upper limb (clavicle, scapula, humerus, ulnar, radial, bones of the hand).
- 4 The skeleton of the lower limb (pelvic, femoral, patella, tibia and fibula, bones of the foot).
- 5 Bones of the neurocranium (parietal, occipital, sphenoid, frontal, ethmoid).
- 6 Temporal bone and its channels.
- 7 Bones of the splanchnocranium (maxillary, mandible, lacrimal, zygomatic bone, hyoid bone, lower nose concha, vomer).
- 8 Topography of the skull: roof (*calvaria*) and base of the skull, orbital cavity.
- 9 Topography of the skull: nasal cavity, temporal, infratemporal and pterygopalatin fossae. Neonatal skull. Concept about a craniometry. Radioanatomy of the skull.
- 10 Functional anatomy of the skeleton
- 11 Test in osteology**
- 12 General arthrology.
- 13 Skull bone joints
- 14 Trunk bones joints. Vertebral column. Thorax as a unit of a human body.
- 15 Upper limb girdle bone joints.
- 16 Upper limb free part bone joints.
- 17 Lower limb girdle bone joints. Pelvis as a whole.
- 18 Lower limb free part bones joints.
- 19 Test in arthrology.**
- 20 Introduction to myology.
- 21 Introduction to myology. Muscles and fasciae of the back.
- 22 Muscles of the head (mimic, chewing). Muscles of the neck. Areas and triangles of the neck.
- 22 Muscles and fasciae of the thorax. The diaphragm.
- 23 Muscles and fasciae of the abdomen. The rectum muscle sheath. The inguinal canal.
- 24 Muscles, fasciae, topography of the shoulder girdle and brachium.
- 25 Muscles, fasciae, topography of the forearm and hand.
- 26 Muscles, fasciae, topography of the pelvis and thigh.
- 27 Muscles, fasciae, topography of the leg and foot.
- 28 Test in myology.**
- 29 Oral cavity. Teeth. Tongue. Glands of the mouth. Palate.
- 30 Pharynx. Esophagus.
- 31 Stomach. Intestine.
- 32 Liver. Pancreas.
- 33 Abdomen and peritoneal cavity. X-ray- anatomy of the digestive tract.
- 34 Nasal cavity. Larynx. Trachea. Primary bronchi.
- 35 Lung. Pleurae. Pleural cavity.
- 36 Kidney. Ureter. Urinary bladder. Male and female urethra.
- 37 Male reproductive organs.
- 38 Female reproductive organs.
- 39 Perineum.
- 40 Functional anatomy of internal organs (assessment knowledge acquire).
- 41 Test in splanchnology.**
- 42 Mediastinum. Heart. Chambers of the heart. Conductive system of the heart.
- 43 Topography and X-ray- anatomy of the thoracic cavity organs. Vessels of the heart. Pericardium.
- 44 Vessels of the pulmonary circulation system. Aorta. Branches of the thoracic aorta.
- 45 Brachiocephalic trunk. Common and external carotid arteries.
- 46 Internal carotid and subclavian arteries. Blood supply of head and neck organs.
- 47 Axillary and brachial arteries.
- 48 Arteries of the forearm and hand. Blood supply of the upper limb.
- 49 Abdominal aorta and its branches. Blood supply of the organs of the abdomen cavity.
- 50 Common, external and internal iliac arteries.

- 51 Arteries of the lower extremity: femoral, popliteal, tibial and their branches. Blood supply of the pelvis and lower extremity.
- 52 Superior vena cava system.
- 53 Inferior vena cava system. Intersystemic vein anastomoses. The circulation of the fetus.
- 54 Lymphatic system. Lymphatic vessels and nodes of the thoracic cavity, head, neck, upper extremity.
- 55 Lymphatic vessels and nodes of the lower extremity, pelvis, abdomen cavity. Organs of the immune system. Lien.
- 56 Functional anatomy of cardiovascular system (assessment knowledge acquire).
- 57 **Test in cardiovascular system.**
- 58 **Credit test**
- 59 The science of the nervous system (NEUROLOGY). General data.
- 60 Spinal cord (*medulla spinalis*): structure, bundles, roots (*radix*), spinal nerve (*nervus spinalis*), reflex arch
- 61 Grey matter (*substantia glisea*) and white matter (*substantia alba*) of the spinal cord. The meninges of the spinal cord and intermeningeal spaces of the spinal cord.
- 62 General anatomy of the brain (*encephalon*). The surfaces and places of the emerging nerves from the brain and from the cavity of the skull.
- 63 Myelencephalon (*medulla oblongata*). Metencephalon: the bridge, cerebellum, isthmus of the rhombencephalon (*isthmus rhombencephali*).
- 64 The fourth ventricle (*ventriculus quartus*). Rhomboid fossa (*fossa rhomboidea*). Topography of the spinal nerves nuclei.
- 65 Mesencephalon (*midbrain*) and between-brain. The third ventricle (*ventriculus tertius*).
- 66 Endbrain (*telencefalon*): *corpus collosum*, *comissura cerebri anterior*, lateral ventricles, nuclei basales, internal capsule (*capsula interna*).
- 67 Cerebral hemispheres: surfaces, lobes, grooves, gyrus. Rhinencephalon. The meninges of the brain and intermeninges spaces of the brain.
- 68 Localization of functions in the cortex of the cerebral hemispheres.
- 69 Sensing conduction pathways.
- 70 Descending conduction pathways.
- 71 Development and functional anatomy of the CNS (central nervous system). The lectures questions on preparations.
- 72 **Test in CNS.**
- 73 Vegetative nervous system (VNS), its differences from somatic nervous system. Reflex arch. Sympathetic part of the VNS.
- 74 Parasympathetic part of the vegetative nervous system: the centres, bundles, branches. Principles of the organs innervation.
- 75 X pair of the cranial nerves.
- 76 V, XI, XII pairs of the cranial nerves: nuclei, branches, areas of innervation.
- 77 VII, IX pairs cranial nerves: nuclei, branches, areas of innervation.
- 78 Spinal nerve: formation, branches. Posterior branches of the spinal nerves. Anterior branches of the thoracic nerves.
- 79 Cervical plexus: formation, dermal and muscle branches. Phrenic nerve (*nervus phrenicus*).
- 80 Innervation of the skin, muscles, innerval organs of the head and neck.
- 81 Brachial plexus: formation, short branches - areas of innervation.
- 82 The long branches of the brachial plexus. The dermal and muscle innervation of the upper limb.
- 83 Lumbar plexus: formation, branches, areas of innervation.
- 84 Sacral plexus: formation, short branches. Innervation of the skin, muscles, internal organs of the body (chest, abdomen, pelvis)
- 85 Long branches of the sacral plexus. The dermal and muscle innervation of the lower limb.
- 86 Development and functional anatomy of the peripheral nervous system The lectures questions on preparations.

### **87 Test in peripheral nervous system.**

- 88 The organ of vision. The structure of the eyeball. Auxiliary organs of the eye: muscles, eyelids (*palpebrae*), eyelashes (*ciliae*), lacrimal apparatus.
- 89 Innervation of the eye. III, IV, VI pairs of the cranial nerves. II pair of the cranial nerves, visual conductive pathway.
- 90 The organ of hearing: the external ear and middle ear.
- 91 The internal ear: bony (*labyrinthus osseus*) and membranous labyrinths (*labyrinthus membranaceus*). VIII pair of the cranial nerves: the pathway of sound conduction, the pathway of vestibular analyser.
- 92 The internal secretion glands. General covering of the body: the structure of the skin and its derivatives. The mammary glands (*mammae*).
- 93 Development and functional anatomy of the sensory organs. The lectures questions on preparation.
- 94 Test in sensory organs, internal secretion glands and general covering of the body.**

## **INFECTIOUS DISEASES**

1. Place and significance of infectious diseases in contemporary pathology. Role of general practitioner in diagnostics, treatment, preventing of ID. The main functions of consulting center in polyclinics. Rules and peculiarities of patients' investigation. The main principles of diagnostics and treatment. Structure of infectious hospitals and departments. Technics of private safety.
2. Epidemic process and its essence. Direction and organization of the very first antiepidemic measures for infectious patients.
3. Peculiarities of patients' treating and filling in the case history. Desinfection, desinsection, deratization
4. Infectious service. Rules of infectious patients hospitalization. Device and regimen of infectious diseases hospitals.

### **Infectious illnesses**

Typhoid. Paratyphoids A and B.

Dysentery. Cholera.

Virus and bacterial gastroenteritises.

Amebiasis. Alimentary toxoinfections. Botulism. Iersinioz. Intestinal iersinioz.

Pseudotuberculosis. Virus hepatitis A and E. Enterovirus infection.

Salmonellosis. Intrahospital salmonellosis. Brucellosis.

Helminthiases. Trichinellosis.

Influenza. Paragrippe. Adenoviral infection. Respiration-syncytial. rhinovirus infection.

Meningococcal infection.

Ornithosis.

Angina, differential diagnosis with diphtheria.

Infectious mononucleosis.

Legionellez.

Herpetic infection. Rickettsioses.

Epidemic typhoid and Brill-Brill-Tsinssera illness.

Q fever. Malaria. Plague. Tularemia. Hemorrhagic fevers.

Borreliosis. Typhoid returnable epidemic (pediculous)

Vernal encephalitis. Virus hepatitis B, D, C.

Erysipelas. Sepsis. malignant ulser. Tetanus.

Aphthous fever.

Definitions. Prevalence. Etiology. Epidemiology. Pathogeny. Clinic. Diagnostics. Differential diagnosis. Treatment. Prophylaxis.

## INTERNAL DISEASES

Bronchitis. Etiology and pathogenesis. Classification of the chronic bronchitis. Clinical manifestations. Diagnostic criteria of bronchitis. Emphysema of the lungs. Principles of treatment.

Emphysema of the lungs. Etiology and a pathogenesis. Clinical manifestations. Emphysema of the lungs: initial, secondary, localized, features of clinic, differential diagnostics.

Acute pneumonias. An etiology. A pathogenesis. Classification of pneumonias. A share pneumonia. The basic sets of symptoms. Complications. Measure of a degree of gravity. Focal pneumonias. Measure of the diagnosis. Features of clinical flow and diagnostics pneumonias of different types. Principles of treatment.

Pleurites. An etiology and a pathogenesis. Pleurites. Blocked pleuritis. Clinic of pleurites. A diagnostic and medical pleurocentesis. Complications and outcomes. Treatment of pleurites.

Bronchoectatic disease. An etiology and a pathogenesis. A clinical symptomatology. Diagnostic measure. Stages of flow. Complications, their early revealing. Treatment.

Abscess and gangrene mild. An etiology and a pathogeny. Clinical exhibitings, their features in dependence on a stage, localization and abundance, gravity of flow. Complications. Treatment.

Bronchial asthma. An etiology and a pathogeny. Classification. A clinical symptomatology and diagnostics atonic and neotopic asthmas. Diagnostic measure of a bronchial asthma. A cupping of an attack. The asthmatic status, contributing factors. Treatment.

Rheumatic disease. An etiology. A pathogenesis. Classification. A clinical pattern. Diagnostic measure Variants of flow of rheumatic disease. Treatment.

Not rheumatic myocardites. An etiology and a pathogeny. Classification. A clinical pattern. Diagnostic measure. Complications. Principles of treatment.

Contagious endocardit. An etiology, a pathogenesis. Clinic. Tromboembolic episodes. The laboratory data. Clinical "masks" of illness. The diagnosis. Treatment.

The got heart diseases. Failure of the mitral valve. An etiology, a pathogenesis hemodynamic infringements. A clinical pattern. Stages of flow. The diagnosis. Treatment. Indications to operative treatment.

Mitral stenosis. An etiology. A pathogenesis of distresses. A clinical pattern. Stages of flow. Value of tool methods in diagnostics. Complications. The forecast. Treatment. Indications to operative treatment. A combined mitral heart disease.

Failure of the aortal valve. An etiology, a pathogenesis hemodynamic distresses. A clinical pattern. Tool research techniques. Flow. Complications. The forecast. Opportunities of operative treatment.

Stenosis of an ostium aorta. An etiology, a pathogenesis. A clinical pattern. Flow. Stages. The diagnosis. Complications. Indications to operative treatment.

Failure of the three-cuspidate valve. An etiology. A pathogenesis. A clinical pattern. Tool methods of diagnostics. An opportunity of operative treatment.

Essential arterial hypertension. An etiology and a pathogenesis. A role of central infringements of a regulation of arterial pressure, sympathetic nervous system, humoral and hormonal factors in originating and progressing of disease. Classification. A clinical pattern of various stages of diseases. Complications. Hypertonic crises. A malignant hypertony. The differential diagnosis. Treatment. Hypertonic crises: the causes, clinical variants, diagnostic measure. A cupping of hypertonic crises.

Symptomatic arterial hypertension. The plan of survey at an arterial hypertension. Classification. Renal arterial hypertension. Endocrine arterial hypertension. An arterial hypertension at a subthalamic set of symptoms. Hemodynamic hypertension.

Atherosclerosis. Epidemiology. A pathogenesis. Risk factors. The most often localizations of an atherosclerosis. Features of clinical exhibitings. Value laboratory, radiological, tool and angiographic research techniques in diagnostics of an atherosclerosis of various localizations. Treatment of an atherosclerosis.

Ischemic illness of heart. Concept about ischemic illness of heart. Risk factors of heart diseases, their value. Classification of heart diseases.

Stenocardia. Clinical variants the Functional classes of a stenocardia. Role electro-cardiogram in revealing coronary failure. Radionuclide methods. A role of invasive methods. Differential diagnostics with myocardial infarction. Treatment.

Myocardial infarction. A pathogenesis. A clinical pattern in the various seasons of disease. Clinical variants of the beginning of illness. The diagnosis. Changes of the electrocardiogram, a pattern of a blood, biochemical parameters. Flow of a myocardial infarction. Atypical forms of a myocardial infarction. Myocardial infarction.

Complications: a cardiogenic shock, infringements of a rhythm and conduction, a heart failure, early and serotinal aneurysms of heart, a cardiac tamponade, a postmyocardial infarction set of symptoms. Treatment. Value of early hospitalization. The help at a pre-hospital stage.

Infringement of a rhythm (arrhythmia) and conduction. The modern representations about a pathogeny of an arrhythmia. Classification of arrhythmias. Methods of diagnostics.

Экстрасистолия. A pathogenesis. Clinical exhibitings. ECG-ATTRIBUTES. Features of medical tactics, the indication to purpose of antiarrhythmic preparations.

Bouveret's diseases. A pathogenesis. A clinical pattern of an attack of a Bouveret's disease. Changes ECG. Medicamental therapy during an attack of a Bouveret's disease, supraventricular and ventricular. Indications to a countershock.

Set of symptoms of premature exaltation of ventricles. Diagnostics. Indications to surgical treatment.

Ciliary arrhythmia and atrial flutter. A pathogenesis. Classification. A clinical symptomatology. Changes ECG. Therapy paroxysmal and a stationary value of the form of a ciliary arrhythmia. Indications to a countershock.

Fibrillation of ventricles. A pathogenesis. Clinic. ECG -ATTRIBUTES. An emergency treatment.

Sick sinus syndrome. Diagnostics. Clinical exhibitings. Indications to an implantation of the simulated pacemaker.

Infringement of conduction. A pathogenesis. Classification. Clinical exhibitings. Character of ECG -CHANGES. Changes of a hemodynamics at various infringements of conduction. Complications. A role of electrophysiological examinations and monitor ECG. Treatment. Indications to an implantation of cardiostimulators.

Heart failure. The modern representations about an etiology, a pathogenesis of a heart failure. Character of changes of a hemodynamics at a heart failure. Classification of a heart failure. A cardiac asthma, a fluid lungs. Diagnostics of a heart failure. Clinical and additional research techniques. Therapy. A diet.

Gastritis. An etiology. A pathogenesis. Classification. A clinical pattern autoimmune, helicobacterous and refluxes gastritis. The basic sets of symptoms. The diagnosis.

Peptic ulcer of a stomach and duodenum. An etiology. Clinic. The diagnosis. Complications. Treatment.

Chronically a hepatitis. An etiology. A pathogenesis. Classification. Clinical and laboratory sets of symptoms. Diagnostics. Flow and outcomes of the disease. Treatment.

Cirrhosis of a liver. An etiology. A pathogenesis. Classification. A clinical pattern. Diagnostic measure. Complications of a cirrhosis of a liver. Treatment of a cirrhosis of a liver.

Acute nephritis. The modern representations about an etiology and a pathogenesis. Classification. A clinical pattern. The basic clinical sets of symptoms. Complications. Measure of the diagnosis. Treatment.

Chronic nephritis. Clinical classification. Laboratory - tool research techniques at a chronic nephritis. Treatment.

Chronic pyelonephritis. An etiology and a pathogenesis. Clinic. A pathogenesis of the basic signs. Research techniques. Treatment.

Renal failure (acute and chronic). An etiology of acute renal failure. The mechanism of development acute renal insufficiency. Stages acute renal insufficiency. A clinical pattern. Treatment on stages. Indications to a haemodialysis and hemosorptions. Outcomes. Prophylaxis.

Etiology of chronic renal failure (chronic renal insufficiency). A pathogenesis. The basic clinical sets of symptoms. Classification. Treatment.

Anemia. The modern classification of anemic states. An iron deficiency anemia. The basic etiological factors of an iron deficiency anemia. Stages of development of a deficit Ferri lactas in an organism. A clinical pattern, the basic sets of symptoms, measure of the diagnosis. The differential diagnosis. Treatment.

B12-scarce anemias. Pathes of entering to an organism of vitamin B12-the Etiology, value of the autoimmune mechanism of a pathogenesis. A clinical pattern. The basic clinical sets of symptoms. Measure of the diagnosis. The differential diagnosis. Flow. Outcomes. Treatment, prophylaxis of relapses. Prophylactic medical examination.

Hemoblastoses

The modern views on an etiology and a pathogenesis. Value of hereditary factor, influence of radiation, chemical materials, viruses, changes of an exchange of a tryptophan. A pathogenesis. Laws of a tumoral progression. Basic clinical sets of symptoms. Classification. Principles, plans of treatment.

## INTERNAL DISEASES

Diffuse illnesses of the connective tissue, definition, classification. Methods of diagnostics. HARD CURRENCY, etiopathogenesis. Clinical manifestations, laboratory – instrumental diagnostics, diagnostical criteria, differences from other diseases of the connective. Treatment.

Systemic scleroderma, etiopathogenesis, clinic, classification, laboratory - instrumental examinations. Diagnostical criteria, criteria of the variety of current. The differential diagnosis from HARD CURRENCY. Treatment.

Dermatomyositis, etiopathogenesis, classification, clinic, laboratory-instrumental examinations. Diagnostics, the differential diagnosis of the other diseases of the connective tissue. Dermatomyositis as exhibiting paraneoplastic syndrom. Treatment.

Rheumatic arthritis, the modern idea on its etiopathogenesis, clinic, diagnostical criteria of RA. The differential diagnosis of the other diseases of joints. Classification. The special cases. Treatment.

Gout, definition, abundance, errors in diagnostics. The modern idea of its etiopathogenesis. Clinic, atypical cases of the beginning of the illness,diagnostical criteria . Particularities of a joint syndrom. Principles of treatment.

ДOA, the modern idea of the etiopathogenesis, clinic, the differential diagnosis of the other diseases (diffuse illnesses of the connective tissue, rheumatic disease, RA, gout, etc.). Principles of treatment.

Reactive polyarthrites, the causes, clinic, diagnostics, treatment. Bekhterev illness,its etiopathogenesis, clinic, diagnostical criteria. Differential diagnostics of the other diseases. Treatment.

The causes of infringement of bronchial permeability. Classification of a set of symptoms of bronchial obstruction. Diagnostics and differential diagnostics of the obstructive syndrom.

Chronic obstructive bronchitis as the possible cause of a bronchospasm. The modern idea of its etiopathogenesis, clinic. Principles of the differentiated therapy.

Diagnostics of the bronchial asthma, differential diagnostics with other bronchi-obstructive syndrom. The causes of originating of the asthmatic status, clinic, diagnostics, stages. An acute management. Principles of treatment of a bronchial asthma. A cupping of an attack. Treatment during the inter-attack period.

Etiopathogenesis, diagnostics and classifications of pneumonias, the special forms of pneumonias. Principles of the treatment. Principles of a rational antibiotic therapy. Classification of antibiotics. Symptomatic agents.

Diffuse diseases of the lungs, definition, the causes. Classification. Clinic, diagnostics of fibrotic alveolites, sarcoidosis, dissiminations of the tumoral nature. Damaging of the lungs at systemic diseases of a connective tissue. Hemosiderosis of the lungs. Gudspudcher's syndrom. Differential diagnostics of the diffuse diseases of the lungs. Tactics of the doctor.

Bronchoectatic disease, abscess, gangrene of the lungs. Its etiopathogenesis. Clinic, diagnostics, differential diagnostics. Principles of the differentiated medicamental therapies. Indications to surgical treatment.

Glomerulonephritis, the modern idea of its etiology and a pathogenesis. Value of an immune link of its pathogenesis. Classification. Clinical manifestations. The basic clinical syndroms. Laboratory – instrumental methods of diagnostics. Clinical forms and variants of flow. Criteria of the diagnosis. Outcomes. Treatment.

Glomerulonephritis chronic, etiopathogenesis, classification, clinical and morphological. Clinic of various forms. Diagnostics, differential diagnostics with an acute glomerulonephritis, a focal nephritis, subacute malignant, damaging of nephroses at diffuse diseases of a connective tissue. Treatment (a regimen, a diet, immunodepressive, steroid agents, other medicines).

Pyelonephritis, acute, the modern idea of the etiopathogenesis. Classification. Clinic. Diagnostics. Treatment. A chronic pyelonephritis, the causes of synchronization. Classification. Clinical current. Methods of diagnostics (analyses of urine, chromocytoscopy, excretory and retrograde pyelography, ultrasonic research of nephroses). Outcomes. Treatment.

Pathogenesis of the basic clinical exhibitings of the nephrotic syndrom. Clinical manifestations. Laboratory diagnostics of the nephrotic syndrom. Differential diagnostics of a nephrotic syndrom at HARD CURRENCY, diabetes, rheumatic arthritis, glomerulonephritis and other diseases. Opportunities of the modern therapy.

Lardaceous, the modern idea of its etiopathogenesis. Clinical manifestatons. Initial and secondary lardaceous. Diagnostics, differential diagnostics. Basic principles of therapy.

Etiology of acute renal failure (ARF). The mechanism of development. Clinical manifestations, stages in development. Treatment on stages. Indications to haemodialysis and hemosorptions. Outcomes. Prophylaxis.

Etiology of chronic renal failure (CRF). A pathogenesis. The basic clinical signs. Classification. Stages. Treatment. Indications to haemodialysis and its opportunities. Transplantation of a nephros.

Anemia, definition, classification, working groups. Anemic syndroms, diagnostics. The iron deficiency anemia (an exchange Ferri lactas in the organism, etiopathogenesis of anemia, stages, clinic, laboratory diagnostics, distinctive features - a sideropenic syndrom). Treatment.

Acute posthemorrhagic anemia, diagnostics, degrees of gravity.

Aplastic anemia (endo-, the exogenous causes, classification, clinic, diagnostics, treatment).

Hemocatheretic anemias: ancestral, got. Mechanisms of a hemolysis and principal causes of development of hemocatheretic anemias. Classification. Basic attributes. The basic clinical-laboratory attributes of ancestral spherocytosis, ensymopatias, hemoglobinopathies.

Autoimmune. Diagnostic criteria. Treatment. The forecast.

Hemocatheretic crisis, clinic, diagnostics, treatment.

B12-scarce anemia, exchange of vitamin B12 in the organism. Value of the autoimmune mechanism of a pathogenesis. The basic clinical sets of symptoms, measure of the diagnosis. Treatment. Prophylaxis of relapses. Differential diagnostics of anemias.

Hemoblastoses, definition, classification, the modern views on an etiopathogenesis, provoking factors. Blanket sets of symptoms clinical. A myelosis. A clinical pattern. Stages of flow. Diagnostics, the differential diagnosis. Complications. The forecast. Treatment.

Chronic lymphoid leukosis, clinical variants, their features, diagnostics, complications. The forecast. Treatment.

Leukemoid tests, concept, phylums, the differential diagnosis with leukoses. Treatment.

Differential diagnostics lymphadenopatias (a lymphogranulomatosis, a sarcoidosis, a contagious mononucleosis, brucellosis, a lymphadenopathy at collagenosis).

Acute leukoses, classification, clinic of various variants of acute leukosis, laboratory diagnostics. Cytochemical responses, current and complications. Differential diagnostics with chronic leukoses. Treatment (stages, cytostatic preparations, transplantation of an osteal brain).

Polycythemia. An etiopathogenesis. Clinical sets of symptoms, laboratory diagnostics. Medicamental treatment. Plasmaferesis.

Secondary hyperglobulias, the causes, diagnostics, differential diagnostics with other diseases (with a polycythemia). An osteomyelofibrosis, clinic, diagnostics, differential diagnostics with other diseases of blood. Treatment.

Hemorrhagic diathesises, the causes of development, classification. Blanket attributes, phylums кровоточивости. Research techniques.

Angiostaxis, pathogenesis of bleedings. Clinic, the diagnosis, the differential diagnosis. The forecast. Treatment and prophylaxis.

Werlhof's disease, hemorrhagic vasculitis, hemorrhagic a body - angioectasia (illness of Randue-Osler), pathogenies of bleedings at these diseases. Clinic, the diagnosis, the differential diagnosis. Treatment.

Chronic gastritis, definition, the modern views on an etiopathogenesis, classification by morphological, functional, etiological principles. The basic sets of symptoms. The diagnosis, the differential diagnosis. Treatment.

Peptic ulcer, the basic and contributing factors, the modern views on an etiopathogenesis. Clinic, dependence on localization of ulcer. Diagnostics. Differential diagnostics with the tumour of the stomach, cholecystitis, pancreatitis, etc. Complications: perforation, malignancy, perigastritis, periduodenitis. Symptomatic ulcers.

Treatment. The differentiated approaches to treatment in dependences on localization, a combination of the ulcers, concomitant diseases, presence of complications of a peptic ulcer. Terrain clearance and relative indications to surgical treatment.

The differential diagnosis of the diseases of the bile ducts. Treatment. A diet. Medicamental treatment. Therapeutic aspects of the states incipient after a cholecystectomy. Principal causes. Clinic. Opportunities of diagnostics. Treatment.

Hepatomegalia, principal causes of development (hepatitises, cirrhosises, tumours, infringement of a circulation, hematological diseases, focal lesions of a liver, disbolism). Augmentation of a liver in a combination to augmentation of a lien, to presence of an ascites, an icterus. The differential diagnosis at a hepatomegalia, algorithm of survey of the patient.

The causes of a splenomegaly. Algorithm of survey of the patient.

Chronic hepatitis, definition. The modern views on an etiopathogenesis, classification, the basic clinical-laboratory syndrom. Instrumental methods of diagnostics. Principles of treatment.

Cirrhosis of a liver, definition, the modern idea of its etiopathogenesis. The basic clinical-laboratory syndrom. Classification, etiological and functional, stages of disease. The differential diagnosis with other diseases of liver. The differentiated therapy in dependence on etiology. Rendering of the emergency help at a bleeding from amplate veins of an esophagus.

The hepatic encephalopathy, provoking factors, pathogenesis, stages, treatment.

Concept of "acute abdomen". A clinical symptomatology. Diseases at which development of "acute abdomen" is possible. The differential diagnosis at "Acute abdomen". The differential diagnosis at a gastrointestinal bleeding. Diagnostic measure of a bleeding, his quantity, localization and the cause. Medical tactics.

## LATIN

Anatomo-histological section:

Introduction in subject. Latin alphabet.

Noun, its grammatic categories.

Suffixes in anatomic terminology.

Dictionary form of adjectives of all declinations in positive degree.

Semantics and use of adjectives suffixes.

Major pretexts used in anatomic terminology.

Major Latin attachments.

Major Greek attachments.

Pharmaceutical section:

Introduction in Latin pharmaceutical terminology.

Verbs in pharmaceutical terminology.

Prepositional designs in pharmaceutical terminology.

Prescription and rules of veneering its Latin parts.

Latin chemical terminology.

Major frequency pieces with complex spelling.

Clinical section:

Introduction in Latin clinical terminology.

Concept about terminoelements.

Names of pathological processes, formations and diseases.

Drawing up of clinical diagnoses.

## MEDICAL BIOLOGY AND GENERAL GENETICS

**Molecular-genetic level of living beings organization.** Nucleic acids. Peculiarities of DNA structure. Typical DNA specification. RNA structure, its kinds. RNA synthesis. A gene – fragment of genome nucleic acid. Genetic information coding. Genetic code, its properties.

**Cellular level of living beings organization.** A cell – an elementary genetic and structural-functional biological unit. Modern cellular theory. Cell as an open system. Flows of power, information and substance in a cell. Hereditary apparatus of man's cells. Morphofunctional chromosome characteristic. Chromosome types and rules. Man's cariotype, its characteristic. Cell's living cycle. Cell division, its types and kinds. Mechanisms of regulation metotic activity. Problems of cellular proliferation in medicine.

**Ontogenetic level of living beings organization.** Multiplication – universal property of living beings. Ways multiplication evolution. Sexual multiplication, its types. Gametogenesis (ovulogenesis, spermatogenesis). Spermentation. Fermentative processes during spermentation. Artificial spermentation. Impregnation, its phases. Sex dimorphism and distinct sexuality formation

in the evolution process. Gametogenesis peculiarities in man, its hormone regulation. Spermentation and impregnation peculiarities in man. Biological determination of sex in a man. Differentiation of sex indications during development. Meaning of testicular feminization gene in differentiation of signs of a female in species with "XY" genotype. Germaphroidism, transsexualism, transvestism and fetishism. Reproductive peculiarities in man. Artificial man's reproduction. Bioethics. Ethic and juridical intervention aspects into man's reproduction.

**Heredity.** Genetics, its subject, problems and methods. Structural-functional levels of hereditary material organization in procariots and eucariots: gene, chromosome, genome. Gene level of hereditary material organization in procariots. Gene expression in the process of protein synthesis in procariots. Expression gene regulation in eucariots. The role of steroid hormones. Gene engineering process, its purposes and problems. Biotechnology, its significance for medicine and pharmacy. Chromosome level of hereditary material organization. Chromosome and balance sex theories. Signs inheritance, controlled by X- and Y-chromosome genes. Chromosomes as groups of gene coupling. Full and partial coupling. T. Morgan's rule. Coupling groups in man. Cytologic and genetic chromosome maps. Statements of chromosome hereditary genome", theory. Genome level of hereditary material organization in pro- and eucariots. Program "Man's purposes and problems".

**Inheritance regularities.** Inheritance as a process of giving hereditary information from one generation to the other in the process of multiplication. Monohybridous interbreeding. The first generation hybrid uniformity law. The second generation splitting hybrid law. Di- and polyhybridous interbreeding. The law of independent non-allele gene combining. Mendelysing signs. Phenotype. Meaning of genetic factors in phenotype formation. Allele and non-allele gene interaction. Multiple alleles. Playotropic gene action. Gene dosage. Gene copies. Influence of habitat factors on genotype into phenotype realization. Gene encounter and expression. Phenocopies.

**Changeability.** Changeability, its types and kinds. Phenotypical changeability: modificational an ontogenetic. Reaction norm. Statistic methods of studying modificational changeability. Genotypical changeability: combinatal and mutational. Meaning of combining changeability in providing genotypical diversity of people. System of marriages. Mutational changeability. Hugo de Freeze theory. Classification and characteristics of mutations. Physical, chemical and biological mutagenic factors. Genetic danger of polluting environment with mutagenes. Genetic material reparation. Mutations connected with reparation disturbances, their role in man's pathology.

**Anthropogenetics.** Man as a specific object of genetic analysis. Methods of studying man's genetics. Prenatal genetic diagnostics. Bioethical aspects of prenatal diagnostics. Meaning of anthropogenetics for medicine. Hereditary diseases of man: gene, chromosome, cytoplasmic. Medico-genetic consultation, its purposes and problems. Stages of medico-genetic consultation. Bioethical and juridical genotherapy problems of man's hereditary diseases and medico-genetic consultation.

**Biology of development.** Ontogenesis, its types and kinds. Prezygote period, its significance. Embryonic development, its characteristics. Foetus membranes. Interrelation of a maternal organism and a foetus. Gene control of embryonic development. Intrawomb development of man. Critical periods of development. Teratogenic habitat factors. Post embryonic development, its stages. Influence of outer and inner habitat factors on organism growth. Acceleration. Man's constitution and its medical aspects. Organism aging. Aging theories. Gerontology, geriatrics. Clinical and biological death. The problem of euthanasia. Organism as an open self-regulating system. Notion of homeostasis. Gene homeostasis mechanisms. Genetics of tissue compatibility as gene control homeostasis manifestation in tissue and organs transplantation. Bioethical aspects of tissue and organs transplantation: donor, death definition, donor commercialization. Cell and tissue cultivation out of the organism. Homeostasis cellular mechanisms. Tissue and organs regeneration. Physiological and reparational regenerations. Meaning of regeneration for biology and medicine. Systemic homeostasis mechanisms. The role of endocrine and nervous systems in providing homeostasis. Comparative anatomy of organs and systems of organs of vertebral animals (body

covers, vertebral column, nervous, endocrine, circulatory, sex, digestive, respiratory and excretory systems). Ontophylogenetic condition of man's development vices.

**Population-typical level of living being organization.** Population, its characteristics. Hardy-Weinberg law. Mankind populational structure (demes, isolaters). The influence of mutational process, migration, isolation, gene drift on the people's population gene fund. The role of ancestor. Selection against homo- and heterozygotes. Selection and contra selection. Gene drift in human populations. Genetic polymorphism, its classification. Polymorphism of man, its biological, medical and social aspects. Genetic burden, its essence and medical meaning.

**Biospheric-biogeocenotic level of living being organization.** Man's ecology. Levels of man's ecological links. Ecological mankind's differentiation. Problem "predisease – disease - compensation". Valeology – a science of man's health. Main health factors.

**Medical parasitology.** Medical parasitology. Parasites and their classification. Parasite host. Ways of parasite penetration into the host's organism. Life cycles of parasites. Parasitism origin.

E.N. Pavlovski's studying about natural focus of diseases. Medical protozoology, its purposes and problems. The most important irritants of man's invasion diseases from classes Zoomastigota, Sarcodina, Sporozoa and Ciliata. Medical helminthology, its problems. Epidemiological helminth classification. Irritants of man's and animals' diseases from classes Trematoda, Cestoidea and Nematoda. Helminths parasiting in man only on the larva stage. Geographical parasite spreading, their peculiarities of morphology, cycle development, ways of man's infection. Methods of diagnosing (macro- and microscopic, coprologic, immunologic) pathogenic parasites. Medical arachnology. The most important parasites from classes Arachnoidea and Insecta.

**Poisonous mushrooms, plants and animals.** Toxicity is a universal and spread phenomenon in nature. Poisonous mushrooms: micro- and macromycetes. Mycotoxins, their characteristics, mechanisms of acting. Poisonous plants. Phytotoxins, their characteristics, mechanisms of acting. Clinic of man's poisoning by poisonous algae, ferns, naked-seed and flower plants. Usage of poisonous plants in pharmacy. Poisonous animals, classification of their zootoxins. Clinic of man's poisoning by toxic one-celled, intestinal, fish, reptiles. Prophylactic measures of poisoning by toxic animals. Zootoxin usage as raw material for getting medicines.

## MEDICAL GENETICS

### Subject and problems of medical genetics

The role of foreign and native scientists in medical and clinical genetics development, basic stages of its development. Interconnection with other clinical subjects. Place of hereditary pathology in the structure of disease and death rate of the population.

### Etiology of hereditary diseases

Chromosomal, genome and gene mutations, their role in human pathology. Lethal, sublethal mutations. The causes of mutations. Spontaneous and induced mutations, frequency of their occurrence; physical, chemical, biological mutagenesis. Medicinal mutagenesis, teratogenesis, cancerogenesis. Methods of studying mutagen activity of medicinal preparations.

### Methods of medical genetics

**Clinical - genealogic method** in medicine. Method's essence and its clinical value.

**Cytogenetic method.** Chromosome amount studying in cell cultures. Methods of chromosome dyes. Method informativity in diagnosis of hereditary diseases.

**Biochemical and molecular-genetic methods.** Indications for their usage. Screening programs.

**Twin method.** Interaction of hereditary and habitat factors in phenotypical variability of signs. Heritability factor.

**Populational method.** Hardy-Weinberg law. Genofund and populations structure. Genes drift. Inbreeding. Genogeography of hereditary diseases.

**Prenatal diagnostics of hereditary illnesses.** Indications. Methods prenatal diagnostics.

### **Semiotics of hereditary pathology**

Analysis of patients phenotype with hereditary pathology. Signs of disembryogenesis and their significance for diagnosis of hereditary diseases. Development abnormalities. Definition of hereditary syndromes. Classification of development abnormalities. Hereditary (genic, chromosomal, multifactorial), exogenic illnesses. Vague etiology defects.

### **Gene diseases and syndromes**

General pathogenesis characteristic of gene diseases. Clinical polymorphism. Genetic heterogeneity. Principles of gene diseases and syndromes classification. Diseases and syndromes with autosome-dominating type of inheritance (neurofibromatosis, Cunan's syndrome). Diseases and syndromes with autosome-recessive inheritance type (a syndrome of albinism eye - cutaneous, Kartagener's syndrome, mucoviscidosis, adreno-genital syndrome, Mekkel's syndrome). Syndromes and diseases with X-linked type of recessive inheritance (Dyushen's muscular dystrophy, ectodermal dysplasia, hemophilia). Syndromes with non-established type of inheritance (Kornelius de Lang syndrome, Rubenstein-Taby syndrome).

Hereditary metabolic diseases with the established primary biochemical defect. Hereditary diseases of amino acid exchange: phenylketonuria, albinism, tyrosinosis. Hereditary defects of carbohydrate exchange: galaktosemia, fructosemia, glykogenosis, mukopolysaccharidosis. Hereditary diseases of lipid exchange: sphyngolipidosis, hyperlipoproteinemia.

Features, allowing to suspect hereditary metabolism defects. Early diagnosis and prophylactic principles of hereditary metabolism defects. Principles of treating metabolism diseases: replaceable therapy, dietetic therapy, vitaminotherapy. Formacogenetics.

### **Chromosome diseases**

Human chromosome set abnormalities: numerical and structural. Clinical manifestations of chromosome abnormalities. The chromosome syndromes caused by disorders in autosome system (syndrome of Down, Patay syndrome, Edwards's syndrome, "cat's shout" syndrome). The chromosome syndromes connected with disorders in a system of sexual chromosomes (Turner's syndrome, Klinefelter syndrome, a trysomy syndrome on X - chromosome). Clinical signs, allowing to suspect chromosome illnesses. Indications to cytogenetic analysis. Problem of treating chromosome illnesses.

### **Multifactorial illnesses**

Models of inheritance. The role of hereditary and outer habitat factors. Family trees analysis. Significance of hereditary predisposition in development of stomach ulcer, oncological diseases, multiple sclerosis, lateral amyotrophic sclerosis, chronic alcoholism, diabetes, congenital developmental abnormalities. Genetic and habitat risk factors of multifactorial diseases development. Methods and forms prophylaxis. Individual forecast of multifactorial disease development and its significance for clinical practice.

### **Medico-genetic consultation**

Organizational principles in the republic and abroad. Specialized medico-genetic consultations. Indications for sending patients and their families for medico-genetic consultation. Consultation technique (taking anamnesis, basic and additional methods of hereditary diseases diagnostics, principles of genetic risk estimation in case of gene, chromosomal, multifactorial diseases). Deontological and moral - ethical problems connected with consultation.

Prophylactic medical examination and medico-social help to patients with hereditary and congenital diseases and their relatives.

## **MEDICAL INFORMATICS**

### **1<sup>ST</sup> COURSE**

1. Medical informatics as branch of science. Personal computer: devices. Labour protection working on PC.
2. Graphic interface of Microsoft Windows. Disk operations, files.
3. Ways of creation of text documents with Microsoft Word. Usage of tables.
4. Formation of text in documents Microsoft Word. Illustrations.
5. Automatization of calculations with electronic tables. Microsoft Excel. Peculiarities of interface. Table structure.
6. Analyzing of medical and biological information with electronic tables. Using formulas, making diagrams, preparing documents for print.
7. Information inquiry system of medical-biological data.
8. Brauser Internet Explorer. Navigation in e-net. Medico-biological resources of E-net.
9. Sending messages with electronic post.

### **2<sup>ND</sup> COURSE**

1. Labour protection while working on PC. Microsoft Office. Simultaneous work with several documents. Creation of complex documents on example of text redactor Microsoft Word. Using Microsoft Word as table publishing system.
2. Statistic analyses of information with the help of electronic tables. Their usage for analyzing data and statistic analyses of the results of medical and biological experiment.
3. Prove of the hypothesis of medical and biological experiment with functions of Excel.
4. Creation and usage of multimedia documents. Multimedia opportunities of modern PC. Presentation: using graphic, video, animation.
5. Microsoft Access. Creation of the tables, forms.
6. Electronic library "MARC"-SQL.
7. Antivirus defense of PC and local administration network. Preventive measures. Antivirus programs (Kaspersky Anti-Virus, Symantec Antivirus).
8. Reserved copying and archivation as elements of safety. WINRAR, WINZIP.
9. Effective search in e-net. Working with the most popular search E-net systems.
10. Computer test.

## **MEDICAL AND BIOLOGICAL PHYSICS WITH BASES OF HIGHER MATHEMATICS**

Introduction. Purposes, task and structure of medical and biological physics. Their place and role in system of medical education, intersubject connections with other medicobiological and clinical disciplines.

Mathematical description of medicobiological processes and medical data processing.

Elements of informatics and computer facilities.

Bases of biomechanics.

Mechanical oscillatory and wave processes. Acoustics.  
Physical bases of hemodynamics.  
Thermodynamics and phenomena of transformation in biological systems.  
Bioelectric potentials.  
Electrical and magnetic phenomena in organism, electrical influences and methods of research.  
Optical research methods and influence by radiation of optical range on biological objects.  
Elements of physics of atoms and molecules.  
Ionizing radiations, basis of dosimetry.

## **MEDICAL PSYCHOLOGY**

Mental functions of a man and their development in ontogenesis.  
Psychology of a person.  
Psychological questions of contact “doctor – patient”  
Internal picture of illness and reaction of person to illness.  
Psychohygiene. Psychological protection.  
Bases of medical sexology.  
Questions of deontology.  
Private medical psychology:  
Faculties of children’s illnesses.  
Faculties of internal illnesses.  
Faculties of surgical illnesses.  
Faculty of pathological anatomy.  
Faculty of obstetrics and gynecology.  
Faculty of ophthalmology.  
faculty of otorhinolaryngology.  
Faculty of oncology.  
Faculty of social hygiene and organizations of public health services.  
Faculty of hygiene.

## **MEDICAL REHABILITATION**

1. Basic problems of MA, the organization of service, the documentation.
2. Methods of definition of reserves of the functional systems of an organism. Physical development.
3. The functional loading tests. An assessment of rehabilitational opportunities. The medical conclusion.
4. The basis of a physical aftertreatment in different cases.
5. Rehabilitation in clinic of internal diseases. Basic contingents of the patients being subjected to rehabilitation (patients with angina, hypertension, asthma, chronic bronchitis, patients with various diseases of joints, peptic and duodenal ulcers, rheumatic disease). An assessment of reserves of the functional systems of an organism and rehabilitational opportunities of patients. Development of the individual program of rehabilitation.
6. Rehabilitation in surgical and traumatological clinics. Basic contingents (patients after operative treatment of the internal organs of thoracic and abdominal cavities, patients with

consequences of traumas of the upper and lower limbs, a column). An assessment of functionalities of the defensive systems of an organism, forecasting of rehabilitational potential. Development of the individual program of the rehabilitation.

7. Rehabilitation in neurologic clinic. Basic contingents of the patients (patients with neurologic manifestations of osteochondrosis, patients with consequences of infringements of the cerebral circulation, patients with consequences of various disorders central and periphery motorial neurones, patients with ICP, patients with consequences CCT).

## **MEDICAL MICROBIOLOGY, IMMUNOLOGY AND VIROLOGY**

### **GENERAL MICROBIOLOGY**

The subject, structure and tasks of modern medical microbiology. Main historical periods in microbiology. L. Pasteur and his outstanding contribution to microbiology science. R. Koch, his work in microbiology. Systematics and nomenclature of microorganisms. General approaches to microbial taxonomy. Species concept in microbiology.

General characteristics of basic morphology forms of bacteria (spherical, spiral, rode-shaped, filamentous, branched, etc.) Methods of microscopy.

Structure of a bacterial cell (obligate and facultative components). Bacterial envelope, its composition. Cytoplasmic membrane – structure and function. Bacterial cell wall, its role and structure in Gram-positive and Gram-negative bacteria. Bacterial capsule, its structure and function. Spores, stages of sporulation, methods of detection. Bacterial flagella, pili, needle complex. Methods of bacteria motility detection. Cytoplasm, cytoplasmic inclusions. Nucleoid, its structure and function. Differential stain methods – Gram stain, Ziehl-Neelsen acid-fast stain, Neisser stain, Gins capsule stain, methods for spore-forming bacteria stain.

Morphology and characteristics of spirochetes, chlamydiae, rickettsiae and mycoplasmas.

Morphology and characteristics of fungi.

Metabolism of bacteria. Classification of bacteria according to their nutrition type. Mechanisms of bacterial trans-membrane transport. Methods of bacterial cultivation. Requirements to nutrient media. Classification of nutrient media.

Biologic oxidation in bacteria. Fermentation: pathways and end products. Respiration. Substrate and oxidative phosphorylation, their significance. Classification of bacteria according to their types of respiration. Methods of anaerobic bacteria cultivation. Isolation of pure culture of anaerobes.

Bacterial enzymes, their properties and classification. Biological role of enzymes. Determination of bacterial carbohydrate hydrolyses. Determination of bacterial proteolytic properties. Evaluation of catalase, urease and other kinds of enzyme activity.

Growth and reproduction of bacteria.

Bacterial pigments, their significance. Classification of pigments.

Bacterial habitation in the environment. Microbial ecology. Microbial communities, ecosystem, ecological variants. Types of microbial symbiosis. Antagonistic microbial relationships, their mechanisms. Kinds of antagonism.

Model sanitary microorganisms, their characteristics. Microflora of air. Indices of air quality. Methods for determination of air sanitary state. Water quality characteristics. Total microbial count of water, water model sanitary microorganisms. Methods for determination of water sanitary state. Microflora of soil and foodstuffs.

Normal microflora of human body, its role in human physiology and pathology. Dysbacteriosis, etiology, pathogenesis, clinical findings, treatment and prophylaxis.

Organization of bacterial genome. Nucleoid, plasmids and episomes, their structure and function. Mobile genetic elements of bacterial genome. Transposons, IS-sequences. Phenotypic bacterial variations. Modifications, their characteristics. Genotypic forms of bacterial variation, their classification. Bacterial dissociation. Mutations, their characteristics. Bacterial reparations. Bacterial recombinations: general characteristics and mechanism. Transformation, transduction and conjugation in bacteria: genetic mechanisms and significance.

Methods of molecular genetic analysis. Nucleic acid sequencing. Molecular hybridization of nucleic acids. Polymerase chain reaction.

Principles of genetic engineering. Applications of recombinant technologies in biology and medicine.

Chemotherapy. Classification of chemopreparations. Therapeutic ratio.

Antibiotics. Requirements to antibiotic preparations. Classification of antibiotics according to the origin, antibacterial effects, spectrum of action and molecular mechanisms of their antibacterial activity. Antibiotic action by inhibition of cell wall synthesis: beta-lactam antibiotics (cephalosporins, penicillins), vancomycin, bacitracin. Antibiotic action by impairment of cell membrane function: amphotericins, polyenes, polymyxins. Antibiotic action by inhibition of protein synthesis: chloramphenicol, erythromycin group and azalides, lincomycin group, tetracyclines, aminoglycosides. Antibiotic action by impairment of nucleic acid metabolism: fluroquinolones, rifampicin, sulfonamides, trimethoprim.

Side effects of antibiotics. Resistance to antimicrobial drugs, its mechanisms. Non-genetic and genetic (chromosomal and extrachromosomal) resistance. Prevention of drug resistance.

Measurement of antimicrobial activity: disc diffusion test for determination of bacterial susceptibility to antibiotics. Broth and agar dilution susceptibility tests, their evaluation. E-test.

Infection (infectious process), its types. Conditions for infectious process development. General characteristics of infectious diseases, their periods. Microbial carriage. Different forms of infections, their characteristics. Classification of infections according to their origin, localization and spread, manifestations. Reinfection, relapse, superinfection.

Epidemic process. Conditions for epidemic process development. Main routes of disease transmission, their characteristics. Anthroponoses, zoonoses and sapronoses, their characteristics. Sporadic, epidemic, pandemic, endemic forms of infectious diseases.

Pathogenicity and virulence, their characteristics. Measurement of virulence. Adhesion and invasion of bacteria, their molecular mechanisms.

Bacterial exotoxins, their characteristics, classification and mechanisms of action. Bacterial endotoxins, their structure and activity.

## **IMMUNOLOGY**

Immunology and immunity. Innate, acquired, artificial, natural immunity. Anti-infectious and non-infectious immunity, their forms.

Immune system and its sub-systems. Central and peripheral immune organs. CD-antigens, their significance.

Cytokines, their classification. Interleukins, their biological role and functions. Interferons and tumor necrosis factor group cytokines. Other cytokines.

T-cells, their development and differentiation. TCR structure. T-cells subpopulations, their role. B-cells, their development and differentiation.

System of mononuclear phagocytes, its biological role. Dendritic cells. Phagocytosis, its stages. Methods for phagocytosis evaluation. NBT-test.

Antigens, their properties. Bacterial and viral antigens. Protective antigens, superantigens, antigenic mimicry. Alloantigens. Human blood group antigen systems. HLA-antigens.

Immunoglobulins, their characteristics. Immunoglobulin classes. Methods for immunoglobulin determination. Antibodies, their structure and function. Mechanisms of antibodies action. Monoclonal antibodies, their main medical and biological applications.

Genetic control of TCR and antibody variability.

Complement system. Classic, alternative and lectin pathways of activation.

Dynamics of immune response. Immune cell cooperation. Primary and secondary immune response, their characteristics.

Immunopathology, classification. Immediate and delayed types of hypersensitivity, their general characteristics. Coombs & Gell classification of hypersensitivity reactions. Anaphylactic hypersensitivity. Stages of development. Allergy and allergic diseases. Cytotoxic hypersensitivity, mechanisms of development. Immune complex-mediated hypersensitivity. Autoimmune diseases evolved via immune complex mechanisms. Cell-mediated (delayed) hypersensitivity. The diseases developed by these reactions. Skin tests for infection allergy diagnostics. Stimulatory and blocking hypersensitivity. Autoimmune diseases, developed by these reactions.

Primary immunodeficiencies. Combined and T cell immunodeficiencies. B cell immunodeficiencies. Phagocyte and complement system immunodeficiencies. Secondary immunodeficiencies.

Active immunoprophylaxis. Vaccines, their classification and characteristics. Passive immunotherapy. Immune antisera and immunoglobulin preparations.

Evaluation of immune status. Methods for estimation of quantity and functional activity of T- and B-cells. Blast transformation reaction. Flow cytometry technique. Reactions of immunity (serologic reactions), their purposes. Mechanism, conditions and reagents for serologic reactions. Indirect hemagglutination test, its goal. Reagents for indirect hemagglutination. Coombs' reaction, its variants. Reagents for Coombs' reaction. Precipitation reaction, reagents and main goal. Variants of precipitation reactions (ring precipitation, immune diffusion, immune electrophoresis and others). Reaction of toxin neutralization, different variants of reaction. Reagents and main goal. Immune lysis reaction. Hemolysis reaction. Complement fixation test, its technique and purposes. Immune fluorescent assay, its variants and main applications. Enzyme-linked immunosorbent assay (ELISA), its reagents, stages and use in laboratory diagnosis. Radioimmune assay. Western blotting analysis.

## **SPECIAL MICROBIOLOGY**

Staphylococci: classification, structure and properties. Virulence factors of staphylococci. Pathogenesis and clinical findings in staphylococcal infections. Laboratory diagnosis, specific prophylaxis and treatment.

Streptococci: classification, structure and properties. Virulence factors of streptococci. Pathogenesis and clinical findings in streptococcal infections. Laboratory diagnosis. Differential diagnosis of *S. pyogenes*, *S. agalactiae*, *S. pneumoniae*, and *Enterococcus spp.* Specific prophylaxis and treatment of streptococcal infections.

Classification, structure and properties of clostridia. Virulence factors of clostridia – causative agents of gas gangrene. Pathogenesis and clinical findings in gas gangrene. Laboratory diagnosis, prophylaxis and treatment. Structure and properties of *C. tetani*. Virulence factors. Pathogenesis and clinical findings in tetanus. Laboratory diagnosis, specific prophylaxis and treatment. Classification and properties of *C. botulinum*. Botulotoxin – properties, mechanism of action. Pathogenesis and clinical findings in botulism. Laboratory diagnosis, prophylaxis and treatment.

Classification of pathogenic gram-negative non-sporeforming anaerobes. Structure and properties of bacteroids, fusobacteria, prevotellas and other non-sporeforming anaerobic bacteria. Laboratory diagnosis, prophylaxis and treatment of infections.

General characteristics of *Enterobacteriaceae* family. Classification, structure and properties of *Escherichia coli*. Non-specific *Escherichia coli* infections. Enteropathogenic, enterotoxigenic, enteroaggregative, enteroinvasive and enterohemorrhagic *E. coli*: pathogenesis and clinical findings of the diseases. Laboratory diagnosis of escherichioses. Prophylaxis and treatment. Shigellae: classification, structure and properties. Virulence factors. Pathogenesis and clinical findings in shigelloses. Laboratory diagnosis, prophylaxis and treatment. Salmonellae: classification, structure

and properties. Antigenic structure. Kauffmann and White scheme of salmonella typing. Virulence factors. Pathogenesis and clinical findings in enteric fever. Laboratory diagnosis, specific prophylaxis and treatment. Pathogenesis and clinical findings in salmonellosis. Laboratory diagnosis of salmonellosis, specific prophylaxis and treatment.

Classification, structure and properties of vibrios. Virulence factors of cholera vibrio. Pathogenesis and clinical findings in cholera. Laboratory diagnosis, specific prophylaxis and treatment of cholera.

Classification, structure and basic properties of yersiniae. Pathogenesis and clinical findings in plague and yersiniosis. Laboratory diagnosis, prophylaxis and treatment of yersiniosis.

Classification, structure and properties of anthrax causative agent. Pathogenesis and clinical findings in anthrax. Laboratory diagnosis, prophylaxis and treatment of the disease.

Pathogenic brucellae: classification, structure and properties. Pathogenesis and clinical findings in brucellosis. Laboratory diagnosis, prophylaxis and treatment of the disease. Classification, structure and properties of *F. tularensis*. Pathogenesis and clinical findings in tularemia. Laboratory diagnosis, prophylaxis and treatment of the disease.

*Pseudomonas aeruginosa*: structure and properties. Pathogenesis and clinical findings in *Pseudomonas aeruginosa* infections. Laboratory diagnosis, prophylaxis and treatment.

Classification, structure and properties of bordetellae. Pathogenesis and clinical findings in pertussis and parapertussis diseases. Laboratory diagnosis, prophylaxis and treatment of pertussis and parapertussis.

*Haemophilus influenzae* and related bacteria: structure and properties. Pathogenesis and clinical findings in infections caused by haemophilic bacteria. Laboratory diagnosis, prophylaxis and treatment.

Classification, structure and properties of meningococci. Pathogenesis and clinical findings in meningococcal infections. Laboratory diagnosis, prophylaxis and treatment of meningococcal infections.

Classification, structure and properties of pathogenic corynebacteria. *C. diphtheriae*. Pathogenesis and clinical findings in diphtheria.

Classification, structure and properties of pathogenic mycobacteria. Pathogenesis and clinical findings in tuberculosis. Laboratory diagnosis, prophylaxis and treatment of the disease. *M. leprae*. Laboratory diagnosis of leprosy.

Classification, structure and properties of pathogenic treponemas. Syphilis causative agent. Pathogenesis and clinical findings in syphilis. Laboratory diagnosis, prophylaxis and treatment of syphilis.

Classification, structure and properties of gonococci. Pathogenesis and clinical findings in gonorrhoea. Laboratory diagnosis, prophylaxis and treatment of gonorrhoea.

Pathogenic borreliae: classification, structure and properties. Pathogenesis and clinical findings in borrelioses (relapsing fevers, Lyme borreliosis). Laboratory diagnosis, prophylaxis and treatment of the diseases.

Pathogenic leptospirae: classification, structure and properties. Pathogenesis and clinical findings in leptospiroses. Laboratory diagnosis, prophylaxis and treatment of leptospiroses.

Pathogenic rickettsiae: classification, structure and properties. Pathogenesis and clinical findings in rickettsioses. Laboratory diagnosis, prophylaxis and treatment of rickettsioses.

Pathogenic legionellae: classification, structure and properties. Pathogenesis and clinical findings in Legionnaire disease. Laboratory diagnosis, prophylaxis and treatment of legionellosis.

Q fever causative agent. Laboratory diagnosis, prophylaxis and treatment of Q fever.

Chlamydiae: classification, structure and properties. Pathogenesis and clinical findings in chlamydioses of various localizations. Laboratory diagnosis, prophylaxis and treatment of chlamydioses.

Mycoplasmas: classification, structure and properties. Pathogenic mycoplasmas, affecting respiratory and urogenital tract. Pathogenesis and clinical findings in mycoplasmal pneumonias and

mycoplasmal urogenital disorders. Laboratory diagnosis, prophylaxis and treatment of mycoplasmal infections.

Medically important fungi. Classification of mycoses. Laboratory diagnosis, prophylaxis and treatment of mycoses.

Causative agents of protozoan diseases.

## **MEDICAL VIROLOGY**

Classification and structure of viruses. Viral genomic organization. Virus replication cycle. Outcomes of the viral infections. Laboratory diagnosis of viral infections. Different types of cell cultures. Indication and identification of viruses in cell cultures. Principles of prophylaxis and treatment of viral infections. Anti-viral drugs, mechanisms of action.

Influenza viruses, classification, structure and properties, viral replication cycle. Pathogenesis and clinical findings in influenza. Laboratory diagnosis of influenza. Specific prophylaxis and treatment of the disease.

Paramyxoviruses. Classification, general characteristics, replication cycle. Pathogenesis and clinical findings in parainfluenza. Laboratory diagnosis of the disease, specific prophylaxis and treatment. Measles virus, classification, structure and properties. Pathogenesis and clinical findings in measles. Laboratory diagnosis of the disease, specific prophylaxis and treatment. Mumps virus, classification, structure and properties. Pathogenesis and clinical findings in mumps. Laboratory diagnosis of the disease, specific prophylaxis and treatment. Respiratory syncytial virus, classification, structure and properties. Pathogenesis and clinical findings in respiratory syncytial infections. Laboratory diagnosis of the diseases, specific prophylaxis and treatment.

Adenoviruses, classification, structure and properties. Pathogenesis and clinical findings in adenoviral infections. Laboratory diagnosis of adenoviral diseases, specific prophylaxis and treatment.

Coronaviruses. Classification, structure and replication cycle of SARS virus. Pathogenesis and clinical findings in SARS. Laboratory diagnosis of the disease, specific prophylaxis and treatment.

Picornaviruses: classification and general characteristics. Polioviruses. Pathogenesis and clinical findings in poliomyelitis. Laboratory diagnosis and specific prophylaxis of the disease. Cocksackieviruses of A and B groups. Classification and general characteristics. Clinical forms of coxsackie infection. Laboratory diagnosis and prophylaxis.

Reoviruses and rotaviruses. Classification and general characteristics. Laboratory diagnosis and prophylaxis of reoviral infections.

Hepatitis A and E viruses. Pathogenesis and clinical findings in hepatitis A. Laboratory diagnosis of the disease, specific prophylaxis and treatment. Hepatitis B, D and C viruses: classification, structure and properties. Pathogenesis and clinical findings in hepatitis B and D. Laboratory diagnosis, specific prophylaxis and treatment. Pathogenesis and clinical findings in hepatitis C, prognosis of HCV infection. Laboratory diagnosis, prophylaxis and treatment. Non-classified hepatitis viruses.

Retroviruses, their classification. Structure of HIV. Virion resistance. HIV replication cycle. Pathogenesis of HIV infection. Epidemiology and clinical findings in HIV infection. AIDS development. Laboratory diagnosis, prophylaxis and specific treatment of HIV infection.

Herpesviruses. Classification and general characteristics. Herpes simplex viruses of 1 and 2 type. Pathogenesis and clinical findings in herpetic infection. Laboratory diagnosis, treatment and prophylaxis of the disease. Varicella-zoster herpesvirus infections. Pathogenesis and clinical findings in varicella and zoster. Laboratory diagnosis, prophylaxis and treatment of varicella and shingles. Cytomegalovirus infection. Pathogenesis and clinical findings in CMV infection. Laboratory diagnosis, prophylaxis and treatment. Epstein-Barr virus infection. Clinical findings in EBV infection. Laboratory diagnosis, prophylaxis and treatment.

Alphaviruses, flaviviruses, bunyaviruses, filoviruses. Arboviral infections. Causative agents of viral hemorrhagic fevers.

Rubella virus. Classification, structure and properties. Clinical findings in rubella. Congenital rubella syndrome. Laboratory diagnosis, specific prophylaxis and treatment of rubella.

Rabdoiruses, classification and general characteristics. Rabies virus. Structure and properties. Pathogenesis and clinical findings in rabies. Laboratory diagnosis, specific passive and active prophylaxis of rabies.

Prions and prion diseases.

## **NEUROLOGY AND NEUROSURGERY**

### **General neurology**

Neurology and neurosurgery in the system of clinical subjects. Course problems of neurology and neurosurgery. Structure and organization of neurologic and neurosurgical help. Basic stages of neurology and neurosurgery development. Instrumental methods of research in neurology and neurosurgery. X-ray examination of the skull and the backbone. Echoencephalography. Electroencephalography. Electroneuromyography. Cerebral angiography. Lumbar puncture and cerebrospinal liquid research. Myelography. Ventriculography. Monitoring of intracranial pressure. X-ray computer tomography. Magnet-resonant tomography. Positron-emissionary tomography. Ultrasound dopleurography. Endocranioscopy.

Structurally functional organization of the nervous system. Factors and mechanisms of primary and secondary nervous system damage. Symptoms and syndromes of nervous system affect.

Sensitive frustration and syndromes of sensitivity disturbance while affecting peripheral nerves, textures, spinal roots, segments of the spinal cord, the brain of the trunk, hemispheres.

Reflexes and their disturbances. Signs of the central and peripheral paralyses. Syndromes of motor disturbances while affecting hemispheres, the brain of the trunk, the spinal cord, roots and textures, peripheral nerves. Syndromes of affect of pallid and striar departments (parkinsonism, hyper kinetic syndrome). Signs of affecting cerebellum. Variants of ataxia (static, dynamic, cerebellic, sensitive, vestibular, cortex).

Syndromes of smell disturbances. Change of acute eyesight and visual limits during disturbances various parts of the visual analyzer. Changes of the eye bottom during brain diseases. Eye moving nerves (III, IV, VI) and look regulation. Disturbance of eye moving functions during the affect of various parts of the nervous system. Disturbance variants of trigeminal nerve functions. Functional disorder of the obverse nerve. Functional disturbances of various nerve types. Bulbar and pseudobulbar paralyses (diasartery, dysphony, reflexes of oral automatism). Alternating syndromes.

Structure and functional organization lumbico-reticular complex and the segmentary device of vegetative sphere. Syndromes of vegetative frustration during damage of various parts of the nervous system.

The structurally functional organization of the higher brain functions. Speech as the supreme function of the human nervous system, aphasy and its variants. Alexy, agraphy. Gnostic functions and agnosy variants. Praxis. Kinds of apraxia. Structural and functional memory provision. Amnesia and its types. Definition of consciousness and criteria of its estimation. Scale of conscious quantitative changes. Comas. Scale of Glasgow coma. Psychomotor excitation, delirium, twilight conscious obscure, demension, chronic vegetative condition.

Subdural, under net spaces, sinuses of the hard cerebral cortex. Secretion, circulation and reabsorption of cerebrospinal liquids. Characteristics of cerebrospinal liquids, types of changes. Meningual syndrome. A syndrome of an intracranial hypertension.

Peculiarities of brain blood supply, mechanisms of automatic regulation of the cerebral blood flow. Spinal cord diameter blood supply.

Syndromes of the nervous system local affect. Front, parietal, temporal, occipital lobes. Affect of the calloused body, internal capsule, hypothalamic-hypophyseal regions, thalamic regions, regions of basal nuclei, cerebellum. Affect of the middle brain roof region, legs of a brain, bridge, elongated brain. Affect of various parts of the spinal cord. Affect of humeral texture. Affect of various nerves. Affect of lumbar texture. Affect of femoral, sciatic, nerves.

Principles of the nervous system functions research.

### **Private neurology**

Meningitises: purulent, serous; bacterial, virus, fungoid; primary, secondary. Meningococcal meningitis. Meningitis caused by hemophilic stick, pneumococcal, staphylococcal. Otogenic meningitis. Enteroviral meningitis. Parotid meningitis. Complications of meningitises. Primary and post- or parainfectious encephalitis. Herpes encephalitis. Epidemic Economo encephalitis. Poliomyelitis. Polyomyelite-like diseases. Parainfectious encephalomyelites. Postvaccine affects of the nervous system. Affect of the nervous system inc case of flu. Neurologic signs of HIV-INFECTION. Affect of the nervous system at brucellosis. Affect of the nervous system at syphilis. Affect of the nervous system at toxoplasmosis, cysticercosis, ehinococciosis.

Demyelinizing diseases. Multiple sclerosis. Sharp multiple encephalomyelitis. Slow virus infections (Kreitzfeld-Jacob's disease, etc.).

Polyneuropathies. Sharp inflammatory demyelinating polyradiculoneuropathy. Chronic inflammatory demyelinating polyradiculoneuropathy. Diphtheric polyoneuropathy. Diabetic polyoneuropathy. Alcoholic polyoneuropathy. Polyoneuropathy at poisonings by phosphororganic compounds. Neuralgia of trigeminal nerve. Neuropathy of front nerve. Neuropathy intercostal nerves. Herpetic radiculoganglioneuritis. Compression-ischemic neuropathies. Vertebro gene root and reflex syndromes of the nervous system damage. Vertebro – gene radiculomieloischemia. Complex therapy of vertebro gene painful syndromes.

Sharp disturbances of the cerebral circulation. Changing disturbances of the cerebral circulation. Ischemic heart attacks. Hemorrhage heart attacks. Light heart attacks. Sharp hypertonic encephalopathy. Intensive and basic therapy of heart attacks. Therapy of ischemic and hemorrhage heart attacks. Progressive disturbances of cerebral circulation. Spinal circulation disturbances. Prophylaxis of cerebral circulation disturbances.

Vegetative dystonia syndrome. Vegetative crises. Hypothalamic syndrome. Headache. Alzheimer's disease. Parkinson's disease. Essential tremor. Torsionic dystonia. Small trochee. Hepatocerebral dystrophy. Spinocerebral degenerations – Friedrich's disease. Phakomatoses. Progressing muscular dystrophies. Myasthenia. Myasthenic crises. Myotonies. Paroxysmal myoplegy. Lateral amiotrophic sclerosis. Child's cerebral paralysis. Perinatal encephalopathy. Intracranial patrimonial trauma.

Disturbance of the nervous system at diabetes, endogene intoxications, botulism, ethyl alcohol intoxication. Poisoning with methyl alcohol, barbiturates, carbon oxide, mercury. Radiating disturbances of the nervous system. Electrotrauma, influence of a magnetic field, overheating.

Epilepsy and epileptic syndromes. Epileptic status.

Coma conditions, caused by disturbance of the nervous system. Principles of conducting patients in case of widespread urgent conditions at disturbances of the nervous system.

### **Neurosurgery**

Principles of neurosurgical operations. Lumbar punctures. Puncture of the brain and ventricles. Drainage of the spinal subarachnoidal spaces. Cranial trepanation (resection and boneplastic). Methods of bleedings cessation. Notions about microsurgical, stereotaxic, endoscopic

and endovascular technologies in brain surgery. Laminectomy. Access to peripheral nerves, neurolysis.

Cranio-cerebral damages: brain concussion, bruises of brain, epidural, subdural and the intracerebral hematomas, depressed fractures of a skull. Complications and consequences of cranio-cerebral traumas. Concussion, bruise and damage of the spinal cord.

Surgical treatment of neuralgic trigeminal nerve. Traumatic damage of humeral texture. Surgical treatment of neurologic signs of an osteochondrosis of a backbone.

Brain tumors. Tumors of spinal cord.

Principles and variants of surgical treatment of abnormalities (arterial and arterio-venous aneurysm) and occlusive damage of brain vessels. Surgical treatment of hemorrhage insults.

Brain abscesses. Spinal epiduritis. Surgical methods of epilepsy treatment.

Hydrocephaly. Cranio-cerebral and spinal hernias.

Tactics of conducting patients at widespread urgent neurosurgical conditions.

## NURSERY PRACTICE ON THE PROPEDEUTICS OF INTERNAL DISEASES

The subject «Nursery practice on a propaedeutics of internal illnesses " is the obligatory form of preparation on a speciality - «Medicine».

The purpose of nursery practice at the course of propaedeutics of internal illnesses is acquaintance with the work of treatment-and-prophylactic medical institution, purchase of practical skills, mastering of various manipulations and a taking care of patients of a therapeutic department.

To achieve this purpose the following **problems are** provided: studying of main signs of of internal diseases;

- purchase of practical skills and skills on examination and a taking care for the patients of therapeutic department, rendering of the first pre-medical aid at urgent states;
- To train in skill to use medical equipment and instruments;
- To train in main principles of medical ethics and a deontology, bases of sanitary-educational work in medical institutions.

Obligatory amount of nursery practice - 12 working days (72 hours).

Nursery practice on a propaedeutics of internal illnesses is carried out in the specialized hospitals of a therapeutic department of institutions of public health services in July.

Successful passing of nursery practice is based on knowledge and skills got on the following disciplines: normal anthropometry, normal physiology, pathological anatomy, pathological physiology, a propaedeutics of intrinsic illnesses.

After end of practice the student should **know**:

The organization and features of work of a reception;

Sanitary-and-epidemiologic regimen of a reception;

Rules of veneering of the medical documentation;

Sequence of admission and cleansing of patients;

The device, equipment, operating mode of the department;

Duties of the nurse in the department;

The medical documentation (rules and the order of its conducting) a post of the nurse

Medical - protective regimen of the department, the order of visitation of patients;

Rules of prescription and storage of medicines, narcotic and strong effective medicines;

Rules of veneering of portional demands, dietary tables;

The sanitary-and-epidemiologic regimen of a medical (therapeutic) department;

The student should **be able**:

1. To carry out manipulations and the procedures specified in the list of practical skills (a cleansing, transportation of patients, change of linen, a toilet of a skin and mucous, measuring the temperature, a respiratory rate, sphygmus, arterial pressure, the elementary physiotherapeutic procedures, making injections and intravenous drop infusions, presterilizing processing of syringes, giving clysters, a gastric lavage, fence of matter for analyses of a blood, urine, a feces and a sputum , etc.).

2. To keep norms of a sanitary - antiepidemic regimen and prophylaxis intrahospital infection contaminations, the safety precautions.

3. To work in a reception ward, on a nursery post and in a room for medical procedures of therapeutic department, to carry out night watches.

4. To conduct medical documentation in a reception ward and on a nursery post of therapeutic department to hand over watch on change.

5. To render the urgent pre-medical aid at acute cardiac and vascular failure, angina pectoris and a myocardial infarction, a fluid lungs, a hypertonic crisis, an attack of a bronchial asthma, an acute anaphylaxis, a pulmonary and internal bleeding, hypoglicemical and hyperglycemic (ketoacidotic) comas, acute poisoning, to carry out reanimation at a failure of cardiac activity and respiration.

6. To carry out sanitary - educational work with patients and their relatives (conversations, writing articles for sanitary shields).

The student should master the following *practical skills*:

1. Preparation of working disinfectant solutions
2. Measuring the height and weight of the patient's body
3. Measuring the size of thoracic cell
4. Accounting the number of breathing movements
5. Transportation of the patient on a wheel-chair, stretcher - wheelchair and manually on stretcher
6. To change linen and underwear for the seriously ill patient
7. Taking a bedpan
8. Washing the patient's genitals
9. Carrying out of a toilet of an oral cavity
10. Taking care of eyes. Application of ophthalmic drops, ointments
11. Carrying out of a toilet of ears. Dropping into ears
12. Carrying out of a toilet of a nose. dropping into a nose
13. Taking care of a hair of seriously ill patients
14. Feeding of patients
15. Artificial feeding of patients
16. Measuring the temperature of the body and registration of the results
17. Taking sinapisms
18. Taking cups
19. Making a warming compress
20. Making a cooling compress
21. Preparation and taking a heater to the patient
22. Preparation and taking a bladder with ice
23. External ways of introduction the medical products
24. Prescription, storage and distribution of medicines
25. Safety precautions regulations at work with a blood and biological fluids
26. Transportation of a blood and biological fluids
27. Processing of a skin, mucous , biological fluids
28. Presterilizing of medical products
29. Testing the quality of cleaning syringes and needles from blood and washing solution
30. The collecting of a sterile syringe from a craft-package and from a sterile table
31. Taking of medicinal solution from the ampula and a bottle
32. Calculation of a dose of an insulin and its injecting
33. Delution freezed dried ampuled forms of medicines

34. Intradermal injection
35. Intramuscular injection
36. Intravenous bolus injection
37. Filling of system for intravenous drop injection with medicine
38. Carrying out the intravenous drop injection
39. Preparation of patients for radiological and instrumental research
40. of kidneys and urinary tract
41. Accounting a number of respiratory movements
42. Rendering of the pre-medical aid at a subitaneous shortness of breath (dyspnea)
43. The collecting of a sputum for bacterioscopic research
44. The collecting of a sputum for bacteriological research
45. First-aid treatment at a pneumorrhagia, a pulmonary bleeding
46. Carrying out of an oxygenotherapy. Safety precautions regulations
47. Preparation of instruments for carrying out of a pleurocentesis
48. Measuring the pulse rate on peripheral arteries
49. Taking an arterial blood pressure
50. Rendering of the pre-medical aid at a renal colic
51. Rendering of the pre-medical aid at a vomiting
52. Rendering of the pre-medical aid at a gastromenia and an intestine
53. Preparation of instruments for carrying out of a transabdominal puncture
54. Taking smears from nasal sinuses for bacteriological research
55. Technics of a gastric lavage
56. Carrying out of fractional research of a gastric juice
57. Carrying out of duodenal intubation
58. Introduction of a colonic tube
59. Giving a cleansing enema
60. Giving a siphon clyster
61. Giving an oil clyster
62. Giving a hypertonic clyster
63. Giving a medicinal clyster
64. Capture of a feces for bacteriological research, on eggs of worms
65. Preparation of a sick feces for a capture on an occult blood
66. The collecting of urine for general analysis
67. The collecting of urine for analysis according Nechiporenko
68. The collecting of urine for analysis according Zimnitsky
69. The collecting of urine for carrying out of a daily urine
70. Catheterization of urinary bladder with a mild catheter
71. Preparation of esophagus of a patient for a X-ray investigation of stomach
72. Preparation of the patient for carrying out of an irrigoscopy, proctosigmoidoscope, colonoscopy
73. Preparation of the patient for carrying out of FGDS
74. Preparation of the patient for ultrasonic research of the organs of abdominal cavity
75. Rendering of the pre-medical aid at an attack of angina pectoris
76. Rendering of the pre-medical aid at suspicion on the tightened anginous attack
77. Rendering of the pre-medical aid at a hypertonic crisis
78. Rendering of the pre-medical aid at a hyperthermia
79. Rendering of the pre-medical aid at an attack of a bronchial asthma
80. Rendering of the pre-medical aid at an acute anaphylaxis
81. Carrying out of artificial ventilation of lungs
82. Carrying out of an indirect cardiac massage.

## OBSTETRICS

Section 1: The purposes and of the discipline, its place in the educational process.

1.1 Purpose of teaching of discipline.

The basic purpose of a course of obstetrics is studying of physiological and pathological postnatal period by the 4<sup>th</sup> year students, in volume necessary for the doctor of any speciality. Obstetrics is a branch of a clinical medicine, studying of it promotes formation of a clinical way of thinking of a doctor. Theoretical knowledge and skills on Obstetrics follows from the requirements generated in " the Qualifying characteristic of the doctor " on a speciality 1901 " medical businesses ".

1.2 Goals of studying the discipline. The basic goals of training provide:

1. Mastering by methods of examination of the pregnant women, women in labor, puerperas, and newborn.
2. Making use of knowledge, received during training, for conducting physiologically proceeding gestation, labors, postnatal period and period of newborn.
3. Skills in diagnostics and supervising of pathological y proceeding pregnancy, delivery, postnatal period and early neonatal periods.
4. Skill to render the emergent help at urgent conditions in obstetrical practice.
5. Development of knowledge and skills on prevention of development of a pathology during gestation, in labors and postnatal period (considering the risk groups) and mastering of rehabilitation methods (considering the experienced pathology). On the basis of studying Obstetrics students are to know:

- Organization of an obstetrical aid;
  - Physiological duration of a gestation, labors and postnatal period;
  - Methods of diagnostics of pregnancy and estimation of a condition of a fetus;
- Principles of conducting a physiological pregnancy, delivery, postnatal period and period of a newborn;
- Complications of pregnancy, labors, postnatal and the early neonatal periods, methods of their treatment and prevention;
  - Emergent conditions in obstetrical practice and amount of the emergency aid.

On the basis of studying of obstetrics the student should be able carry out:

- external examination of the pregnant women, women in birth and puerpera;
- bimanual internal research of the pregnant women and women in labor, rectal examination research;- obstetrical aid at normal labor;
- autopsy of a fetal vesicle;
- first toilet of a newborn;
- blood transfusion ;
- capture of smear from vagina, cervical canal, urethra;
- psychoprophylactic painless labor;
- Prophylactics of bleeding at the early postnatal period.

Section 2: the contents of the discipline.

2.1 Topics, duration of lectures (in hours)

№1: The basic stages of development of Obstetrics and Gynecology, the contribution of the scientists of Byelorussia. Protection of maternity and childhood. Principles of organization of the obstetrical and gynecological aid in the Republic of Belarus.

Time 2 hours.

№ 2. Fertilisation, stages of the intrauterine development of a fetus, critical periods, influence of a pathogenous factors onto a fetus.

Time 2 hours.

№3. Changes in a female organism during gestation. The causes of beginning the labor

Time: 2 hours

№ 4. Perinatology as science. Physiology and pathology of fetoplacental system. Hypoxia and delay of intrauterine development of a fetus.

Time: 2 hours

№ 5. Clinical current and conducting of delivery.

Time 2 hours

№ 6. Incompetent and prolonged pregnancy.

Time: 2 hours

№ 7. Immunologic incompatibility between mother and fetus.

Time: 2 hours

№ 8. Toxemia of the pregnant women.

Time: 2 hours

№ 9. Cardio –Vascular diseases and pregnancy.

Time: 2 hours

№ 10. Pregnancy and diseases of kidneys.

Time: 2 hours

№ 11. Abnormal labor activity.

Time: 2 hours

№ 12. Contracted pelvis and other abnormalities of labor pathways.

Time: 2 hours

№ 13. Bleedings during gestation and in labor.

Time: 2 hours

№ 14. Bleedings in afterbirth and early postnatal periods. Hemorrhagic shock. DIS-syndrom in obstetrics.

Time: 2 hours

№ 15. Obstetrical traumas ( of a mother and a fetus).

Time: 2 hours

№ 16. Cæsarian section in modern obstetrics.

Methods of anesthesia

Time 2 hours.

№ 17. Postnatal period and its complications.

Time: 2 hours

2.2 Practical classes, their contents and duration in hours.

1: Structure and organization of work of a maternity hospital. Bony pelvis, fundus of pelvis. A fetus as an object of labor. Methods of obstetrical examination.  
duration of a class- 6 hours.

2. Diagnostics of pregnancy. Hygiene and dietetics. Psychoprophilactic preparation of a pregnant women for labor. (Female dispensary).

duration of a class-6 hours.

3. Current and conducting the first period of labor. Anesthesia of labor. Estimating of intrauterine condition of a fetus.

duration of a class - 6 hours.

4. The biomechanism of labor at bending presentations of the head.

duration of a class- 6 hours.

5. Current and conducting of the afterbirth period and early postnatal period.

Time - 6 hours.

6. Anomalies of labor activity. Obstetrical operative delivery (Cæsarian section, forceps delivery nipper, vacuum -extraction of a fetus).

Time - 6 hours.

7. Pelvic presentations of a fetus and abnormal presentations of a fetus. Female dispensary.

Time - 6 hours.

8. Incompetent gestation and prolonged gestation . Multiple pregnancy.

Time of realization of employment(occupation) - 6 hours.

9. Basic problems of perinatology. Fetoplacental insufficiency. Hypoxia, delay of intrauterine development of a fetus.  
Time - 6 hours.
10. Toxemia of the first and the second half of gestation.  
Time - 6 hours.
11. Pregnancy and extragenital pathology. Female dispensary.  
Time - 6 hours.
12. Bleedings at gestation. Presentation of placenta, ablatio placentae of a normally located placenta  
Time - 6 hours.
13. Bleedings at labor and early postnatal period. Hemorrhagic shock. The emergency aid.  
Time - 6 hours.
14. The specialized aid in a female dispensary. Admitting into a hospital. Risk groups. Consulting "Family and marriage". The medico-genetic aid. Female dispensary.  
Time - 6 hours.
15. Contracted pelvis. Obstetrical traumas.  
Time - 6 hours.
16. Pathology of postnatal period. Fetus-destroying operations.  
Time - 6 hours.

## GYNECOLOGY

**Section 1:** the purposes and tasks of discipline, its place in educational process.

1.1 Purpose of teaching to the discipline.

The main purpose of the course on Gynecology and Obstetrics is the studying of physiological and pathological processes occurring in an organism of a woman, and caused by her anatomical and physiological features, and also methods of diagnostics, treatment and prevention of the diseases of female in a volume, necessary to the doctors of all specialities. Gynecology is a branch of a clinical medicine, the studying of it promotes formation of the doctor.

1.2 Goals of studying the discipline. On the basis of studying of Gynecology the students should know:

- Clinical symptoms of gynecologic diseases;
- Methods of examinations, allowing making a diagnosis;
- Basic principles of treatment of the patients with gynecological pathology, methods of preventive maintenance and rehabilitation;
- Problems of planning and modern methods of contraception;
- Clinical manifestations of urgent states in gynecological practice (bleeding, twisting of pedicular tumor, necrosis of the myoma node, pelvioperitonitis), tactics of the doctor and volume of rendering of the emergency help. On the basis of study gynecology the student should be able to execute:
- Examination by means of gynecological retractors;
- Bimanual gynecological investigation;
- Rectum investigation;
- Capture of smear from a cervical canal, urethra, and vault of vagina;
- Vaginal baths, injecting of a tampon with medicinal substance into a vagina;
- Removal of sutures of the patients after operation;
- Curettage of a womb at an incomplete abortion.

1.3 Lists of disciplines with the indication of sections necessary for studying of the discipline.

The teaching of gynecology is based on knowledge received at study of fundamental disciplines and other branches of clinical medicine:

Anatomy: an anatomic structure, blood supply, lymphatic system of female; innervation of genitals;  
Histology: Female Genital System – ovary, folliculum, yellow body (corpus luteum verum), uterine tubes, uterus, breast glands, the functional morphology of sexual cycle;

Normal physiology: hormones (definition, value), physiological structure of endocrine function (secretion of hormones, transporting, influence on cells and tissues, metabolism and excretion), hormones of anterior part of a hypophysis, sexual glands, role of male and female hormones in formation of sex and regulation of processes of reproduction (role of female sexual hormones, regulation of secretion of sexual hormones, endocrinal function of placenta).

**Section 2:** the contents of the discipline.

2.1 Topics, duration of lectures (in hours)

Topic N1. Neurohumoral regulation of menstrual function. The causes and classification of disorders. Dysfunctional uterine bleeding.

Time: 2 hours

Topic N2. Neuroendocrinal gynecological syndroms.

Time: 2 hours

Topic N3. Inflammatory diseases of female genital system of specific and non-specific etiology.

Time - 2 hours.

Topic N4. The urgent help in gynecology (extrauterine pregnancy, incomplete abortion, twisting pedicular tumor etc.).

Time - 2 hours.

Topic N5. Benign tumors of female genital organs. fibroma, myoma, lipoma of a vagin. Uterine myoma. Etiology, pathogenesis, clinical manifestations, diagnostics, methods of treatment. Cysts and cystomas of ovaries.

Time - 2 hours.

Topic N6. Background, precancerous diseases and malignant tumors in getitals.

Time - 2 hours.

Topic N7. Endometriosis.

Time 2 hours.

Topic N8. Reproductive function of a woman and its regulation (sterility, abortion, planning of family, contraception).

Time: 2 hours.

2.2 Practical classes, their contents and volume in hours.

Topic 1. Symptoms of gynecological diseases. Methods examination of gynecological patients. Menstrual cycle. Analysis of the circuit of a case history of a disease.

Time - 6 hours.

Topic 2. Amenohrea. Dysfunctional uterine bleeding.

Time - 6 hours.

Topic 3. Inflammatory diseases of female genital system of specific and non-specific etiology

Time - 6 hours.

Topic 4. The organization of work in a female dispensary. Disparisation. Background and precancerous diseases of female genital system. Benign tumors of female genital system.

Time - 6 hours.

Topic 5. Malignant tumours of female genital system.

Time - 6 hours.

Topic 6. Endometriosis.

Time - 6 hours.

Topic 7. Preoperative and postoperative conducting of the gynecological patients. The emergent cases in gynecology.

Time - 6 hours.

Topic 8. Anomalies of development and situation of female genitals. A children gynecology.

## GYNECOLOGY AND OBSTETRICS

### **I section: the goals and tasks of the discipline, its place in the educational process.**

#### 1.1 the aim of teaching of the discipline.

The main purpose of training in gynecology obstetrics in the 6<sup>h</sup> year is the excavation of theoretical knowledge on these disciplines, improving of clinical thinking of a doctor, expansion of volume of practical skills.

#### 1.2 the purposes of studying of the discipline

On the basis of studying of obstetrics and gynecology the student should know:

- methods of examination of pregnant women and gynecologic patients;
- current conducting of a normal pregnancy, labors and the postnatal period (puerperium);
- clinical manifestations of the complications during gestation, labor, puerperium;
- the peculiarities of extragenital diseases in a period of gestation and their influence on a gestation and fetus;
- clinical manifestations of genital diseases (inflammatory diseases, tumors, menstrual disorders and the reproductive system disorders);
- the main principles of treatment of obstetric and gynecologic pathologies;
- clinical manifestations of urgent conditions in obstetric and gynecologic practice, tactics of the doctor and volume of rendering of the emergency help;
- problems of prevention of obstetric and gynecology pathologies.

#### **A subintern should be able:**

- to examine women during pregnancy and in labors: to make external and internal obstetric examinations, auscultation, heartsounds of a fetus, cardiomonitoring, amnioscopy, to take vaginal, urethral, cervical smears;
- to reveal risk groups of obstetrical and perinatal pathologies;
- to make a diagnosis, to make a plan of examination and treatment women with pathological gestation and extragenital diseases;
- to handle the normal delivery, to examine natural labor pathways, a perineotomy, the first toilet of a newborn, to make separation or manual removal of afterbirth;
- to participate as an assistant at an operative delivery;
- to conduct medical supervision of puerperas in postnatal departments to carry out processing of cervix and stitches, to treat hypogalactia and congestion of lactation;
- to carry out prophylaxis of bleedings in labors;
- to examine gynecologic patients: to make percussion, a palpation, cervical examination with the aid of a speculum, to carry out bakterioscopic and bacteriologic investigations, cytologic research, to estimate results of ultrasonic, hystero- and a laparoscopy, msg, tests of functional diagnostics;
- to diagnose emergent states in gynecologic practice (bleedings, twisting of pedicular cancer, a necrosis of fibromatous node, a hemorrhagic and septic shock, a peritonitis).

### **II section: the thematic plan of lectures**

topic № 1: "bleeding during i and ii half of gestation — time 2 hours

topic № 2: "dis - a set of symptoms"

Time 2 hours

topic №3 "obstetric traumatism of a mother and a fetus" — time 2 hours

topic № 4 "infertilital marriage" — time 2 hours

#### 2.2 the topical plan of practical classes and their volume in hours

Topic n1: clinical manifestation of labors. Biomechanism of labors at bending presentations of the head - 6 hours

Topic n2: anomalies of labor activity. The anesthesia of labors. - 6 hours

Topic n3: anatomically and clinically contracted pelvis. - 6 hours  
 Topic n4: pelvic presentations, multiple pregnancy. - 6 hours  
 Topic n5: obstetrical forceps, fetus-destroying operations, cesarean section.-6 hours  
 Topic n6: incompetent and prolonged pregnancies. - 6 hours  
 Topic n7: toxemia of a pregnancy - 6 hours  
 Topic n8: placental failure, hypoxia and delay of an intrauterine fetation. - 6 hours  
 Topic n9: the extragenital pathology and gestation. - 6 hours  
 Topic n10: bleedings during gestation, labors, in the postnatal period. The hemorrhagic shock. - 6 hours  
 Topic n11: the traumatism of mother and fetus in labors. - 6 hours  
 Topic n12: postnatal septic diseases - 6 hours  
 Topic n13: methods of examination in gynecology. - 6 hours  
 Topic n14: the uterine myomayoma. The endometriosis. - 6 hours  
 Topic n15: disfunctional uterine bleedings - 6 hours  
 Topic n16: amenorrhea.-6 hours  
 Topic n17: neuroendocrinal gynecologic syndroms.-6 hours  
 Topic n18: the infertilital marriage. Contraception. - 6 hours  
 Topic n19: throphoblastic disease. Acute abdomen at the bleeding into the abdominal cavity. - 6 hours  
 Topic n20: inflammatory diseases of the female reproductive system of the nonspecific and specific etiology.-12 hours  
 Topic n21: background, precancerous diseases and the cancer of cervix and the body of womb. - 6 hours  
 Topic n22: benign, boundary and malignant tumors of ovaries. - 6 hours  
 Topic n23: the acute abdomen at the inflammation of genitals.  
 Criminal abortion. The septic shock.  
 anaerobic sepsis.-12 hours

## **ONCOLOGY**

for students of 5-6<sup>th</sup> course of medical faculty

AIM: getting knowledge of clinical questions, diagnostics and modern policy of treatment of different types of tumorous diseases.

Students' training includes the course of lectures and practicals. Topics of lectures include review and problem information on the most actual questions of modern oncology. Practicals are to form clinical mentality and master practical skills.

Lectures include review and problem topics, containing the necessary information about oncologic service organization, early detection, diagnostics and treatment of oncologic patients, deontology in oncology.

While practicals students study in details peculiarities of clinical picture, diagnostics, differential diagnostics, treatment and rehabilitation of patients with tumors of main localization: lungs, esophagus, stomach, colon and rectum, liver, pancreas, mammary gland, skin, thyroid gland, lymphogranulomatosis, non-Hodgkin's lymphoma, oncurology, oncogynecology, children oncology.

Methods of patients' treatment, including symptomatic treatment, primary malignant tumors, anticancer propaganda.

At the end of the course – differential credit.

## OPERATIVE SURGERY AND TOPOGRAPHICAL ANATOMY

*Lectures:*

***Operations on blood vessels, nerves and tendons of extremities. Seams of vessels, nerves and tendons.***

Fascia and cellular spaces of the upper limb. Principles of operative interference at purulent diseases extremities.

Amputations and exarticulations.

Specific questions of surgical anatomy on skull and neck. Principles of operations on them.

Surgical anatomy of the thorax and its organs. Selected operative interference on the organs of chest.

**Surgical anatomy of a front abdominal wall, development of wall hernias. Basic operations of pelvic and femoral hernias.**

**Surgical anatomy of the stomach. Selected operative interventions on a stomach.**

Surgical anatomy of the liver. basic operations on the liver and biliary passages. Surgical anatomy of the pancreas. Basic operations of its diseases.

Surgical anatomy of lumbar region and posterior abdominal space. Operations on kidneys and ureters. Surgical anatomy of the pelvis and its organs. Basic operations on the pelvic organs.

## PRACTICAL CLASSES

Acquaintance to general-surgical equipment and instructions of its usage. Mastering of the elementary practical skills. Setting of simple, sea and double surgical knots. Techniques of tissue and tissue connections dissection. Seams removal.

Topographical anatomy axillary, scapular, delta-like, underclavicular regions. Shoulder topography. Forearm topographical anatomy. Group innervation of the skin, muscles and projection of the shoulder and the forearm vessels and nerves.

Mastering of surgical skills on the fixed material: treatment and preparing of operational field, temporal and final stop of bleeding, isolation of an operational wound edges, imposing P-, Z-like, continuous, matrace and round (Multanovski) seams.

Topographical anatomy of the palm, thigh regions and pelvic joint. Topography of a hip. Group innervation of the skin and muscles and projection of hip vessels and nerves.

Topographical anatomy of a knee region, popliteal and Zhoberal hollows. Topographical anatomy of a leg. Topographical anatomy of a foot (front and lower part). Group innervation of the skin, muscles and projection of vessels and nerves of leg and foot.

Access to vessels and nerves of extremity: bandaging of the main vessels. Finger anesthesia according to Lukashvich-Oberst. Operations at purulent diseases of extremities (phlegmons, panaricians). Access to space of Paron-Pirogov. Operations on joints: puncture, arthrotomy, resection. Amputation. Classification. Technique and methods of detecting amputation levels. Peculiarities of circular and scrappy amputations. Treatment of soft tissues, bones, overbone,

vessels and nerves. Acquaintance to special surgical equipment used at joint resections and amputations.

Amputations and exarticulation of fingers phalanges. Exarticulation of the 2<sup>nd</sup> and 5<sup>th</sup> fingers according to Farabef and IIIrd and IVth fingers according to Lyupi and way of the racket. Amputation of the forearm in the upper and lower thirds. Cone-circular three moment shoulder and hip amputation according to Pirogov. Myoplastic amputation of the shoulder in the upper third according to Farabef. Bone-plastic amputation of the leg - foot according to Pirogov. Scrappy fascioplactic amputation of the leg. Amputation of the hip according to Gritti - Shimanovski-Albercht. Skills on picking up sets of special surgical instruments and using them correctly.

Topographical anatomy of the skull arch. Internal basis of the skull. 12 pairs of craniocerebral nerves exit. Sinuses of a firm brain cortex, their connection with intraskull veins, peculiarities of blood outflow through sinuses from the arch and the basis of the skull. Construction of Kronlein scheme. Topographical anatomy of the facial part of the head. Deep facial region. Topography of round ear salivary gland. Nasal cavity and additional bosoms.

Peculiarities of primary surgical treatment of penetrating and nonpenetrating cranial wounds. Decompressive and bone-plastic cranial trepanations. Antrotomy. Surgical anatomy of cuts on the face. Peculiarities of circular and lateral seams of vessels (Karrel seam, Morozova's seam). Definition of prosthetics and vessels shunting. Neurolysis and nerve seam. Peculiarities of tendons seams located outside and in sinovial. Operations on veins, vein section.

Topography of the neck: triangles, cervical fasciae according to Shevkunenko, closed and open callular spaces. Overfascial vessels and nerves. Cervical medial triangle. Overglossal region. Submaxillary and chin triangles, Pirogov's triangle, undermandibular salivary gland. Sleepy triangle, branches of an external carotid artery, sinocarotid zone, cervical loop.

Underglossal cervical region. Thyroid and parathyroid, dangerous thyroid gland region. Topography of neck organs and returnable laryngeal nerves. Thoracic-clavicular-nipple area. Topography of ladder-vertebral triangle, preladder and interladder intervals, branches of underclavicular artery. Lateral cervical triangle.

Operations on neck. Peculiarities of dissections on neck and access to neck organs. Tracheotomy: peculiarities of lower, middle, upper and tracheotomy according to Bjerk, mistakes and complications at their correction. Vagosympathetic cervical blockages according to A.V.Vishnevskij, I.P.Burdenko. Carotids exposure. Access to the cervical part of a gullet. Operations on thyroid gland. Selection of special surgical tools while carrying out operations on the neck.

Chest topography. Intercostal intervals and internal chest vessels. Lactic gland surgical anatomy, peculiarities of lymph outflow. Thoracic cavity: pleura, lungs: surgical anatomy of the diaphragm. Mediastinum topography: classifications, surgical anatomy of the upper, front, middle and lower mediastina.

Operations on the thorax and organs of the thoracic cavity. Pleural and pericardium punctures. Rib resection. Sewing of open pneumothorax. Cuts at mastiteses and retromammar phlegmon. Operations in case of benign tumors and lactic gland cancer. Operative access to the thoracic part of the gullet. Operation of Dobromislov- Torek. Principles of plastic operations on gullet. Gullet plastic according to Ru-Herzen-Yudin. Surgical access to lungs (torracotomy). Principles and peculiarities of lungs operative interference. Surgical access to heart (sternotomy, torracotomy). Concept of revascularization, aorto-coronary shunting, heart transplantation. Acquaintance to the structure and work of the artificial blood circulation machine. Selection of special surgical instruments at operations on the organs of the thorax and skills on their correct usage.

Topography of front-lateral stomach wall, hernias. Weak parts. White line topography, umbilical ring, umbilical and pelvic channels. Pelvic space. Surgical anatomy slanting, straight, sliding, congenital pelvic hernias. Topography of the femoral channel. Topography of the abdominal cavity. Topography of the abdomen and its relation to organs. Topography of fatty, hepatic and pregastric sacks. Topographical anatomy of upper organs the abdominal cavity:

abdominal part of the gullet, stomach, liver, gall-bladder, pancreas, and spleen. Topographical anatomy of the abdominal cavity lower part. Abdominal cavity sinuses, pockets and channels. Their connection with the upper part of the abdominal cavity and pelvic cavity. Large and small intestines topography, peculiarities of their blood supply, lymph outflow.

Topography of lumbar region and postabdominal spaces. Fasciae and cellular layers of postabdominal spaces. Topography of kidneys, adrenal glands, ureters, abdominal aorta, inferior vena cava, nervous textures and boundary sympathetic framework, branches of lumbar texture. Topographical anatomy of small pelvis and middle hole. Pelvic diaphragm and urinogenital diaphragm. Division of small pelvis into "floors". Abdominal passage in a male's and a female's pelvis. Fasciae and cellular small pelvis spaces, their connection with the neighboring regions. Topography of straight gut, ureters, bladder and urethra in men and women. Topography of uterus with appendages. Topography of prostate, seed bubbles and seed outgoing passages. Topography of hypodermic part of small pelvis. Alkokka channel. Urinogenital triangle of middle hole, neurovascular formations middle hole, lymph outflow.

Hernia dissection in case of pelvic hernias. Stages and peculiarities of hernia dissection at slanting and straight pelvic hernias. Plastics of pelvic channel at slanting and straight pelvic hernias.. Stages and peculiarities of hernia dissection at congenital hernias. Stages, peculiarities of hernia dissection and plastics at femoral hernias by means of pelvic and femoral ways. Operations and plastics at umbilical hernias. Stages and peculiarities of hernia dissection at sliding hernias and the restrained hernias of various placement. Operations on kidneys and ureters. Kidney removal, dissection of renal pelvis. Exposure and seam of the ureters. Kidney transplantation. Operations at testicle dropsy according to Winkelman, to Bergman. High dissection of bladder (cystostomy). Operations at phemosis and paraphemosis. Operations at out of uterine pregnancy. Operations at hemorrhage. Intrapelvic blockage according to Shkolnikov. Selection of surgical instruments for operations at hernias, operations on kidneys, ureters and organs of small pelvis.

Mastering of practical skills on fixed tissues. Operative access to organs of the abdominal cavity. Check of abdominal cavity organs. Techniques of intestinal seam. Sewing of wounds of large and small intestines. Dissection of the small intestine with anastomoses «end to end» and «side to side». Sewing of fallen stomach ulcers.

Operations on stomach and large intestine. Stomach dissection. Principles of lip-like and tubular fistulas formation of stomach. Gastrostomy according to Witzel-Kader, Toprover. Gastroenteric stickings their kinds, measures of prevention of a "vicious circle". Stomach resection (principles of operation). Concepts of vagotomies, plastic and draining operations on stomach. Operation on small intestine. Appendectomy. Operations of imposing feces fistula and unnatural anus.

Operations on organs of the abdominal cavity. Operative access to liver and biliary passages. Temporary and final stops of bleeding from the liver, liver seam. Liver resections and transplantation. Operations of cholecystotomy, cholecystostomy, cholecystectomy. Ways of choledoch drainage. Operations at general biliary passage obstruction. Concept of small invasive method at operations on gall-bladder. Operations on pancreas: at acute pancreatitis, traumas and tumours of the organ. Pancreas transplantation.

Mastering of practical skills on fixed tissues. Resection of small intestine by imposing «end to end» and «side to side» anastomoses. Operations on stomach. Appendectomy.

**By the end of studying the subject a student must be able to:**

- To know and be able to use general-surgical and special instruments.
- To be able to select general-surgical and special instruments for operative interference.
- To fasten knots.
- To dissect skin, hypodermic fiber, aponeurosis, muscle, abdomen and hollow organs.

- Temporarily and finally stop bleeding by imposing on vessels blood ceasing clips, by fixing vessels on a clip, sewing vessels through, bandaging vessels by leading ligatures to them with the help of Deshan's ligature needles.
- To isolate operational field and edges of operational wound.
- To carry out vessels exposure on their extent.
- To carry out vein dissection on forearm and shin.
- To carry out knee joint puncture;
- To carry out Lukashevich - Oberst anesthesia on fingers (on a corpse).
- To impose separate knotting seams on skin and aponeurosis, matrace, continuous seams and rounding Multanovski's seam.
- To impose Z-figurative and P-shaped seams on muscles.
- To impose intestinal seams: septic (continuous, rounding Multanovski's seam, Shmiden's furrier) and aseptic (separate serous-muscular Lamber's seams, Z-shaped seams), Mateshuk's seam.
- To carry out imposing of inter-intestinal anastomoses: "end to end" and "side to side";
- To sew fallen stomach ulcer;
- To remove skin seams.
- To carry out plastic of pelvic and umbilical channels on models (at паховых and umbilical hernias).
- To make трахеостомию on a corpse and breadboard models (to put into trachea tracheostomic Lyuer'stube).
- To carry out tendon's seam according to KJuneo on models.
- To carry out vascular seam according to Karrel on models.
- To carry out abdominal cavity organs check.
- To use received knowledge for explanation of various diseases clinical symptoms, distributions of hematomas and infections through cellular spaces, diagnosing a disease, for explanation and choice of the best ways and methods of surgical treatment.

## OPHTHALMOLOGY

Acquaintance with clinic, its traditions, deontology in ophthalmology.

Achievement of Byelorussian ophthalmology with conducting ophthalmologic centers.

Elements of clinical anatomy. Modern diagnostics of visual functions of pathology.

Research of central vision, field of vision, colour perception, pathological changes.

Clinical types of an eye refraction and disease of oculomotor device. Emmetropia, problem of myopia, myopia as anomaly of refraction and myopia as illness. Hypermetropia (hyperopy). Presbiopy. Astigmatism, correction of anomalies of refraction. Compatible and paralytic strabismus. Clinic, diagnostics, treatment.

Pathology of blepharons, conjunctiva and an eye plaintive device. methods of research of an eye forward part. (Blepharites, conjunctivitis, dacryadenites, canaliculites, dacryocystites.)

Research by a method focal, bifocal illumination, biomicroscopy on slit lamp.

Pathology of cornea and sclera. out-patient reception of the patients with diseases of appendix device and forward part of an eye. (Keratites, cornea dystrophies, episclerites, sclerites. Etiopathogenesis, clinic, diagnostics, treatment).

Lens diseases. Objective methods of research of an eye back part. Research in permeable light, ophthalmoscopy. Supervision.

Diseases of vascular environment. (Uveites, iridocyclites, chorioretinites. Etiopathogenesis, clinic, diagnostics, treatment).

Glaucomas (primary, secondary, inherent). Classification of glaucomas. Early diagnostics, clinic, treatment. Acute attack of glaucoma. Urgent measures on cupping off an acute attack. Prophylaxis of blindness from a glaucoma.

Damages of vision organs. (Classification. Traumas of protective and appendix eye device.)

Not penetrating and penetrating wounds, contusion of eyeball. Combustions and frostbites. Sympathetic ophthalmia.

## **OTORHINOLARYNGOLOGY**

### The purpose of teaching the subject:

Otorhinolaryngology is a special clinical discipline, aiming at studying morphologic-physiological peculiarities and pathology of upper respiratory passages and ear. The name of the subject comes from the Greek words meaning otos (ear), rhinos (nose), larynx (throat). Due to the first letters of these words there is abbreviation – ORL or (sounds better) LOR.

Ear and upper respiratory passages are the first to be subjected to the influence of environmental factors: noise, vibration, ion radiation, dust, various chemical compounds, angular and straight acceleration. In many cases pathogenic factors exceed accessible norms. LOR organs are often affected at acute and chronic diseases, causing development of respiratory passages pathology and steady disorder of hearing and vestibular functions, which is followed by continuous disturbance of patient's working ability. LOR organs diseases often lead to damage of various organs and organism systems. Everything enumerated makes clear necessity of studying morphological-physiological peculiarities and LOR organs pathology by the students of different faculties of medical universities.

Otorhinolaryngology pays much attention to the questions of clinical anatomy and physiology, as in the LOR organs the majority of analyzers is concentrated. First of all this is hearing analyzer playing an important role in the process of learning the surrounding world, an analyzer with the help of which speech is formed, which makes the basis of the second signaling system activity. Besides, vestibular analyzer is a main link in the system of distance-sight reality receiving and providing equilibrium function, and also there are smell and taste analyzers. In the mucous membrane of the respiratory passages there are a lot of different receptors – mechano-, thermo- and a number of others, due to which reflexive influence on other organs and body systems takes place. In the genesis of a number of diseases, connected with nose and throat pathology, great significance is given to nervous-reflexive effects.

Otorhinolaryngology takes a special place among other medical subjects, which is first of all determined by the frequency of respiratory passages and ear affect: LOR diseases make up to 15% complaints to the medical institutions. They can cause development of serious life-threatening complications – otogenic and meningococcal meningitis, brain abscess, intracranial sinus thrombosis, sepsis.

Some otorhinolaryngological diseases have great social significance because they lead to deafness and chronic vestibular dysfunction and other complications.

### Problems of studying otorhinolaryngology.

Main problems of teaching otorhinolaryngology are:

1. Explain the students instance of studying LOR organs pathology, necessity of quick finding and treatment ear, nose and throat diseases for prophylaxis of general disorders and population sanitation; principles and methods of dispensary work.
2. Teach the students: peculiarities of endoscopic methods of studying LOR organs, methodics of hearing and vestibular analyzers, smell functional research; show data of the results of given investigations for determination of central nervous system pathology.

3. Provide students with knowledge in etiology, pathogenesis, clinical picture, diagnostic, prophylaxis and treatment of frequently met LOR diseases, having social significance, causing attendant diseases or complications in the body.

4. Teach the students practical skills and methods of quick helping at bleedings, traumas, acute larynx stenoses, foreign substances and acute diseases of LOR organs.

While studying different diseases etiology and pathogenesis the significance of hereditary-constitutional factors from the positions of present scientific theories are explained, special attention is paid to the role of outer factors- professional, social. At the same time those attainments in prophylaxis of separate LOR diseases, which have been the result of social developments and progress of science and technique in the country and in the world are emphasized and visually demonstrated.

Enlightening of the main, selected otorhinolaryngology divisions in the lectures course has a problematic character, is explained deeper and wider than in the other exercise-books, straggling from speciality development.

The essence of various LOR organs diseases is shown in biological, physiological and pathophysiological aspects. Brief historical survey is given at the same time on each question, success and achievements of national science and practice in the given problems are emphasized.

In the preliminary course division students master endoscopic and functional methods of ear, nose, throat and larynx research. Mastering of these methods requires at the same time deep revision of anatomical and functional LOR organs peculiarities.

While studying clinical part special attention is paid to most frequently met LOR organs diseases. Attention is paid to the diseases which often cause function change of other organs and organ systems (purulent inflammations of the middle ear, chronic tonsillitis and others), leading to partial or full invalidity. In this case students come to know modern methods and diagnostics, bases of differentiated diagnosis and peculiarities of special methods of treatment. Special attention is given to tonsillitis problem, LOR oncology, regional pathology (scleroma), otiatry, professional diseases, LOR organs traumas: industrial, sport and others, prophylaxis of these diseases and injuries, and also questions of labour expertise, determination of temporary and steady labour disability, professional selection, employment. While working at the in-patient department students master various specialized manipulations, get acquainted with the work organization of operational and dressing departments, and also with the methods of work of the most typical operations.

50% of studying course is given to work in the polyclinic, where students perform ambulatory patients reception under the supervision of a teacher, master the simplest diagnostic and medical manipulations (the list of them is given at the chair), get to know the questions of determination labour ability, professional selection.

While studying the course of otorhinolaryngology students are on service in LOR-stationery as doctor's assistants.

## **PATHOLOGICAL ANATOMY**

General pathological anatomy. Cell pathology. Dystrophias. Parenchymatous dystrophies. Stroma-vascular dystrophies. Mixed dystrophies. Necrosis.

Mors, attributes of mors, postmortem changes. Infringement of a circulation and flow of lymph: Infringement of fabric liquid contents.

Inflammation.

Immunopathological processes. Adaptation and acclimatization.

Regeneration. Processes of adaptation and compensation.

Tumours. Individual pathological anatomy.  
 Blood system illnesses.  
 Cardiovascular system illnesses. Rheumatic illnesses.  
 Respiration bodies illnesses.  
 Bronchuses acute inflammatory diseases.  
 Lungs acute inflammatory diseases (acute pneumonia).  
 Lungs chronic nonspecific diseases.  
 Digestion bodies illnesses:  
 Fauces and pharynx illnesses. Sialadens illnesses. Esophagus illnesses. Stomach illnesses.  
 Intestine illnesses. Liver illnesses. Cholecystic illnesses. Pancreas illnesses. Illnesses of  
 kidneys.  
 Organs and lactiferous gland illnesses:  
 Dishormonal of illness. Sexual bodies and lactiferous gland tumours.  
 Illnesses of pregnancy and pastpregnacy period.  
 Illnesses of internal secretion:  
 Pituitary body. Paraneuroses. Thyroid gland. Parathyroid glands. Pancreas.  
 Avitaminosis. Illnesses of the central nervous system. Infectious illnesses.  
 Virus illnesses. Bacteria caused illnesses.  
 Inherent defects of development:  
 Pathology of prenatal and perinatal periods. Pathological anatomy of radiative defects.  
 Pathomorphism and iatrogenics.

## PATHOPHYSIOLOGY

**Pathological physiology as a key branch of medical sciences. Nosology.** Pathological physiology (pathophysiology) as a branch of medical education and science. Methods in pathological physiology. History of pathological physiology. General nosology, general etiology. Diseases classification principles. Preventive medicine. Pathogenesis, general pathogenesis, etiopathogenesis. Basic sanogenetic mechanisms.

**Genetic disorders.** The common causes of genetic disorders. Induced and spontaneous mutations. Chromosome abnormalities: numerical and structural abnormalities. Monogenic human diseases. Autosomal dominant disorders. Autosomal recessive disorders. X-Linked disorders. Mosaicism. Genomic imprinting. Polygenic and multifactorial diseases.

**Environmental pathology.** Hypobaric conditions. Mountain sickness. Hyperbaric conditions. Caisson disease. Hypothermia. Hibernation. Electrical injury. Tobacco smoking. Alcoholism. Drug addiction. Radiation. Ultra-violet radiation.

**Cell injury and cellular adaptations. Apoptosis.** Reversible and irreversible cell injury. Molecular mechanisms cells alteration. Mechanisms of cells adaptation. Apoptosis. Stages of apoptosis. Different ways of apoptosis. Apoptosis in the biological processes.

**Local hemodynamic disorders. Hypoxia. Thrombosis.** Arterial and venous hyperemia. Ischemia. Stasis and "sludge-phenomenon". Embolism. Hypoxia: Compensatory and pathological reactions during of hypoxia. Thrombosis. Microcirculatory disorders.

**Inflammation.** Acute inflammation. Hereditary defects of acute inflammation. Outcomes of acute inflammation. Systemic effects of inflammation. Chronic inflammation. Etiology and pathogenesis of chronic inflammation. Granulomatous inflammation. Tissue repair. Factors determining variation in inflammatory response. Vital importance of inflammatory mechanisms for human and animal organisms.

**Pathophysiology of infectious process.** Interaction of microorganisms and human organism. Mechanisms of defense against of infection. Microorganism invasion properties and

defense against of immune system. Spread and dissemination of microbes. Mechanisms whereby infectious agents damage host tissues. Nosocomial and iatrogenic infections. Sepsis.

**Fever and hyperthermia.** Fever. Exogenous and endogenous pyrogens and mechanisms of their action. Thermoregulation during fever. Common characteristic of fever periods. The types of fever. Favorable and unfavorable effects of fever. Pyrotherapy. Hyperthermia, heat exhaustion, heat syncope, heat stroke, sun stroke.

**Metabolic disorders.** Total, absolute and partial starvation. Proteins deficiency. Vitamins deficiency. Common causes and consequences disorders in proteins, lipids, and carbohydrate metabolism. Diabetes mellitus (type I and II). Acute and late complications of diabetes mellitus. Hypoglycemia. Obesity. Dyslipoproteinemia. Gout.

**Disturbances of body fluids and electrolytes.** Water depletion and excess. Oedema. Hyponatremia, hypernatremia: etiology, pathophysiology and consequences. Hypokaliemia, hyperkaliemia: etiology, pathophysiology and consequences.

**Disturbances of acid-base balance.** Metabolic acidosis, metabolic alkalosis, respiratory acidosis, respiratory alkalosis: causes, pathogenesis and consequences. Combined types of acid-base balance disorders.

**Disorders of the immune system.** Hypersensitivity reactions. Type I hypersensitivity (anaphylactic type). Systemic and local anaphylaxis. Type II hypersensitivity. Type III hypersensitivity reaction. Cell-mediated type of hypersensitivity (IV type). Autoimmune diseases. Self-tolerance. Mechanisms of autoimmune diseases. Genetic factors in autoimmune disease. Immunodeficiency syndromes. Primary immunodeficiency disorders: T cell defect, B cell defects. Combined immunodeficiency syndromes. Genetic deficiencies of the complement system. Secondary immunodeficiency disorders: AIDS.

**Neoplasia.** Differences between benign and malignant tumors. Molecular characteristic of multistep carcinogenesis. Common characteristic of stages of carcinogenesis: transformation, progression, local invasion, metastasis. Host defense against tumors. Clinical features of tumors: local and hormonal effects. Cancer cachexia. Paraneoplastic syndromes.

Pathophysiology of emergency states. **Stress. Syncope: classification and mechanisms of its development. Unconsciousness and coma. Shock: classification, stages. Hypovolemic, cardiogenic and septic shock. Compartmental syndromes. Terminal stages of disease. Resuscitation (reanimation). Common characteristic of postreanimation disorders.**

**Hematological disease.** Disorders in plasma and cell volume. Anaemias. Classification of anaemias. Posthemorrhagic anaemias. Hemolytic anemias. Impaired red cell production. Clinical features of anemia. Leukocytosis. Leukopenia. Lymphopenia. Acute and chronic leukemias. Hodgkin's disease. Non-Hodgkin's lymphomas. Plasma cell dyscrasias. Hemorrhagic syndromes. Syndrome of disseminated intravascular coagulation. Hypercoagulation conditions.

**Diseases of heart and blood vessels.** Compensatory heart hyperfunction and hypertrophy. Valvular heart diseases. Heart failure: causes, pathogenesis and clinical consequences. Cor pulmonale. Atherosclerosis: morphological types of atherosclerotic lesions, risk factors, pathogenesis, clinical significance. Ischemic heart disease: etiology, pathogenesis. Reversible and irreversible myocardial damage. Myocardial infarction: pathogenesis of transmural and subendocardial myocardial infarction, complications of myocardial infarction. Cardiogenic shock. Arterial hypertension. Pathogenesis of essential arterial hypertension. Pathogenesis of secondary forms of hypertension. Vascular pathology in arterial hypertension.

**Respiratory pathophysiology** Respiratory failure. Obstructive and restrictive types of respiratory disorders. Chronic obstructive pulmonary disease. Respiratory distress syndrome. Chronic restrictive lung disease. Pneumothorax. Disorders in respiratory regulation. Periodic types of breath. Terminal breath. Disorders in lung perfusion and ventilation-perfusion ratio. Diffusion lungs disorders. Metabolic lung dysfunction.

**Digestive tract and hepatic pathophysiology.** Common etiology of digestive disorders. Dysregulation of appetites and salivary glands dysfunction. Secretory and locomotory stomach dysfunction. Gastritis. Pathophysiology of ulcers in stomach and duodenum. Disorders of intestine

and membranous digestion. Intestine intake disorders. Locomotory intestine dysfunction. Malabsorption. Acute and chronic pancreatitis. Common characteristics of the hepatic injury. Jaundice: etiology, pathogenesis and clinical consequences. Hepatic coma, common symptoms of hepatic failure. Cirrhosis. Portal hypertension.

**Kidney pathophysiology.** Common mechanisms of renal excretory functions disorders. Etiology and pathogenesis of glomerular diseases. The nephrotic syndrome. The nephritic syndrome. Diseases affecting tubules and interstitium. Acute and chronic renal failure. Cystic diseases of the kidney. Urolithiasis.

**Endocrinologic disorders.** Common mechanisms of endocrine disorders. Hyperpituitarism, hypopituitarism and posterior pituitary syndromes. Hyperthyroidism and hypothyroidism. Hyperparathyroidism and hypoparathyroidism. Adrenal insufficiency. Cushing syndrome. Hyperaldosteronism. Adrenogenital syndrome. Pheochromocytoma. Multiple endocrine neoplasia syndromes.

**Nervous system pathophysiology.** Disorders of neuron function. Disorders of motor and sensory systems. Diseases of extrapyramidal system. Peripheral neuropathies. Parkinsonism. Pathophysiology of pain. Humans psychoneurosis. Dementia and oligophrenia. Alzheimer disease. **Aging and pathophysiology of elderly organism.**

## PEDIATRICS

### **Purpose and problems of the subject, its place in educational process**

Purpose: elucidation of central questions in pediatrics, modern concepts of pathogenesis, diagnostics, clinic and treatment of child's diseases in age aspect.

#### Tasks of discipline

1. To teach treating healthy and sick child, his parents observing deontological and ethical norms.
2. To receive objective data at children examination, to interpret received facts taking into consideration anatomical-physiological and age norms.
3. To diagnose most frequently met diseases in children: a) new-born period, б) early age, в) senior age.
4. To make the plan of treatment, prophylaxis and forecasting the most frequently met diseases in children, and also urgent condition.
5. To carry out clinical examination of healthy and sick child.
6. To be able to prescribe and fix meal to the sick and healthy child.
7. To know pharmacokinetics and pharmacodynamics of medicinal drugs.
8. To carry out consecutive preventive maintenance of morbidity, hardening measures.
9. To be able to diagnose and render intensive help at urgent conditions and syndromes, threatening child's life

The list of subjects indicating topics, sections necessary to the students for studying pediatrics:

- propaedeutics of internal diseases; methods of healthy and sick patient research, semiotics of diseases;
- faculty and hospital therapy:

knowledge of pathogenesis, differentiated diagnosis, treatment, prophylaxis: a) of acute and chronic diseases of bronchopulmonary system, b) of heart diseases, including congenital and acquired malformations, diffuse diseases of connective tissue, rheumatism; diseases of vessels, c) blood diseases, d) of organs of the urinary system, e) of gastro-intestinal tract diseases, f) of diseases of endocrine organs, g) urgent pediatrics (syndromes, threatening child's life).

## Discipline contents:

### Lectures

1. Introduction. Anatomical-physiological features of child's organism. Periods of childhood. Concept of the subject "pediatrics". Periods of infancy. Anatomical-physiological features of nervous system, organs of digestion, blood circulation, urinary excretion, endocrine, blood forming and lymphatic systems
2. Features of substances exchange. Rearing. Age exchange features. Formation of cavity digestion. Natural, mixed and artificial rearing. Characteristic of breast milk, its advantages. Rules of meal estimation.
3. Asphyxia of newborn, natal trauma of the central nervous system. Consequences. Etiology and pathogenesis of asphyxias. Classification. Diagnostics, pathogenesis of CNS damage. Diagnostics. Clinic. Treatment. Rehabilitation. Trauma of spinal cord. Treatment, rehabilitation.
4. Pre-natal infections and purulent – inflammatory diseases. Etiopathogenesis, diagnostics, clinic of pre-natal infections. Treatment. Definition of sepsis. Classification of clinical norms. Discussion - disease or phase. Clinical syndrome - complexes. Diagnostics. Treatment. Outcomes. Rehabilitation.
5. Hemolytic illness of foetus and a newborn. Jaundices of newborn. Etiopathogenesis of immunologic conflict according to Rhesus factor and to blood group. Clinic. Diagnostics. Classification of clinical forms. Treatment. Urgent help, intensive therapy. Preventive maintenance. The differentiated diagnosis of jaundices in newborn. Treatment. Consequences of nuclear jaundice. Treatment. Rehabilitation.
6. Anemia in newborn and at early age. Anemia's classification. Etiopathogenesis of formation. Diagnostics. Clinic. Treatment, preventive maintenance, rehabilitation.
7. Nonreimatic carditis in children. Congenital heart malformations in children. Etiopathogenesis of Nonreimatic cardites. Classification. Clinic. Diagnostics. Treatment. Clinical examination. Preventive maintenance. Congenital malformations. Reasons for formation. Phases of adaptation. Classification. Principles of treatment.
8. Stomach ulcer and duodenal ulcer. Modern aspects of etiopathogenesis, diagnostics. Stages of ulcerous process. Clinic. Methods of treatment: regimen, diet, drug therapy depending on etiology. Clinical examination. Preventive maintenance.
9. Neurotoxicosis in children. Etiology, pathogenesis, clinical manifestations, intensive therapy.
10. Urgent help in haematology. Deficiency anemias in children, thrombocytopenias, haemophilia. Clinic, urgent help, algorithm.
11. – 12. Urgent help in endocrinology.
  1. DKA
  2. Hypersmolar coma.
  3. Hypoglycemic coma
  4. Treatment of diabetes mellitus.
  5. Treatment of hypothyroid coma, tyreotoxicosis
  6. Suprarenal insufficiency
13. Acute and chronic renal insufficiency. Clinic, diagnostics, intensive therapy. Crush syndrome, GUS. Hemodialysis.
14. Stomach and duodenal ulcers in children. Urgent help at bleeding.
  1. Etiology
  2. Clinic
  3. Diagnostic and treatment
15. -16. Chronic cardiac insufficiency (CCI). Acute cardiac insufficiency. Rhythm disturbance. Clinic and diagnostics of CCI, acute cardiac insufficiency, basic rhythm disturbances.
17. - 18. Acute and chronic respiratory insufficiency. Status asthmaticus. Etiology and pathogenesis. Clinics. Diagnostics and treatment.

19. Sepsis. Infectious-toxic shock. Urgent help, infusion therapy.
20. Urgent help at drowning, suffocation, clinical death, acute allergic reactions, snakes bites, electrotrauma. Algorithm of urgent help rendering.

### **Practical classes**

Anatomical-physiological features and methods of skin research, hypodermic-fatty cellular tissue, lymph nodes, muscular and bony system, cartilages. Rules of child's hospitalization and examination. Child's physical, mental and sexual development. Acquaintance with group and topics of forthcoming classes. Acquaintance with the scheme of history of disease, features of collecting anamnesis in childhood. Features of objective clinical examination technique with estimation of their physical, neurologic-and-behavioral development. Study of anatomical-physiological skin features, hypodermic-fatty cellular tissue, lymph nodes, muscular and bony system, cartilages in children. Independent work at patient's bed. Analysis of supervised patients, summarizing.

Anatomical-physiological features and methods of research of respiratory system and circulatory system. Introductory word of the teacher. Study of anatomical-physiological features of respiratory organs. Study of anatomical-physiological features of circulatory organs. Independent work at bed of a sick child. Analysis of supervised patients. Summarizing, home task.

Anatomical-physiological features and methods of research of blood and endocrine system; digestion, urinary excretion. Participation in a morning conference of hospital doctors. Examination of children with pathology of organs of digestion, urinary excretion, endocrine pathology. Discussion of supervised patients with a group.

Rearing. Introductory word of the teacher. Participation in a morning conference of hospital doctors. Estimation of the 1<sup>st</sup>-year-old child's meal. Supervision of sick children and assignment of meal to them. Discussion of supervised children.

Consequence of asphyxia and intracranial trauma. Supervision of the patients. Clinical analysis of children, born with traumas, consequences of asphyxia. Problems solution.

Jaundices of newborn, consequences of hemolytic disease of newborn. Analysis of newborn jaundices. Definition, etiology and pathogenesis of GBN. Clinical manifestations, their diagnosis, laboratory methods of research. Treatment, preventive maintenance of GBN. Supervision of patients. Analysis of supervised patients. Test control.

Purulent - inflammatory diseases. Sepsis. Pre-natal infections. Supervision of patients with LIE, sepsis, pre-natal infections. Clinical analysis of theme, discussion of supervised patients. Problems solution.

SDR, congenital heart diseases. Etiology, pathogenesis, SDR in newborn. SDR classification. Clinic, diagnostics of SDR. Therapy of SDR. Etiology, pathogenesis of VPS. Diagnosis and differentiated diagnosis of VPS. Treatment. Supervision of newborn. Clinical analysis of supervised patients. Textual control. Summarizing.

Rickets. Spasmophilia, hyper- and hypovitaminoses, hypotrophy, abnormality of the constitutions. Diatheses. Answers to questions in investigated theme. Supervision of the sick children. Clinical analysis of the sick children with rickets, spasmophilia, diathesis, hyper- and hypovitaminoses, hypotrophy. Problems solution on the class topic. Summarizing of the class.

Rheumatism. Rheumatoid arthritis. Diseases of connective tissue. Nonreumatic carditis. Impaired cardiac function. VPS. Supervision of the sick children. Clinical analysis of the patients. Solution of situational tasks. Slides demonstration. Final word.

Clinical manifestations of leucoses, hemolytic and deficiency anemias, thrombocytopenias, vasculites. Diagnostics, treatment, clinical examination. Independent supervision of the patients. Clinical analysis of the sick children with blood diseases. Solution of situational tasks. Summarizing of the class.

Clinical manifestations of hyper- and hypofunction of thyroid gland, adrenals, diabetes mellitus. Introductory word of the teacher. Supervision of the patients. Clinical analysis of the patients with endocrine diseases. Solution of diagnostic tasks. Conclusion.

Diseases of digestive system. Supervision of the patients. Supervision of the patients with cholecystocholangitis, gastritis, stomach ulcer, hepatitis, pancreatitis. Tasks solution. Conclusion, home task.

Diseases of urinary system. Introductory word of the teacher. Supervision of the sick children. Clinical analysis of the patient with glomerulonephritis, pyelonephritis, cystitis. Tasks solution.

Chronic cardiac insufficiency (CCI): etiology, pathogenesis, classification of CCI. Clinic and of diagnostics of CCI. Treatment of CCI.

Comas at diabetes mellitus. Treatment of diabetes mellitus: DKA, hyperosmolar coma, hypoglycemic coma, treatment of diabetes mellitus

Chronic insufficiency of adrenals. Adrenogenital syndrome: etiology, pathogenesis, clinic of HPN in children, treatment. Adrenogenital syndrome

Syndrome therapy of newborn. Antitubercular vaccination in the maternity house. Syndrome of acute cardiac insufficiency. Shock. Sharp acute anemic syndrome. Convulsive syndrome. Syndrome of hypogleukemia.

Clinical examination and the rehabilitation of children with diseases of cardio - vascular systems.

Principles of clinical examination. Making up plans of routine examinations and treatment. Rehabilitation. Tactics on vaccination and physical training. Conducting the documentation. Health groups.

Clinical examination and rehabilitation of children with diseases of digestive organs.

Principles of clinical examination. Making up plans of routine examinations and treatment. Rehabilitation. Tactics on vaccination and physical training. Conducting documentation. Health groups.

Clinical examination and rehabilitation of children with diseases of urinary excretion organs.

Principles of clinical examination. Making up plans of routine examinations and treatment. Rehabilitation. Tactics on vaccination and physical training. Conducting documentation. Health groups.

Clinical examination and rehabilitation of children with diseases of endocrine system.

Principles of clinical examination. Making up plans of routine examinations and treatment. Rehabilitation. Tactics on vaccination and physical training. Conducting documentation. Groups of health

Clinical examination and rehabilitation of children with diseases of respiratory organs.

Principles of clinical examination. Making up plans of routine examinations and treatment. Rehabilitation. Tactics on vaccination and physical training. Conducting documentation. Health groups.

Infusive therapy in pediatrics.

Account of physiological daily requirement volume. Compensation of dehydration. Current pathological losses

Programs of disintoxication at infectious - toxic shock. Account of volume of infusive therapy according to disintoxication program. Ratio of solutions, starting solution. Explanation of choice of diuretic drugs. Control of infusive therapy.

Chronic renal insufficiency. Clinic and diagnostics, intensive therapy.

## **PHILOSOPHY**

### **Philosophy in historical dynamics of culture.**

1. Philosophy as phenomenon of culture. Definition "world outlook", its structure, the main functions. Outlook and ideology. Historical types of outlook. Peculiarities of mythology and

- religion. The main problem of philosophy: principles of classification of philosophy trends. Philosophy in the system of culture. Its functions. Interconnections of philosophy and medicine.
2. Origin of philosophy. Philosophy of Ancient East. Cultural and historical prerequisites of philosophy origin in Ancient East and West. Philosophy trends in Ancient China, India (characteristics, schools).
  3. Antique philosophy. Cosmocentrism of antique way of thinking. Antique naturephilosophy. Sofism (Sokrat, problem of method, Sokrat schools). Philosophy doctrines of Platon, Aristotel. The main problems and schools of Ellinistic philisiphy.
  4. Philosophy problems in Middle Ages. Origin of Christian philosophy, apologetics, patristics. Scholarstic philosophy, the main problems and trends. Foma Aquinsky. Peculiarities of Arabic philosophy.
  5. The main philosophic ideas in the culture of Renaissance. Characteristic features, their manifestation in philosophic thought of the period (anthropocentrism, humanism). Naturephilosophy and medicine.
  6. European philosophy XVII-XIX cent.. Sociocultural prerequisites of origin. English materialism and idealism in philosophy of empirism. Philosophy of Enlightenment Age. Interconnection of philosophy and medicine in New Ages. The main features of German Enlightenment XVIII-XIX cent .German classical philosophy and its influence upon medical thought. Classics and modernity two epochs in philosophy development. Classical philosophy crisis and the origin of the main trends of neoclassical thought.
  7. Contemporary philosophy. Posotivism. Philosophy of existentialism. Contemporary religious philosophy. The main ideas of phenomenology, structuralism. Postmodernism. Contemporary philosophy and medicine.
  8. Russian and Byelorussian philosophy. Social, religious ipeculiarities.

#### **Philosophy conceptions of being.**

9. Metaphysics and onthology. Definitions, structures. Dialectics as philosophical conception of den\velopment.
10. Philosophy of nature. Nature as subject of philosophy and scientific research. Nature as place to live for a person: biosphere, noosphere, ethnosphere. Ecological problems, reasons of origin, possible ways of solving. The main criterions of ecological problems, its importance for medicine.

#### **Philosophic anthropology.**

11. Consciousness in the frame of life. Being of spiritual: specific of existence, difficulties, possible methods of studying. Problem of consciousness in various philosophic traditions. Various forms of spiritual experience of mankind.
12. The problem of man in philosophy and science. Man as the subject of philosophic analyses. Natural, social, spiritual in a man. Personal in a man. Man, individual, personality. Man and his health. Philosophy and medicine in studying a personality.

#### **Theory of knowledge and philosophy of science.**

13. Cognition as the subject of philosophic analyses . The problem of knowability of the surrounding world. Cognition as action. Subject and object of cognition. Problem of truth, the main conceptions.
14. Science, its sociocultural status. Specific and structure of scientific cognition. Forms of scientific knowledge: fact, problem, hypothesis, theory. Method and methodology, their classification and general characteristics.

#### **Social philosophy.**

15. The main problems and definitions of social; philosophy. Society as the object of philosophic analyses. Evolution of philosophic thought about society. Peculiarities of social being.
16. Society as developing system. Specifications of social being. Structure of society (social, economic, politic structure). Problem of sociodynamics. Byelorussian model of development: the main aspects of state policy.

17. Political and juridical philosophy. Politics, law as the subjects of philosophy. Role of ideology in the life of society. The main components of ideology of Byelorussian state.
18. Philosophy of culture and technics. Conceptions of culture in modern philosophy. Culture and civilization. Dialog of cultures in the contemporary world. Technics as the subject of philosophic research. Place and role of medicine in modern culture.

**Philosophic priorities in the beginning of the III century.**

19. Global problems. Freedom and sense of life of a person.

## PHYSIOLOGY

1. Physiology. The subject matter and scientific methods
2. Bioelectric phenomena in excitable tissues.
3. The irritation laws of excitable tissues
4. The physiology of muscles. The physiological characteristics of muscles
5. The work of muscles. Mechanism of muscular contraction
6. The physiological characteristics of nerves, peripheral and myoneural synapses
7. The autonomic nervous system
8. The reflex principle of nervous system activity.
9. The peculiarity of excitation conduction on the central nervous system
10. The inhibition process in CNS. Coordination of reflex processes
11. Phase structure of cardiac cycle
12. Physiological properties of cardiac muscle
13. The regulation of heart activity
14. Circulation. Regulation of circulation
15. Methods of heart and vessel study
16. The main blood constants and clinic – physiological methods of study
17. Blood formed elements: erythrocytes and leukocytes
18. Blood groups. Coagulation of blood
19. External respiration
20. Gas-transport system of blood
21. Regulation of respiration
22. Digestion
23. Motor function of digestive tract. The absorption
24. Metabolism and energy. Nutrition
25. Thermoregulation
26. Internal secretion
27. Physiology of spinal, cord, medulla oblongata and pons varolii (hind-brain), mesencephalon reticular formation
28. Physiology of cerebellum, diencephalons and subcortical nuclei, cerebral cortex, limbic system Physiology of sensor system (visual and acoustic)
29. Physiology of tactile, temperature, taste and olfactory sensor systems
30. The conditioned reflex and its neurophysiological mechanisms
31. The human higher psychical function
32. Human CNS physiology, sensor system (analyzers), integrative cerebral functions.

# PHYSIOTHERAPY

## Introduction

Definition of physiotherapy, brief information about its history. Physiotherapeutic help organization in Belarus. The most important trends at using physical factors in medicine (medical, rehabilitational, prophylactic, diagnostic). Main peculiarities and advantages of medicinal physical factors. Classification of physiotherapy means and methods. Rules of safety techniques while working with physiotherapeutic equipment.

Modern concepts about methods of physiological and medical effect of physical factors. Physical, physical-chemical and biological stages of their effect on the organism. Local, segmented and common reactions of the organism at physiotherapeutical effects, their interconnection.

## Constant current and its medical-preventive usage

Constant current physical-chemical bases and mechanisms of physiological and medical action on the organism. Methodics of galvanization. Constant current dosage. Medicinal electrophoresis, general principles and the most important method peculiarities. Technique and methodics of carrying out procedures. Concept of intracavity and intratissue electrophoresis, micro electrophoresis. Indications and contraindications.

## Impulse electrotherapy.

Impulse electrotherapy, its concept, main advantages and dosage principles. Electro dream. Diodynamotherapy. Amplipulsetherapy. Interference therapy. Fluctuorization. Through-skin electrostimulation. Electrodiagnostics and electrostimulation.

## High frequency electrotherapy.

General characteristics of high frequency electrotherapy methods. Warming and oscillatory components of high frequency factors action. Ultrasonotherapy. Darsonvalization. Inductothermy. Ultra high frequent therapy. Decimeter-wave centimeter-wave therapy (DMW- and CMW-therapy). Millimeter-wave therapy (MMW-therapy).

## Magnetotherapy.

Biophysical principles of magnetotherapy. Magnetic field types (constant, changing, impulse). Physiological and medical action of magnetic fields.

## Franclinization. Aeroionotherapy.

Physiological and medical action of constant electric high tension field on the organism. Concept of aeroions and hydroaeroions. Peculiarities of positive and negative aero- and hydroaeroions action.

## Ultrasound and its medical – preventive usage

Concept of ultrasound therapy. Physical and biophysical method principles. Mechanism of physiological and medical ultrasound action. Ultraphonophoresis of medicinal substances. Mechanism of medical action, methodic of carrying out procedures, indications and contraindications.

## Inhalation therapy

Concept of aerosols, electroaerosoles, their general characteristic. Main ways of using aerosols in medicine (intrapulmonary, transpulmonary, extrapulmonary, parapulmonary). Mechanism of physiological and medical aerosol action. Types of inhalations ( steamy, warming-humid, humid, oily, powder inhalations).

### **Treatment by light**

Physical and biophysical light characteristic, concept of light spectrum. Infrared and visible beams. Ultraviolet beams. UV-blood raying. Laser therapy. Concept of laser puncture and laser blood raying.

### **Treatment by heat**

General characteristic of medical-heating physical environments (treating muds (peloids) and peloid-like substances. Mud treatment. Mixed methodics of mud treatment (galvanic mud, DDT- and SMT-mud treatment, mud-inductothermy, pelophonotherapy)). Paraffin- and ozokerito-treatment.

### **Water treatment**

Hydrotherapy. General method characteristic. Hydrotherapeutic procedures classification. Pouring, rubbing, wrapping. Curative showers: rainy, needle-like, dusty, circular, streamlike (Sharko shower, Scottish), fan-like, ascending, underwater, massage shower. Baths: plain, with fragrant and medical substances (pine-needles, mustard, turpentine) added, made of medicinal herbs and plants (valerian, with chamomile).

Balneotherapy. General method characteristic. Concept of mineral waters, their classification, main balneologic characteristics. Outer mineral waters application. Mineral (sulphide, sodium chloride, iodine bromide) and gas (carbon dioxide, oxygenic, pearl, nitric, radon) baths, methodics of their usage, indications and contraindications. "Dry" carbon dioxide baths. Underwater backbone stretching. Inner mineral waters usage. Classification of drinking mineral waters. Mineral water usage for stomach cleansing, duodenal drainage, intestine washing, inhalations.

### **Sanatorium-health resort treatment**

Concept of health resort. General medical health resort factors. Health resort classification: climatic, balneologic, mud, mixed. Climatic therapy and climatic health resorts. Types of climatic therapy: aero therapy, heliotherapy, talassotherapy, speleotherapy. Main balneologic and mud health resorts.

Sanatorium - health resort help organization, main health resorts and health resort factors in Belarus.

## **POLYCLINICAL THERAPY**

### **4<sup>th</sup> course**

#### **1. Topic: Organization of out-patient and clinical therapeutic help to population.**

1. Out-patients' clinic as the main structure in the first medical aid.

2. Structure of the polyclinic.
3. Functions of the main structural sub-divisions of out-patients' clinic.
4. Organization of divisional therapeutic service. The role of out-patients' service in diagnostics and treatment of diseases.
5. Functional obligations and rights of a general practitioner, the head of therapeutic department.
6. Succession in the work of divisional GP, specialized doctors, in-patients' doctors, doctors of emergency help.
7. Medical certificates, ambulant cards. The rules of filling in.

**2. Topic: The order of dispensary system.**

1. Dispensary system as the method of diagnostical observation of health state.
2. The main aims and tasks in mass health examination of adult population, organization of annual medical examination.
3. The role of prophylactic departments in dispensary system, the structure of prophylactic department the main functions of the department.
4. Filling in the necessary documentation for mass health examination.
5. Analysis of quality and effectiveness of mass health examination.

**3. Topic: Original positions of medical-social examination.**

1. The main rules of medical findings organization.
2. Disability, its forms.
3. The main aspects of medical-social examination of temporary disability.
4. The procedure of medical findings of temporary disability, its terms, the rules of applying of necessary documents to prove one's temporary disability.
5. The structure and functions of Doctor's committee on medical findings.
6. The main aspects of medical findings of persistent disability, procedure of conduct, Medical expert-rehabilitation committee, its structure and functions.
7. The procedure of sending patients for Medical expert-rehabilitation committee. Registration all the necessary documents for Medical expert-rehabilitation committee.
8. Disablement connecting with violation of course of lives of a patient.
9. Criteria of 1, 2, 3 groups of disability establishment.

**4. Topic: Preventive work of general practitioner (GP).**

1. Preventive work on the main noninfectious diseases.
2. Conception of risk factors of the main noninfectious diseases:
  - smoking as one of the factors of development of the main noninfectious diseases;
  - arterial hypertension as one of the factors of development of the main noninfectious diseases;
  - alimentary obesity as one of the factors of development of the main noninfectious diseases;
  - hyperlipoproteinemia as one of the factors of development of the main noninfectious diseases.
3. Hypodynamy as one of the factors of development of the main noninfectious diseases.
  - physical training as the method of prevention of the development of the main noninfectious diseases (contraindications, forms, intensity);
  - principles of formation of the increased-risk group of development of chronic nonspecific lung diseases;
  - principles of formation of the increased-risk group of arterial hypertension development;
  - principles of formation of the increased-risk group of CHD development;
  - principles of formation of the increased-risk group of gastrointestinal tract diseases development.

**5. Topic: Sanatorium treatment.**

1. Classification of health resorts and sanatoriums on medical and natural factors, specifications.
2. Characteristics of balneological resorts.
3. Characteristics of spa-resorts.
4. The main medical factors of climatic resorts.
5. Characteristics of mud-bath resorts.
6. Order of sending a patient to sanatorium treatment.
7. General contraindications to sending patients to sanatorium treatment.

8. Selection of patients with respiratory system diseases, characteristics of the main factors for treatment.
9. Selection of patients with heart diseases for sanatorium treatment.
10. Selection of patients with gastrointestinal tract diseases for sanatorium treatment.
11. Treatment of patients with musculoskeletal system diseases in sanatorium conditions.
12. Selection of patients with diseases of kidneys and urinary system.

## 5<sup>th</sup> Course

### **6. Topic: Acute respiratory diseases (influenza, acute respiratory virus infection). Angina in practice of divisional therapist.**

#### **6.1 Topic: Acute respiratory diseases (influenza, acute respiratory virus infection).**

1. Etiology, pathogenesis, epidemiology.
2. Clinical characteristics of diseases; influenza clinic; methods of instrumental and laboratory examinations, diagnostics.
3. Differential diagnostics with similar illnesses, diagnosis settlement, sending for hospital treatment.
4. Treatment of influenza and acute respiratory virus infection. The use of antibacterial therapy.
5. Influenza complications.
6. Temporary disability, preventive measures.
7. Rehabilitation of patients with severe forms of influenza.

#### **6.2 Topic: Angina in practice of divisional therapist.**

1. Definition, etiology, pathogenesis;
2. Clinical displays, versions of development.
3. Instrumental and laboratory methods of investigation.
4. Differential diagnostics.
5. Treatment of angina, temporary disability, prevention, dispensarization.

### **7. Topic: Acute bronchitis, acute pneumonia in practice of divisional therapist.**

#### **7.1 Topic: Acute bronchitis in practice of divisional therapist.**

1. Definition, classification.
2. Clinics.
3. Instrumental-laboratory methods of investigation.
4. Differential diagnosis: complications, hospitalization, principles of treatment.

#### **7.2 Topic: Acute pneumonia in practice of divisional therapist.**

1. Definition, classification.
2. Clinics.
3. Methods of instrumental and laboratory investigation.
4. Differential diagnostics, complications.
5. Hospitalization.
6. Principles of treatment, temporary disability, dispensarization.

### **8. Topic: Neurocirculatory dystonia in practice of divisional therapist.**

1. Definition, classification, clinical characteristics of forms of ND.
2. Methods of investigation, conducting of special tests.
3. Diagnostics, differential diagnostics.
4. ND treatment, temporary disability, prevention.

### **9. Topic: Diagnostics of CHD complications, emergency help on prehospital stage.**

1. CHD classification, complications. Clinics, diagnostics.
2. Peculiarities, rendering of emergency treatment for CHD complications on prehospital stage.
3. Reduction of pain syndrome.
4. Emergency help at lung oedema, treatment measures.
5. Tactics of help at cardio shock, registering its clinical variations.
6. Clinical death.

7. Reanimatological steps at clinical death.

**10. Topic: Diagnosis and emergency treatment for comatose condition (hepatic, uremic, cerebral, toxic (alcoholic) coma) on prehospital stage.**

1. Definition of hepatic coma, reasons, factors of arising, clinical signs, diagnostics, differential diagnostics, leading of emergent measures on prehospital stage.

2. Uremic coma, definition, classification, reasons, clinical manifestations, differential diagnosis, emergent measures on prehospital stage.

3. Toxic coma, definition, factors of arising, clinical peculiarities, emergent therapy.

4. Cerebral coma.

5. Hemorrhagic stroke, ischemic stroke, reasons, clinical data, differential diagnostics, emergency treatment.

**11. Topic: Diagnostics, emergent therapy for allergic diseases and Quincke's disease.**

1. Reasons of anaphylactic shock, classification of allergens, clinical shock manifestations:

- differential diagnosis;

- emergent measures on prehospital stage.

2. Quincke's disease, reasons, pathogenesis of Quincke's disease, clinical manifestations:

- differential diagnostics, pseudoallergic Quincke's disease;

- emergency therapy.

## PROPAEDEUTICS of INTERNAL DISEASES

According to qualifying demands *the purposes* of studying of propaedeutics of internal diseases are:

- To learn application of methods of clinical research of patients, to generate communicative skills of dialogue with patients and their relatives;

- To acquaint with a semiology of diseases of an internal organs (the main signs and syndromes);

- To study principles of diagnostics and the cause of main diseases of internal organs proceeding in a typical form.

To achieve this aims the students should know the following *problems*:

1. Studying of principles of a medical deontology.

2. Studying of methods of examination of the therapeutic patient:

- Physical methods (examination, palpation, percussion, auscultation),

Laboratory methods (the general analysis of blood, the general analysis of urine, analysis of urine according Zimnitsky, Nechiporenko, Reberg, coagulogramme, coprogramme, analysis of sputum and pleural contents),

- Instrumental methods (an electrocardiography, spirometry, pH level of the stomach),

3. Studying the causes of the main processes in human organism and mechanisms of their development.

4. Studying the basic complaints at diseases of internal organs.

5. Studying clinical manifestations of the therapeutic diseases proceeding in a typical form

- Diseases of lungs and bronchi (bronchitis, pneumonias, pleuritis, a bronchial asthma),

- Rheumatic disease, contagious endocarditis, mitral and aortal failure of the heart,

- Diseases of the organs of circulatory system (angina pectoris, arterial hypertension),

- Diseases of the organs of the digestive system (ГЭПБ, functional stomach dyspepsia, gastritis, peptic ulcer of the stomach and duodenum, Inflammatory diseases of the large and small intestine, diseases of the gall bladder and bile ducts, hepatitis and a cirrhosis of liver),

- Diseases of the kidneys and the urinary system (acute and chronic Glomerulonephritis and pyelonephritis),
- Diseases of blood (anemia, hemostasiopathy, hemoblastoses),
- Endocrine diseases (diabetes, a myxedema and a diffuse thyroid gland).

Finishing the study of the propaedeutics of internal diseases the student should get the **knowledge of:**

1. The causes of main internal diseases, proceeding in a typical form
2. The main clinical signs and syndromes of diseases of internal organs, mechanisms of their originating.
3. Symptomatology of the most wide-spread internal diseases, proceeding in a typical form.
4. Symptomatology and main principles of carrying out of a medical care at some urgent states (an acute anaphylaxis, etc.).

**- Skills:**

1. To interview the patient (or his relatives) to receive the complete information on signs of disease and the possible causes of his originating in typical cases.
2. To carry out physical examination of the patient (examination, palpation, percussion, auscultation, thermometry, measuring the blood pressure, etc.) for revealing the objective information about disease.
3. To make a plan of additional laboratory and instrumental researches of the patient.
4. To distinguish the basic syndromes of internal diseases.
5. To make the clinical diagnosis of the most wide-spread internal diseases, proceeding in a typical form and to give his substantiation.
6. To interpret results of ECG-research in 12 abductions, and to find infringements of automatism of sinus unit, an excitability and conduction, heralds of hypertrophy of a myocardium of auricles and ventricles, IDH.
7. To estimate results of the general analysis of a blood, urine, feces, sputum, pleural content, stomachal and duodenal contents, and also some routine biochemical blood analyses.
8. To write down the results of clinical research of a patient as a case history with a substantiation of the diagnosis.
9. To carry out a medical care at some urgent states (clinical death, an acute anaphylaxis, etc.).

**- Skills:**

1. Subjective research of the patient: the collecting of an anamnesis.
2. Objective research of the patient: the general examination, taking the body temperature, palpation of a thyroid gland, research of the lymphatic system.
3. Interviewing the patients with respiratory tract diseases.
4. Objective examination of the respiratory organs: survey (static and dynamic) and palpation of a thoracic cavity, percussion (relative and topographical) and auscultation of the lungs. Examination of a bronchophony.
5. Interviewing of the patients with diseases of the system of circulation.
6. Objective research of system of a circulation: survey and a palpation
7. The heart rate, percussion and auscultation of the heart, research of its properties
8. Measuring of arterial pressure.
9. Interviewing of the patients with the diseases of the Digestive tract organs.
10. Objective research of patients with illnesses of esophagus, stomach and intestine: survey, percussion, auscultation and a superficial palpation of the abdomen.
11. Deep slipping methodical palpation of the stomach and intestine.

12. Objective research of patients with diseases of liver and bile ducts: percussion and palpation of the liver and spleen.
13. Interviewing of the patients with diseases of the kidneys and the urinary tract.
14. Examination of the sick kidneys and urinary tract.
15. Objective research of the urinary system organs: percussion, auscultation and palpation of the kidneys, ureters and urinary bladder.
16. Interpreting of results of the laboratory methods of research of the patients:
17. The general and biochemical analysis's of blood, the general analysis of urine, analyses of urine according Nechiporenko, Zimnitsky, general analysis of a sputum and pleural fluid,
18. pH-measuring of esophagus, stomach and duodenum, analysis of a gastric juice,
19. Analysis of duodenal contents, coprological analysis.
20. Interpreting of the results, received results by instrumental methods of investigation of the patient: electrocardiography, spirometry.
21. Taking a case history.

## **PSYCHIATRY AND NARCOLOGY**

### **Contents of psychiatry**

#### **8<sup>th</sup> semester**

##### **Lectures**

##### Lecture № 1

Psychiatry as medical discipline. Historical aspects of psychiatry development.

1. Basic parts of psychiatry. 2. Interconnection of psychiatry with other branches of science.
3. Development of doctrine about mental disorders in ancient times, middle ages in Western countries, Russia, Byelorussia.

##### Lecture №2

Classification of mental illnesses MKB-10. II. Methodological foundations of psychiatry

1. International classification of mental diseases of the 10th reconsideration. Basic sections, diagnostic characteristics of mental diseases.
2. Methodological bases of psychiatry.

##### Lecture № 3

I. Psychopathologic symptoms and syndromes:

Perception disturbances. Mental disturbances. Memory disturbance.

Emotional sphere disturbances. Attention disturbances

Will disturbances. Intelligence disturbances. Consciousness disturbances

##### Lecture №4

Etiology, pathogenesis and treatment of mental disturbances.

1. Diagnostics and epidemiology of mental disturbances.
2. Etiology and pathogenesis of mental diseases.
3. Treatment of mental disturbances.

#### **9<sup>th</sup> semester**

##### Lecture № 1

Schizophrenia. Regularities of pathogenesis, clinic, clinical course, clinical forms, therapy and patients rehabilitation.

History of study. Symptomatology, basic signs. Syndromology. Forms of schizophrenia. Types of disease course, their peculiarities. Etiology and pathogenesis of schizophrenia. Differentiated diagnosis. Pathological anatomy. Treatment of schizophrenia, kinds. Types of remissions at schizophrenia. Types of defects at schizophrenia

Demonstration of the patients, symptomatology analysis.

#### Lecture № 2

Boundary psychological disturbances, classification according to MKB-10. Prevalence. Clinic, treatment. Disturbing - phobic disturbances. Obsessive –compulsive disturbances, reaction to serious stress and adaptation disturbances. Dissociative disturbances. Somatoformic disturbances. Treatment, prognosis.

#### Lecture № 3

Adults' person and behavior disturbances.

1. Paranoid person disturbance. 2. Schizoid person disturbance. 3. Dissociative person disturbance. 4. Emotional - unstable person disturbance. 5. Hysterical person disturbance. 6. Anxious and dependent person disturbance. 7. Disturbance of sexual identification of sexual preference. 8. Diagnostic signs, treatment and prognosis.

#### Lecture № 4

Mental and behavioral disturbances due to the use of psychoactive substances.

1. Alcohol dependence. 2. Alcoholic psychoses. 3. Mental disturbance connected with the use of opioids, cannabinoids, sedative and somnolent substances, cocaine, hallucinogens and volatile compounds. 4. Treatment, differentiated diagnosis, preventive measures, prognosis.

#### Lecture № 5

Organic and symptomatic, mental disturbances

1. Dementia at Alzheimer's disease. 2. Vascular dementia. 3. Mental condition features of elderly age. Psychoses of late age. 4. Psychoses owing to somatic disturbances. Peculiarities of course and appearance. 5. Radiation sickness. Clinic, treatment.

### **Practical classes**

#### **8<sup>th</sup> semester**

I. Psychiatry as medical discipline. Historical aspects of psychiatry development.

Psychopathologic symptoms

1. Basic sections of psychiatry  
2. Interaction of psychiatry with other branches of science.  
3. Development of doctrine about mental disturbance in ancient time, middle ages in Western countries, Russia, Byelorussia.

II. Psychopathologic symptoms: disturbance of perception, disturbance of mentality, disturbance of memory, disturbance of emotional sphere, disturbance of attention, disturbance of will, disturbance of intelligence, disturbance of consciousness.

2. Basic psychopathologic syndromes

1. Neuroslike syndromes: asthenic syndrome, obsessive-compulsive syndrome, dissociative-conversion syndrome, disturbing – phobic and hypochondriac syndromes.  
2. Syndromes of consciousness disturbance: condition of obnubilation, delirium, amnesia, oneiroid, twilight disturbance, special disturbance.  
3. Delirious syndromes: paranoiac syndrome, paranoid syndrome, paraphrenic syndrome, Kandinski-Klerambo syndrome, hallucinatory syndrome.  
4. Syndromes of emotional disturbances: depressing syndrome, maniacal syndrome.  
5. Syndromes of motor-willed disturbances: catatonic syndrome, apatoabulitic syndrome.  
6. Syndromes of intellectual-mnemonic disturbances: Korsakovski syndrome, dement syndrome, syndrome of mental deficiency.

#### **9<sup>th</sup> semester**

1. Classification of mental diseases MKB-10. Diagnostics and epidemiology of mental diseases, Etiology and pathogenesis of mental disturbances. Organization of psychiatric help to the population. Treatment of the mentally diseased. Clinical and paraclinical methods of patients' research. Scheme of history of illness.

2. Affective disturbances of mood in terms of bipolar affective, recurring depressing disturbances, chronic disturbance of mood (cyclotomy, distimy). Clinic, differentiated diagnosis. Methods of affective disturbances' therapy.
  3. Schizophrenia. Conformity to pathogenesis, clinic and course of disease. Clinical types of course of disease. Schizotypal disturbances. Therapy and patients' rehabilitation.
  4. Neurotic disturbances connected with stress: disturbing - phobic, general-disturbing, obsessive-compulsive and dissociative disturbances. Reaction to serious stress and adaptation disturbance. Somatoformic disturbances. Clinic, dynamics, treatment. Sexology, sexual pathology, disturbance of mature person and adult behavior. Specific disturbances of the person. Disturbance of sexual identification and sexual preference. Clinic, treatment.
  5. Mental and behavioral disturbances owing to the use of psychoactive substances. Alcoholism, development stages and treatment, basic forms alcoholic psychoses, clinic and therapy. Organization narcological service. Drug addiction and drug abuse. Kinds of drug addictions. Clinic, treatment.
  6. Organic disturbances. Dementia at Alzheimer's disease. Vascular dementia. Dementia at Peak illness. Clinic, treatment, peculiarities of mental condition in elderly age. Psychoses of late age. Clinic, treatment.
  7. Psychotic disturbances as a result of damage and brain dysfunction: psychotic disturbances and person disturbances. Mental disturbances at brain traumas. Clinic, treatment. Epilepsy, epileptic psychoses, peculiarities of mental and personal disturbances at epilepsy. Clinic, course, therapy questions.
  8. Psychoses owing to somatic disturbances, peculiarities of course and appearance. Radiation sickness. Clinic, treatment. Mental deficiency. Kinds of mental deficiency. Final class.
- Total number of hours given for teaching narcology - 36 (11<sup>th</sup> – 12<sup>th</sup> semesters), out of this 12 lectures and 24 practicals.

Course contents:

Lectures themes: 1. Use of psychoactive substances as medico - social problem. 2. Stages and mechanisms of PAS dependence formation. 3. Estimation and diagnosis. 4. Treatment and prophylaxis of disturbances connected with PAS use. 5. Problems connected with tobacco and alcohol usage. 6. Drug addictions and drug abuses.

Themes of practical classes:

1. The role of doctor in prophylaxis and therapy of disturbances connected with PAS usage. 2. Forms and methods of early exposures and interference. Screening. 3. Abuse of alcohol and alcoholic dependence. 4. Drug addictions and drug abuses.

## **BASES OF PSYCHOLOGY AND PEDAGOGICS**

**The purpose of a course:** expansion of humanitarian preparation of doctors, pharmacists in the field of fundamental sciences about the person, formation of their psychological competence that is one of the most urgent psychological, and social problems of present time.

### ***Section I. Psychological knowledge in activity of the doctor.***

#### **Theme: Psychology and medicine.**

Change of world outlook paradigms and problems of interaction of psychology and medicine. Social - psychological sense of illness.

#### **Theme: Development of mentality and consciousness.**

Concept about consciousness. Frame of consciousness. A self-consciousness. Parameters of safety of consciousness. Unconscious in mentality of the person.

Condition of consciousness. An active wakefulness. The changed conditions of consciousness: dream, meditation, a hypnotic condition. Sensory isolation. Taking of narcotics and pathological conditions.

## ***Section II. The person of the doctor as the factor of health of the patient.***

### **Theme: the Person.**

Conception about the person in psychology. Frame of the person. A self-consciousness of the person. The I-conception of the person: cognitive, estimating and behaviour parts. Methods of measuring personal characteristics.

The person of participants of medical - diagnostic process. Individual - psychological features of the person. The general conception of a temperament. Types of temperaments (the sanguine person, the phlegmatic person, the choleric person, the melancholic). Extroverts and introverts. Professional demands in medicine and temperament.

Conception about character. Frame of character, signs - complexes of its properties. Character as "the program of behaviour of the person". Assessment of character's features (traits). Character and temperament. Natural and social causes of character. Character and appearance of the person.

Diagnostics of temperament, character and abilities.

### **Theme: Personal body height.**

Conception of personal body height. A locus of the control. The control over emotions. Development of a self-consciousness. A reflection. Expansion of consciousness.

Autonomy of the person. Congruence. Authenticity.

### **Theme: Activity.**

Concept of activity. Frame of activity. Needs, motive, the purpose, action. A rough basis of activity.

The person in medical activity.

### **Theme: Needs and motives.**

Concepts "need", "motive", "motivation". Motivation and the person. Personal sense and sense-creating motives.

Classification of needs and their hierarchy. Physiological needs. Need for safety (physical and psychological). Need for attachments, love, for participation in group. Need for respect. Cognitive and aesthetic needs. Need for self-realization.

Individualization of ways of satisfaction of needs. A role of motives in professional work of a physician. Direction of a personality of a doctor as a set of motives.

## ***Section III. Cognitive sphere of the person and professional work of the doctor, the pharmacist***

### **Theme: Perception of the world.**

Perception in medical - diagnostic process. Perception of a pain. An internal picture of illness. Adequacy of perception in activity of the doctor. Medical influence due to selection of objects of perception.

### **Theme: Cognitive mental processes (attention, memory, thinking).**

Properties of attention, specific features of attention. Attention of the doctor: the analysis of a problem.

Kinds, processes, individual differences of memory. Infringements of memory: an agnosia, an amnesia, an apraxia, an aphasia. A role of memory in activity of the doctor.

Specific features of thinking. Professional medical way of thinking.

### **Theme: Psychology of emotions.**

Forms of emotional conditions. An affect. Actual emotions. Feelings. An emotional stress. Mood. Фрустрация. Passion.

Classification of emotions on quality. Pleasure. Surprise. Suffering. Anger. Disgust. Pavor. Shame. Dynamics {changes} of emotions.

Psychology burning.

**Theme: Mechanisms of psychological protection.**

Concept of psychological protection. Functions of mechanisms of psychological protection: conservation of personal integrity, the mental health, certain "I-image", a regulation of interpersonal relationships.

Classification of protective mechanisms of mentality. A sublimation. Replacement. A projection. Denying. Formation of reaction. Moving. A somatization. Suppression. Identification. Ascetism. Intellectualization. Regress.

***Section IV. Social - psychological aspects of medical interaction.***

**Theme: Psychology of dialogue.**

Concept about dialogue. Frame of dialogue. The communications. Interaction. Perception.

Features of dialogue in medical activity. Dialogue in a diad " the doctor - the patient ", " the doctor - relatives of the patient ". Features of dialogue in medical collective. Communicative competence of the doctor, the pharmacist.

**Theme: Psychology of groups.**

Small and big social groups: concept, attributes, the basic characteristics. A stage of the introduction into dialogue, interpersonal relations. Types of installations on perception of other person. Formation of the attitude relation of a group to each of its members. Sociometrical status. A lead in group. The psychological characteristic of the leader. Phenomena of group influence.

***Section V. Pedagogical aspects of medical interaction.***

**Theme: Personally - guided pedagogics in activity of the doctor.**

Humanistic pedagogics and medicine. The person as value and the subject of medical interaction. Medical interaction and its principles. The patient as the accomplice of medical interaction. Support - a basis of formation of confidence of at patients. Strategy and tactics of construction of dialogue with the patient, proceeding from rules of humanistic pedagogics.

**Theme: Pedagogics of family relations.**

Modern family, functions of family. Frame and dynamics of family. Infringement of functioning of modern family. Types of infringements of functioning the families causing mental traumas of a person . Family therapy.

The program on bases of psychology and pedagogics assumes as group (lectures and practical classes), and individual (an introspection, autodiagnosics, -research tasks) forms of work with students.

Parameter of psychological readiness of the student - physician to interaction is the complex of communicative skills and skills which assumes:

- 1) Social - psychological culture of the future doctor, the pharmacist;
- 2) A high level empathy;
- 3) The positive I-concept of the future specialist;
- 4) Development of «clinical way of thinking “and professional position providing personally - centered medical interaction (the attitude to object of the activity, comprehension of the self-value both other person, and the attitude to the patient as to the active accomplice of medical interaction is personal - centered).

1. Public health and health care system as branch of science and subject of teaching. Public health and methods of its research. Statistics, its significance for theory and practice of Health care system.
2. Organization of statistical research of public health. Methods of standardization. Graphic reflection of statistic research of population, its steps. Graphic plotting in statistics. Parametrical methods of an assessment of statistical research reliability of special and standardized parameters. Direct method of standardization. Dynamic series, their use for characteristic of population health.
3. Demography. Its medic-social aspects. Procedure of demographic processes study. Statistics of children's death. Process of population reproduction in different countries. Morbidity, its types, methods of research, significance in doctors' activities and health care subdivisions. Methods of studying and valuation of physical development. Trends of demography process changing in Belorus and other countries. Epidemiology. Significance of methods of disease research for practical medicine. Methods and ways of information maintenance of medical- hygiene knowledge. Propaganda of healthy way of life.
4. State social insurance and social ensuring. Medical findings of temporary disability, its aims, functions.
5. Medic-social findings and rehabilitation. Organization of temporary invalidity examination. Organization of proof loss
6. Preventive principle in health care system. Dispanserazation, its types. Organization of out-door patients' help.
7. Organization of hospital, emergent medical help.
8. Health care of mother and child. Organization of gynecological help. Medical-preventive help to children and teenagers.
9. Features of rendering of the treatment-and prophylactic help by the workers of the industrial plants and private enterprises. Medic-sanitary division, aims, structure, functions. System of health care of rural population.
10. Valuation of medical work of single doctors and organizations upon the final result.
11. National health care systems and modern trends of development. Laws in health care system.
12. Medical findings of labor disability.
13. Medical statistics and modern methods of measuring of public health. Ways of development.
14. Economy, planning, finances in health care system in modern conditions.

## **RADIATION DIAGNOSTICS AND RADIATION THERAPY**

Common questions of radiation diagnostics. Methods and agents of radiation diagnostics: Roentgenology method. Computer (x-ray) tomography. Ultrasonographic research. Radionuclear diagnostic researches. Magnet-resonance tomography (MRI). Medical tomography. Intervention actinology. Organs puncture. Clinical radiologic biochemistry. Complex radiation diagnostics of damages and diseases. Radiation therapy: Physical bases of radiation therapy. Technical bases of radiation therapy and radioactive therapeutic engineering. Biological bases of radiation therapy. Organizational bases of radiation therapy.

## RELIGION STUDY

### **Subject of “Religion”. Theoretical foundations of the discipline.**

1. Subject. System and methods of the discipline.
2. Religion as cultural phenomenon. Freedom of conscience and tolerance to faith.
3. The role of religion in the life of the society and in the system of culture.
4. Cultural potential of religion.

### **Religion as sociocultural phenomenon.**

1. Definitions “religion”, “religious outlook”. Structure of religious complex: conscience, activity, organizations.
2. Phenomenon “believe”. Religious believe, its peculiarities. Religious recommendations and prohibitions.
3. The main functions of religion and religious organizations.
4. Evolution of religious thought. Polytheism, monotheism. Typology of religions.

### **Origin and Essence of Christianity.**

1. The problem of the origin of Christianity.
2. Historical and cultural prerequisites of the origin of Christianity.
3. Judaism and Christianity.
4. Bible – the books, structure, contents.
5. Arguments around J. Christ’s life.
6. The main aspects of Christian symbol of faith and Nagornaya sermon of Christ. Holidays, mysteries.

### **The Main Trends of Christianity. Christianity in the Contemporary World.**

1. Decoration of the Orthodox, Catholic, Protestant Churches. Peculiarities of cult, organization.
2. Modern condition of the Orthodox, Catholicism, Protestantism.
3. Religious modernism and fundamentalism.

### **Buddhism and Islam. Past and present.**

1. Life, activity and doctrine of Muhammad.
2. Trends in Islam.
3. Coran- the origin of faith.
4. Islamic modernism and fundamentalism. International Islamic organizations, their role in the contemporary politics.
5. Buddhism and orthodox religious tradition in India. The personality of Siddhartha Gautama.
6. The main trends. Spreading of Buddhism in Central Asia and in the East.
7. Buddhism in the modern world.

## SOCIOLOGY, POLITOLOGY AND HUMAN RIGHTS

### SOCIOLOGY

1. Sociology as the branch of science. Object, subject of cognition. Concept “social”. Structure of sociologic knowledge. Methods of social analyses.
2. The main aspects of social and political thought development. Origin of social and politic knowledge. History of social and political thought since antiquity up to XIX cent. Origin and development of classical sociology in XIX – beginning XX cent. Modern sociology: variety of schools and conceptions. Sociology: Byelorussian school.
3. Society as the subject of social research. The main prerequisites of social life. Concept “society”, types of societies. Social connection: subject, regulation, social influence, social attitude.

4. Social institutions of society. Concept, origin, contests, types on social and functional role. Concept “institutionalization”. Family as the most important social institute. Development of social institutions, society in Byelorussia.
5. Social structure of society. Concept. Reasons of social inequality. Theories of social stratification. Social stratification of Byelorussia society.
6. Social conflict. Definition. The main aspects of research in modern conflictology. Dynamics of social conflicts, their main types.
7. Personality in social surrounding. Social activity. Socialization. Types of personality. Social theories of personality. Social role and status of personality. Social activity and behaviour of personality. Socialization of a person. Factors of socialization. Up-brining in the process of socialization. Social surrounding and problems of up-brining. Modern problems of education.
8. Social research. Sociology of Health care system. Social research and practice. Types and methods of sociological research. Social policy and health.

## **POLITOLOGY**

1. Politics as the subject of politology. Methods and functions of politology. Subject, aims of the discipline. Structure, functions of politics. Concepts, categories of politology. Increasing of role of political knowledge in the contemporary world.
2. The main aspects of origin and development of politic thought. Myth origin of ancient politics. Christian-theological conception of politics. Civil conception of politics (Renaissance period). Scientists of New Age about the essence of state. Development of political thought of Byelorussia.
3. Political power. Power as the main category of politology. Essence of political power, its origin and resources. Conceptions of power (variations). System of political power in Byelorussia.
4. Political elite. Essence, structure, functions. Elite types. Elite theory. Political elite of Byelorussia.
5. Political system of society. General concept, essence, structure, components. Typology of political system. Political system in BY.
6. State in the political system. State as the main institution. Conceptions of origin. Essence of state, its types. Social state and civil society. The main characteristics of state organization in Byelorussia.
7. Political regimes. Concept, classification. Totalitarianism: features in political, economic, spiritual spheres. Authoritarianism: features. Democratic political regime; essence, peculiar features.
8. Political parties and social unions. Concept. Classification: systems of parties. Social unions and movement. Aims, purposes of social unions. Peculiarities of system of parties in Byelorussia.
9. Political leadership. Its nature, types. The role of modern leader in contemporary society.
10. Representation and elections. Election groups in political system of society. Laws of elections, its main principles. Concept and types of election systems. Election system of Byelorussia.
11. Political development. The main types of political

## **RADIATION DIAGNOSTICS**

General questions of radiation diagnostics are analyzed: types of radiation, used in diagnostics. Principles of antiradial defense and labour protection measures. Regulation of radial diagnostic researches. Computer processing of medical images.

### **Methods of radial diagnostics.**

Roentgenological method (roentgenoscopy, radiography, fluorography, linear tomography, angiography, etc.). Artificial contrast study.

Roentgenological computer tomography (principle of getting the image, one- and two-dimensional echography, Doppler graphy, visualization of organs and tissues, priorities of usage).

Radionuclide researches (radiopharmaceutic drugs, radioisotope diagnostic laboratory, methods of radionuclide research).

Magnetic resonance imaging in diagnostics (ways of usage in diagnostics, peculiarities of images of organs and tissues, magnetic resonance spectroscopy).

Medical thermo diagnostics (principles of the method and indications for usage, contact fluid crystalline thermo graphy, distant infrared thermo graphy, etc.).

Interventional radiology (roentgenoendovascular intervention, medical manipulations on abdominal and thoracic cavities, retroperitoneal space under the control of different types of radial images).

Paracentesis of organs and pathological tissues under the control of various types of radial images.

Principles of radio immunological researches.

Complex radial diagnostics of diseases and injures of different organs and tissues. This part of the subject deals with the problems of radial anatomy and the picture of widely spread lungs, heart, vascular, esophagus, stomach, rectum, duodenum, small intestine, large intestine, liver, pancreatic gland, bile secretion ways, kidneys, urinary system, locomotor system, endocrinology system diseases. Usage of radial diagnostics in neurology, otorhinolaryngology, ophthalmology, stomatology and maxillofacial surgery. Great attention is paid to the questions of emergent radial diagnostics.

## **RADIATION MEDICINE**

Types of nonionizing and ionizing radiation. Radioactive decay, concept of activity, equation of radioactive decay. Units of radioactivity measure. Corpuscular ionizing radiation. Alpha-radiation, beta-radiation, protons and neutrons – sources, energy, penetrating ability, physical and biological effects, principles of defense. Electromagnetic ionizing radiation. Roentgenologic radiation, gamma-radiation - resources, energy, penetrating ability, physical and biological effects, principles of defense.

Doses of ionizing radiation, dose capacity. Display dose, systematic and nonsystematic units of measurement. Absorbed dose (D), connection with absorbed dose, quality coefficients of radiation types, units of measurement. Effective dose (E<sub>0</sub>), its connection with equivalent dose, quality coefficients for organs and tissues, units of measurement. Expected individual effective dose, collective equivalent dose in tissue (ST), collective effective dose (S), expected collective effective dose, usage, units of measurement. Methods of dosimetry of ionizing radiation.: ionizing, luminescent, photographic, chemical; usage, characteristics.

Concept about natural radiation background. Natural extraterrestrial sources of radiation: primary and secondary space radiation, cosmogenic radionuclides. Origin, structure, annual effective doses of external and internal radiation. Concept about technogenically changed natural and artificial radiation background, the most important components technogenically changed radiation background, produced annual effective doses of external and internal radiation, measures to reducing radiation doses. Irradiation of population in the result of nuclear weapon test. Contribution of nuclear-fuel industry in irradiation of population, annual effective doses.

Primary physical processes in molecules after absorption of energy of ionizing radiation: excitation, ionization. Direct and indirect ionizing radiation. Linear compactness of ionization, linear energy transfer, rarely and tightly ionizing radiation. Concept about related biological effectiveness.

Physical-chemical stage of radiation activity. Radiolysis of molecules of organism, direct and indirect injures, radiosensitivity of molecules and radial-chemical exit, free radicals and process of their damaging action. Biological stage of radiation influence. Types of cell reactions: radial block of mitosis, kariokynetic cells death. Influence of absorbed doses of radiation on the formation of chromosome aberration, essential and nonessential aberrations. Connection of chromosome aberrations with oncologic and genetic pathology. Postradial restoration. Enzymes participates in

reparation of DNA injures. Radiosensitivity, biological levels. Factors influenced on radiosensitivity of cells, tissues, organs, organisms, species.

Classification of radiation pathology. Peculiarities of determinant radial pathology (oncologic and genetic diseases). Acute radial disease, its forms. Consequences of acute radial disease. Dosimetric, laboratory, clinical data, used in the primary diagnostics of acute radial disease. Radial skin injures, clinical manifestations, periods of illness, level of heaviness, clinical picture, diagnostics, prevention, treatment.

The main peculiarities of radial damages while accumulation of radioactive substances. Carcinogenic effects. combined radial injures, peculiarities of clinical development.

Classification of preventive measures of radial injures on mechanisms of action and aims. Radioprotectors of short-term action, ways of valuation of radioprotective effect. Antiradial drugs of prolonged action. Medical aids of biological protection raising radio resistance of a body. Measures of protection from inner irradiation. Iodine preventive measures. Sorbets for caesium, rubidium strontium, barium withdrawn from gastrointestinal tract. Complexons for uranium, plutonium, americium, yttrium, caesium withdrawn from a body. Emergent help for radionuclides entrance through gastrointestinal tract.

Classification of treatment measures for acute radial disease. The main ways of radioactive substances entrance into organism. The main steps of radionuclide exchange in organism. Factors influenced radionuclide entrance in peroral way. Factors influenced radionuclide entrance in inhalation way. Radionuclide division on inhalation classes on their speed of withdrawn from lungs. Factors influenced radionuclide entrance through noninjured skin. Characteristics of wound way of radionuclide entrance. Types of radionuclide distribution in organism. Factors influenced on radionuclide withdraw from organism. Radionuclide division on inhalation classes on their speed of withdrawn from organism. The main ways of radionuclide withdrawn. Peculiarities of radial affections after radionuclide intrusion. Dosimeter principles of person inner irradiation. Direct and indirect methods of radionuclide inner content measurement. Annual effective dose of inner irradiation while radionuclide entrance in peroral and inhalation way. Pathological processes caused by the entrance of radioactive iod, caesium, strontium, plutonium, uranium into organism.

Radioecological consequences of Chernobyl disaster for Byelorussia. Characteristics of radioactive wrecking withdrawn. Distribution of iod-131 and caesium-137 in different regions of the world and in the Republic after the Chernobyl disaster. Levels of possible irradiation for people living in zones of pollution. Real levels of population irradiation in zones of strict control. Annual effective dose calculation depending on nuclide pollution compactness on the territory. Rate setting of irradiation of different categories of population at the moment of Chernobyl accident (categories of population, groups of critical organs, dose limits of irradiation).

Diseases of population after Chernobyl accident. The aims of founding Byelorussian State Register of people suffered from radiation after the Chernobyl disaster. Clinic examination of population of the Republic suffered from radiation. Aims of clinic examination. Periods and volume of clinic examination. Examination of reason connection of diseases with radioactive influence. The list of diseases originally connected with the consequences of Chernobyl accident.

Classification of radioactive events. Radioactive accidents, reasons. Radioactive accidents do not connected with maintenance of nuclear electric power stations and the main measurements of consequences eliminations. International scale of accidents at the objects of nuclear energy system, levels and parts of the scale. Criteria of definition of nuclear events level. Actions in the conditions of accidental situation at the nuclear power station. Criteria of evacuation decisions of different groups of population and planned evacuation remoteness from the place of accident. Iodine prevention, drugs, doses and duration for different groups of population. Effectiveness of preventive measurements depending on the terms of its beginning from the moment of the accident.

Requirements for irradiation limitation in the conditions of nuclear accident. Principles of emergent medical help at the nuclear industries during radioactive accidents. Actions while accidental situations at the nuclear power stations. Volume of measurements carried out on different steps.

Limits of irradiation of different categories of population. Demands for limit of medical irradiation of population. Control levels of medical irradiation while X-ray and radionuclide diagnostics. Planned heightened irradiation for personnel and people not considered to be personnel in accidental situations. Limit of radionuclide content in the main food products. The main documents regulating work with the sources of ionizing irradiation.

## **RADIATION THERAPY**

Concept about radioactivity. Requirements to radiopharmaceutical drugs for diagnostics. Organization of radiodiagnostic laboratories. Way of protection from ionizing radiation and radioactive pollution. Labour protection and safety technique while work with radioactive substances. Dosimetric control. Ways of radiation registration. Radiodiagnostic equipment.

Radionuclide methods of thyroid gland research (determination of blood hormones of iodine captures, visualization of thyroid gland). Indications, contraindications, methods of research. Data interpretation. Renography, static and dynamic kidney visualization. Indications, contraindications, methods of research. Data clinical interpretation. Hepatography, static and dynamic liver visualization. Indications, contraindications, methods of research. Data clinical interpretation. Radionuclide heart and lungs researches. Aims of diagnostics in oncology. Radioimmune detection of tumor markers. Tumors visualization with organotropic and tumorotropic drugs.

Energy transmission of ionizing radiation to the surrounding. Dosimetric value of radiation energy absorption. Dose distribution in a man's body for different types of ionizing radiation. Primary radiochemical reactions. Biological effect of ionizing radiation.

Principles of tumors radiation therapy. Concept about radiosensitivity. Radiosensitivity of healthy and tumorous tissues. Therapeutic interval of radiosensitivity, ways of measurement. Contact and distant methods of radiation therapy. Conception Time – Dose – Fraction (TDF). Radiation therapy of malignant tumors in combined (preoperational and postoperational radiation therapy) complex treatment. Radiation therapy as independent method of treatment. Once-only and total doses, rhythm of tumors radiation.

Radiation therapy of cancer of lungs, mammary gland, esophagus, rectum etc. Indications and contraindications for irradiation. Radiation fields, irradiated tissues volume. Topometrical patients' preparation. Irradiation method choice, irradiation types, fraction regimen. Detection of total foci dose.

Principles of radiation therapy of nonneoplastic diseases. Indications and contraindications to roentgenotherapy. Fraction regimen and irradiational rhythm depending on the stage of inflamed process. General radiation reactions, their prevention and treatment. Radial skin reactions, their prevention and treatment. Radial reactions of several organs (lungs, esophagus, rectum, urinary bladder), their prevention and treatment.

## **STOMATOLOGY AND MAXILLOFACIAL SURGERY**

Basic problems of maxillofacial surgery in practice of a doctor of a general profile.

Purulent inflammatory processes of maxillofacial range in practice of a doctor of a general profile.

Traumatic damages of maxillofacial area. Oncology of maxillo-facial area.

Methods of inspection of patients with basic diseases of maxillofacial range.

Caries of teeth and their complication.

Role of odontogenous infection contamination in development and current of general diseases.

Diseases of oral cavity mucosa. Clinic, prophylaxis.

Purulent – inflammatory diseases of maxillofacial area. Abscess and phlegmon. Clinic, rendering of the first medical assistance.

Stomatic chroniosepsis, focal infection contamination – serious complications of odontogenous infection contamination.

Traumatic damages of mild tissues of maxillofacial range. Clinic, rendering of the first medical assistance.

Traumatic damages of mandible. Clinic, rendering of the first medical assistance.

The combined damages of maxillofacial range. Clinic, rendering of the first medical assistance.

Complications and traumas of maxillofacial range menacing life of the patient, rendering of the first medical help.

Features of development and clinical exhibitings of tumoral processes of maxillofacial range.

Modern aspects of treatment of patients with tumours of maxillofacial localization.

Inherent faults of development of maxillofacial range, role of the doctor of general profile in diagnostic and medical tactics.

Acquired defects and deformations of maxillofacial range. Clinic, inspection.

Plastic and plastic surgery of maxillofacial range.

## SURGERY

Topic and lecture plan

- 1 Introductory lecture.
- 2 Appendicitis.
- 3 Stomach ruptures.
- 4 Bile diseases and calculi. Cholecystitis.
- 5 Acute pancreatitis.
- 6 Stomach and duodenal ulcers.
- 7 Precancerous stomach diseases. Stomach cancer.
- 8 Intestinal obstruction.
- 9 Anus diseases. Anus cancer.
- 10 Peritonitis.
- 11 Thyroid gland diseases.
- 12 Lactic gland diseases.
- 13 Lung cancer.
- 14 Esophagus cancer.
- 15 Vein diseases of lower extremities.

### Topical seminars plan

1. Acute appendicitis(etiology, pathogenesis, clinic, diagnostics, treatment). Peculiarities and complications of acute appendicitis. Chronic appendicitis. Carcinoid syndrome. Carcinoid of worm-like sprout.
2. Stomach ruptures (classification, pathogenesis). Types of ruptures. Peculiarities of operations. Ruptures complications. Types of pinching. Rupture inflammations, breaks.
3. Bile diseases and calculi (pathogenesis of calculi formation. Methods of treatment. Operational indications, methods of operations. Acute and chronic cholecystitis (clinics, diagnosis, differentiated diagnosis). Obstructional jaundice (peculiarities of operations). Complications: dropsy and gall-bladder empyema. Cholangites (classification, clinics, diagnosis, differentiated diagnosis).

4. Acute pancreatitis. Etiology and pathogenesis. Clinics. Diagnosis. Complications. Differentiated diagnosis. Treatment. Indications for operations, types of operations depending on the period of the disease.
5. Stomach and duodenal ulcers. Etiology and pathogenesis. Clinics. Diagnosis. Differentiated diagnosis. Principles of conservative treatment. Eradication helicobacter piloris. Indications for operations. Types of operations. Types of ulcers. Ulcer complications: perforation (clinics, differentiated diagnosis, treatment), penetration (clinics, diagnosis, differentiated diagnosis). Principles of preoperational preparation. Methods of operations. Bleeding gastric and duodenal ulcer. Types of bleedings. Clinics gastrointestinal bleedings. Conservative treatment, Mellory-Weis syndrome.
6. Precancerous diseases and stomach cancer (gastritis, poliposis, ulcer). Etiology, pathogenesis. Forms of treatment. Endoscopic polip removal. Stomach cancer. Metastasis. Stages of disease. Complications, treatment, types of treatment.
7. Intestinal obstruction. Types of obstruction. Clinics, Methods of diagnosing. Principles of treatment. Types and peculiarities of operations. Indications for intestinal cutting.
8. Anus diseases. Methods of patients treatment. Hemorrhage. Types of hemorrhage. Hemorrhage clinics and its complications. Hemorrhage treatment. Anus fissure, pararectal fistulae, anus polyps, clinics, diagnosis. Types of operations. Radiation and chemo- therapy. Patient rehabilitation.
9. Peritonitis. Definition of peritonitis, classification. Acute purulent peritonitis. Sources of peritonitis development. Principles of treatment. Pathogenesis.
10. thyroid gland diseases. Methods of patient examinations. Types of thyreotoxicoses. Their definitions, classification, clinics, diagnostics, treatment. Preoperational preparation. Types of operations. Complications during and after operation. Thyreoditis. Types, clinics, diagnostics, differentiated diagnostics. Conservative and surgical treatment. Thyroid cancer. Classification, clinics, diagnostics, differentiated diagnostics, types of operations.
11. Lactic gland diseases. Methods of patient examination. Classification of diseases. Causes of diseases, clinics, diagnostics, differentiated diagnostics. Conservative, surgical treatment. Benign tumors. Ways of cancer metastasis. Types of treatment, pre- and post operational indications of radiation, chemo-, hormone- therapy. Results of treatment.
12. Lung cancer. Etiology, metastasis regularities. Classification. Indications and contraindications for surgical treatment. Principles of combined treatment.
13. Esophagus diseases. Classification, methods of diagnosing. Cancer of esophagus. Clinics and diagnostics. Indications and contraindications for surgical treatment. Types of operations. Indications for combined treatment (chemo- and radiation therapy).
14. Vein diseases of lower extremities. Classification. Clinics, diagnostics, treatment. Primary varicose vein extension. Pathogenesis. Clinics, diagnostics. Types of treatment. Types of lower extremities thrombophlebitis. Clinics, diagnostics, differentiated diagnostics, treatment (surgical, indications, contraindications). Methods of operations.

In the end of the course the students must

**be familiar with:**

1. The questions of patient dyspanserization, post operational rehabilitation, determine their working ability.
2. The scientific research, aiming at improvement of early diagnostics and treatment of widely known surgical diseases, held in our country and abroad.
3. MKB10.

**know:**

1. The process of patient's examination, i.e. scheme of taking a case history.
2. Etiology and pathogenesis of the most widely spread surgical diseases.
3. Clinical situation of these diseases and their complications.
4. Modern methods of patients' clinical, laboratory, instrumental research.
5. Ways of treatment, indications for their usage and prophylaxis measures.

6. Surgical deontological aspects.

**be able to:**

1. get complaints and anamnesis.
2. state a diagnosis on the basis of complaints and physical examination of the patient.
3. value the following results of laboratory methods.
4. interpret laboratory findings.
5. perform various manipulations.
6. give quick aid and know the tactical principles of prehospital stage.

## **TRAUMATOLOGY AND ORTHOPEDICS 4<sup>TH</sup> COURSE**

**Lectures – 10 academic hours**

1. Introduction in traumatology and orthopedics. History of development. Modern progress. Classification of damages and their rehabilitation.
2. Contemporary principles and methods of treating of bones fractures and dislocations. Regeneration.
3. Injures and hand diseases.
4. Injures of spinal column.
5. Bones tumors .

**Practicals – 54 academic hours**

1. Peculiarities of investigation of patients with musculoskeletal system injures and diseases. Classification and diagnosis. Traumatic disease.
2. Regeneration of bone material. Modern methods of treatment of bones injures.
3. Injures of thorax. Damages of shoulder, humeral joint. Shoulder dislocations.
4. Injures and diseases of hand.
5. Injures of pelvis and spinal column.
6. Femoral injures. Traumatic femoral dislocations.
7. Injures and diseases of knee joint.
8. Deforming arthrosis. Congenital and acquired feet deformations. Paralytic feet deformations.
9. Prosthetics in traumatology and orthopedics. Case history defense.

## **5<sup>th</sup> COURSE**

**Lectures – 10 academic hours**

1. Peculiarities of traumatology and field surgery. Medical evacuation.
2. Gunshot wounds.
3. Shock. Bleeding. Hemorrhage.
4. Thermal injures.

**Practicals – 42 hours**

1. Gunshot wounds.
2. Organization of emergent assistance in the army and in emergency situations. Traumatic shock. Its treatment.
3. Bleeding. Giving blood transfusion in field surgery conditions.
4. Thermal injures and their treatment.

5. Wounds. Chest injures. Contusious skull injures. Treatment on the stages of medical evacuation.
6. Gunshot wounds and closed injures. Transport immobilization. Treatment while medical evacuation. Wound infection. Its prevention and treatment.
7. Wounds and closed injures of stomach, pelvis. Treatment.

## **6<sup>th</sup> COURSE**

Practicals -30 hours.

1. Transport immobilization. Plastering technology. Injures and diseases of hand, forearm.
2. Injures of feet, knee joint, spinal column, and pelvis.
3. Injures of thorax. Principles and methods of treatment of open injures, emergent surgical wounds processing. Prosthetics.
4. Polytrauma. Traumatic shock. Ununited fracture. Posttraumatic osteomyelitis, treatment.
5. Deforming osteoarthrosis and spinal column osteoarthrosis. Congenital femoral dislocation.
5. Diagnostics, principles and methods of treatment and rehabilitation of traumatologic patients. Polytrauma. Classification. Emergency medical help.
6. Deforming arthrosis, feet deformation. Spinal column diseases.
7. Emergent medical help for traumatic shock, injures.

## **TROPICAL DISEASES AND TROPICAL PARASITOLOGY**

Cholera, food toxic infections.

Salmonellosis, dysentery. Amebiasis, balantidiasis, cryptosporidiasis.

Typhus and paratyphoids.

The most important rickettsioses of man.

Malaria.

Triponosomoses.

Meningitises and meningocephalites.

Peculiarities of the skin diseases and sexually transmitted infections in the tropical countries.

Leprosy: ethiology, causative agent, clinical characteristics, diagnosis, prognosis, treatment, prophylaxis. Leishmaniasis: ethiology, causative agent, clinical characteristics, diagnosis, prognosis, treatment, prophylaxis. Hereditary skin diseases: diagnosis.

Tropical treponematoses: f rambesia, bedzel, pinta. Ethiology, clinical characteristics, diagnosis, treatment, prophylaxis.

Chancroid. Inguinal lymphogranulomatosis. Donovanosis. Epidemiology, clinical picture, diagnosis, treatment, prophylaxis. Differential diagnosis of syphilis.

Dermatomycoses. Peculiarities of epidemiology, clinical characteristics and treatment of dermatomycoses in the countries with the tropical climate.

## **TUBERCULOSIS**

Epidemiology of tuberculosis in economically advanced and developing countries. System of organization antituberculous help to the population worldwide depending on national programs.

Organization and contents of general practitioner work on early tuberculosis revelation at patients applying to polyclinics and general hospitals, and also at mass and selective (group) routine

population examinations using method of tuberculin diagnostic and fluorography. Diagnostic minima at examination for tuberculosis - obligatory, additional, facultative. Obligatory diagnostic minimum (ODM) patient examination at direction to antituberculous dispensary.

Clinical signs of tuberculosis in children, teenagers and adults. Toxic syndrome, "pectoral" complaints, data peculiarities of physical, roentgenologic, instrumental and laboratory methods of research at various tuberculosis forms. Definition of indications, repetition factor and kind of patients roentgenologic research lung diseases at carrying out differentiated diagnostics. Definition of indications and kind of laboratory research on tuberculosis mycobacteria detection, repetition factor, sequence of their fulfilment and effectiveness. Indirect and true signs of tuberculosis and their differentiated-diagnostic significance.

Primary tubercular complex, tuberculosis of endothoracic lymphatic nodes, peripheral groups and frill, diagnostics and differentiated diagnosis. Military and disseminated lung tuberculosis, diagnostics and differentiated diagnostics. Furnace, infiltrative lung tuberculosis and caseous pneumonia, diagnostics and differentiated diagnosis. tuberculoma, round tubercular infiltration, diagnostics and differentiated diagnosis. cavernous and fibrous- cavernous lung tuberculosis, diagnostics and differentiated diagnostics cavernous of formations in the lungs. Tubercular pleurisy, peritonitis, peritonitis, diagnostics and differentiated diagnosis. Diagnostics of lungs tuberculosis complications (hemoptysis, pulmonary bleeding, spontaneous pneumothorax) and emergency administration.

Formation by general practitioner of risk groups on tuberculosis. Revealing and tuberculosis preventive maintenance among "threatened" contingents (HNZL, diabetes mellitus, stomach ulcer, silicosis, alcoholism, AIDS, pregnancy and postnatal period in women). Steroid tuberculosis revealing and preventive maintenance. Social risk groups on tuberculosis.

Concept of basic principles of advanced technique polichemotherapy of consumptives on CART recommendation. International strategy of struggle with tuberculosis - "DOTS" and "DOTS + ". Antitubercular preparations of basic and accessory series. Criterion of concept definition about treatment of consumptives in various countries.

Sarcoidosis: etiology, clinic, diagnostics, treatment, dispensary supervision. Organization and contents of general practitioner work on tuberculosis preventive maintenance (specific, sanitary, social).

Organizational-methodical and advisory work of antitubercular dispensaries in general medical work establishments. Coordination team-work specialized dispensaries with general medical establishments of various countries depending on national programs on struggle against tuberculosis and development of local public health services system.

## UROLOGY

Urinology, its subject and methods. Symptomatology of urological diseases. Tool and laboratory methods of diagnostics.

Ultra sounds methods, radial diagnostics in urinology. Urodynamics. Urofluometer.

Urolithic disease. Renal colic.

Tumours of kidneys, penis, urinary bladder, testicles.

Nonmalignant hyperplasia and cancer of prostatic gland.

Traumas of organs of genitourinary system.

Acute and chronic renal failure, efferent methods of treatment in urinology. Kidneys transplantation. Nonspecific inflammatory diseases.

Urinary and man's sexual systems anomalies. Arterial nephrogenic hypertension.

Urgent conditions in urinology. Urinary and man's sexual systems tuberculosis.

Hydronephrosis, ureterohydronephrosis, nephroptosis. Clinical andrology.

Development of practical skills:

- observation and analysis of supervised patients
- work in reception rest and polyclinic
- work in operational, endoscopic and dressing-room studies
- Kidneys palpation, men's outside sexual bodies, palpation and percussion of urinary bladder
- digital rectal research of prostatic gland
- urinary bladder catheterization by elastic catheter
- methods and ways of patients care with cystomy, nephrostomy, chronic delay or incontinence of urine

Questions of oncological urology.

Damages of urinary system organs and men's sexual system. Other questions of urgent urology. Acute inflammatory diseases of urinary organs and men's sexual systems. Acute and chronic renal failure. Nephrogenic arterial hypertension.

Surgical anatomy of genitourinary system organs. Basic surgical operations of these organs.

Clinical andrology. Conservative and surgical correction of men's sexual frustration.

Participation in operations, including endoscopic operation. Participation in clinical conferences, analysis of patients diseases. Rectal research of prostate diseases.

Urinary bladder catheterization by elastic catheter.

Organization and care of patients with cyto-and-nephrostomy, chronic delay or incontinence of urine. Technique of suprapubic puncture realization, catheterization of urinary bladder by a metal catheter.

Introduction of medicinal substances in urethra and urinary bladder.

Introduction of basic hospital and polyclinic documentation.

Damages of urinary system organs at obstetric and gynecologic operations.

Urinary system organ changes at tumours of female sexual sphere.

Acute pyelonephritis of the pregnant women and in postnatal period.

Genitourinary fistulas. Postabortional sepsis.

Surgical kidneys anatomy, ureters, urinary bladder. Immediate surgeries on these organs.

Participation in operations. Novocainic blockade of round uterus ligaments.

Catheterization of urinary bladder by elastic catheter. Participation in clinical conferences, analysis of patients.

Organization and care of patients with cyto- and – or nephrostomy, chronic delay or incontinence of urine. Replacement of cystostomic or nephrostomic drainage.

Suprapubic puncture realization and catheterizations of urinary bladder by female metal catheter.

Vaginal research of patients with a stone of the bottom third of ureter, tumours of urinary bladder. Introduction of medicinal substances in urinary bladder.

Basic documentation of hospital and polyclinic.

## VALEOLOGY

### BASES of PHYSICAL EDUCATION

1. Physical health and its meaning for organism. Parameters of physical health.
2. Criteria and groups of physical health.
3. Influence of the internal and external factors on physical health. Preventive maintenance of hypodynamia.
4. Formation, preservation and strengthening of physical health.
5. Physical improvement. Principles, methods and means of physical education.
7. Methods of study and estimation of physical health.

### HARDENING OF THE MEN.

1. Hardening of the men and its meaning.
2. Principles of the men hardening.
3. Means of the men hardening.
4. Hardening of the men by air.
5. Hardening of the men by water.
6. Hardening of the men by ultra-violet beams.
7. Methods of study and estimation of the hardening.

#### PSYCHO-PYSICAL TRAINING

1. Mental health, its parameters.
2. Criterions and groups of mental health.
3. Influence of the internal and external factors on mental health. Preventive maintenance of mental stress. Autogenic training.
4. Formation, preservation and strengthening of mental health.
5. Modern approaches to the mental improvement. Psychohygiene and psychoprophylactic.
6. Methods of study and estimation of the mental health.

#### BASES OF A FEEDING OF THE HEALTHY MAN.

1. Meaning of a feeding for health of the man.
2. Laws of a balanced diet.
3. Food substances and foodstuff, their characteristic.
4. Food status of the organism, its characteristic. Methods of study and estimation of the food status.
5. Modern concepts and power supply systems, their characteristic.
6. Methods of study and estimation of the contents of fibers, fats, carbohydrates, vitamins and mineral substances, power value of food.

#### OVERCOMING of HARMFUL HABITS.

1. Harmful habits and their meaning.
2. Harmful influence of alcohol on organisms.
3. Harmful influence of nicotine on organisms.
4. Harmful influence of drugs on organisms.
5. Harmful influence of toxic substances on organisms.
6. Diagnostics of harmful habits.
7. Methods of overcoming of harmful habits.

#### RATIONAL WORK And REST.

1. Work and its influence on organism.
2. Feature of work of the students.
3. Exhaustion and its preventive maintenance.
4. Mode of work and rest.
5. Meaning of biological rhythms for high-grade work and rest.
6. Methods of study and estimation of a mode of work and rest.
7. Measure on rationalization of work and rest.

#### PERSONAL HYGIENE.

1. Personal hygiene and its meaning for health.
2. Hygiene of nervous system and sense organs.
3. Hygiene reference-impellent, blood, respiratory, digestive system.
4. Hygiene of excretory and sexual system.
5. Hygiene of skin, clothes, footwear.
6. Hygiene of dwelling.
7. Methods of study, estimation and improvement of measures on personal hygiene.

**METHODS and MEANS of HYGIENIC TRAINING And EDUCATION of the POPULATION.**

1. Hygienic training and education of the population, its purpose and tasks. A service of formation of a healthy image of life.
2. Healthy image of life and its components. Meaning of personal hygiene in formation of a healthy image of life.
3. Methods and means of propagation of medical and hygienic knowledge.
4. Role of establishments of public health services in hygienic training and education of the population.
5. Basic requirements to realization of lecture, conversation, release of the sanitary bulletin, booklet.