Study branch: GENERAL MEDICINE

Course: ANATOMY 1, 2, 3

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	48/36	es	9
	summer	48/60	es	10
2nd	winter	38/48	E	10

Syllabus: ANATOMY 1, 2, 3

Osteology. Arthrology. Myology. Alimentary system. Respiratory system. Urogenital system. Angiology. Endocrine glands. Nervous system and sense organs.

LECTURES:

1st class, winter semester

Introduction to anatomy. General anatomy of bones. General anatomy of joints. General anatomy of muscles. Alimentary system. Respiratory system. Urinary system.

1st class, summer semester

Reproductive organs. Heart. Arterial system. Venous system. Lymphatic system, spleen. Endocrine system. Nervous system, general anatomy. Spinal cord, spinal nerves. Cervical, brachial plexus. Lumbar, sacral plexus.

2nd class, winter semester

Medulla oblongata, pons. The fourth ventricle, nuclei of the cranial nerves. Cerebellum. Mesencephalon, reticular formation. Thalamus. Hypothalamus, hypophysis, epithalamus, metathalamus. Limbic lobe and olfactory pathways. Telencephalon, basal nuclei. Autonomic nervous system. Sense organs.

PRACTICAL LESSONS:

1st class, winter semester

a/ Planes and directions of the human body. Vertebrae, sternum, ribs. Joints of the vertebral column and thorax. Skeleton of the upper limb. Skeleton of the lower limb. Joints of the upper and lower limb. Skull.

b/ Situs viscerum abdominis.

1st class, summer semester

a/ Muscles of the upper limb. Topografic regions of the upper limb. Muscles of the lower limb. Topografic regions of the lower limb. Muscles of the head, neck, and back. Topografic regions of the head, neck and back. Muscles of the thorax and abdomen. The sheath (vagina m. recti abdominis) of rectus abdominis muscles.

b/ Dissection (abdomen and thorax)

Thorax: Regions of the thorax. Identification points and lines on the thorax. Skeletotopy of lungs, pleura and heart and their surface projection onto the thoracic wall. Dissection of the intercostal space. Dissection of subcutaneous structures. Dissection of the mammary gland. Dissection of pectoral muscles, rami pectorales, nervi pectorales. Opening the thoracic cavity and study of localization of thoracic viscera. Dissection of anterior and superior mediastinum. Opening of the pericardium. Dissection of ascending aorta, arch of aorta, pulmonary trunk and pulmonary veins. Preparation of lung root (radix pulmonis). Study of external features of heart and lungs. Preparation of lung hilum (hilum pulmonis). Dissection of heart vessels. Incision and opening of heart chambers, study of heart interior. Dissection of the posterior mediastinum.

Abdomen: Regions of the abdomen. Identification points and lines on the abdomen. Surface projection of organs onto the abdominal wall. Preparation of the walls and content of the inguinal canal. Dissection of abdominal muscles. Opening of the abdominal cavity and study of abdominal viscera in situ. Peritoneal relations in the supramesocolic and inframesocolic compartment, lesser sac of peritoneum. Peritoneal folds. Dissection of vessels of the abdominal cavity. Study of macroscopic features of organs of the abdominal cavity. Dissection of retroperitoneal space. Topography of the retroperitoneal organs. Dissection of lumbar plexus. Dissection and study of organs in the lesser pelvis.

2nd class, winter semester

a/ **Dissection** (vessels, nerves)

Head and neck: Surface markings and regions. Dissection of cutaneous nerves and veins. Dissection of the parotid region. Dissection of the oral region, facial vessels. Dissection of the submandibular triangle. Dissection of the carotid triangle. Dissection of the frontal, infraorbital and mental regions. Dissection of the lateral cervical region. Dissection of the occipital and posterior cervical regions.

Upper limb: Surface markings and regions. Dissection of superficial veins and cutaneous nerves. Deltopectoral triangle. Dissection of the axilla. Dissection of the medial bicipital groove. Dissection of the cubital fossa. Dissection of the anterior side of the forearm. Dissection of the palm. Dissection of the posterior side of the upper limb.

Lower limb: Surface markings and regions. Dissection of superficial veins and cutaneous nerves. Dissection of the femoral triangle and iliopectineal fossa. Dissection of the anterolateral surface of the leg and foot. Dissection of the medial retromalleolar region. Dissection of the superficial veins and cutaneous nerves of the posterior side of the lower limb. Dissection of the gluteal region. Dissection of the popliteal fossa. Dissection of the plantar surface of the foot.

b/ **practical lessons** (CNS)

Surface markings of the spinal medulla. Spinal nerve. Vertebral levels of the spinal cord segments. Removal of the brain from the skull. Cranial nerve projections from openings on the skull. Cranial meninges. Venous sinuses of the dura mater. Subarachnoid cisterns. Blood supply of the brain. Cranial nerve projections from the base of the brain. Surface features of the cerebral haemispheres. Brain stem. Cerebellum. Fourth ventricle. Diencephalon. Third ventricle. Basal nuclei. White matter of the cerebral haemisphere. Lateral ventricles.

Evaluation of subject

Examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: BIOPHYSICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	42/36	E	8

Syllabus: BIOPHYSICS

Development of scientific branches medical physics and biophysics and their significance in the medical study's curriculum since the 19th century. Biomechanics of organ systems. Physical properties of cells, tissues and organs. Biological oscillations – biorhytms. Sensors (biological and technical). Thermodymamics and basic of molecular physics. The biophysical analysis of the physical factors´ interactions with IBS in in the environment. Proper and induced biosignals – sources, technical means of registration, archivation, physical analysis and medical interpretation with support of information and communication technologies. Biomedical monitoring. Basico of theory of measurement. Physical principles of diagnostic and therapeutic methods. The biophysics of stress and psychotherapy.

LECTURES:

1. Position of Medical Physics and Biophysics in medical study. Basics of theory of measurement. Measurement of physical quantities in medicine. Basic statistical methods in medicine. Evaluation of measurement results.
2. Information transfer. Information systems, information content, their medical use. Blood pressure, physical principles of measurement. Regulation systems. Signal perception. Diagnostic use of proper and induced biosignals. Telemetry.
3. Biophysics of blood circulation. Heart as a pump. Blood flow. Blood pressure, principles of measurement. Thermal radiation. Thermography. Liquid crystals.
4. Biophysics of breathing. External and internal breathing. Sound. Biophysics of sound analyser. Origin of human voice. Physical charcteristic of human voice.
5. Therapeutic use of interaction of physical factors with human body. Application of electrical impulses in medicine. Electrical safety. Physical ground and use of ultrasound in medicine. Doppler effect.
6. Biophysical grounds of optical methods in medicine. Sources of light. Reflection, refraction and difraction of light. Optical and electron microscope. Biophysics of eye.
7. Biophysic of cell. Active and passive transport through cell membrane. Diffusion, osmosis, medical application. Concept of electric dipole and double-layer. Rest membrane potential, action potential.
8. Biophysics of tissues and organs. Biophysics of locomotion system. Biophysics of bones, tends and joints. Biophysics of muscles, muscle contraction.
9. Biophysics of excitation processes. Electrical properties of cells, tissues and organs. Electric signals measured on the body surface (ECG, EEG, EMG, ERG).
10. Structure of matter from biophysical point of view. Kinds of radioactive radiation. Radioactive decay. Interaction of ionising and non-ionising radiation with environment. Dosimetry. Medical use of radiation. Radiometry anf photometry. Use of ionising radiation in medicine. Imaging methos using radionuclides. X-rays and imaging methods.
11. Basics of thermodynamics. First, second and third thermodynamic law. Thermodynamics of biological systems. Thermodynamic properties of biological systems.
12. Molecular biophysics. Interactions among particles (chemical bonds). Creation of molecules. Properties of water. Gases and condensed systems. Physical properties of biological liquids and gases. Fluids flow. Basic laws for gases.

PRACTICAL TRAININGS:

1. Seminar about questions with medical -physical problematics.
2. Seminar about questions with medical - physical problematics.
3. Solving of problems regarding general medicine
4. Individual work with information aand communication technology for preparation of the semestral work.
5. Solving of problems regarding general medicine
6. Solving of problems regarding general medicine
7. Solving of problems regarding general medicine
8. Solving of problems regarding general medicine
9. Individual work with information and communication technology for preparation of the semestral work.
10. Solving of problems regarding general medicine
11. Solving of problems regarding general medicine
12. Solving of problems regarding general medicine
13. Collection of semestral works, confirmation of processed problems and choosen pre-printed experimets. Final evaluation. Credit.

1. MEFANET and ELECTRONIC UNIVERSITY
2. Principles of telemedicine
3. National health porta in SR
4. Principles of eHealth
5. Principles of coding of national medical nomenclatures for eHealth

Examination - oral form (defence of semestral project)

Study branch: GENERAL MEDICINE

Course: BIOLOGY AND HUMAN GENETICS 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	24/24	es	5
	summer	24/24	E	6

Syllabus: BIOLOGY AND HUMAN GENETICS 1, 2

The cell as the basic structural and functional unit: morphology, cell surfaces, nucleus, nucleolus, mitochondria, endoplasmic reticulum, ribosomes, Golgi´s bodies, cytoskeleton. Intercellular spaces and intercellular communication. Transport of materials - glycocalix, membrane receptors. Cell cycle: amitosis, mitosis (mitotic apparatus, endomitosis). Viruses: genome, reproduction, mutations and recombinations, oncogenic viruses and acute transforming viruses. Prokaryotic cells -morphology, structure, genome. Parasexual process in bacteria. Differences between prokaryotes and eukaryotes. Protista. Molecular biology: structure of DNA and RNA, denaturation and renaturation of DNA, replication of DNA, transcription, translation, genetic code. Genes of prokaryotic and eukaryotic cells, insertion sequences and transposons, resistance to antibiotics (R plasmids, DNA recombinations, vectors). DNA analysis and its utilisation in medical practice. Chromosomal base of inheritance: structure of chromosomes, nomenclature, methods of identification. Meiosis (spermatogenesis and oogenesis). Differences between spermatogenesis and oogenesis.
Tissue cultivation. Classification of inherited diseases: single gene (autosomal dominant, codominant and recessive, X-linked), interaction of genes. Chromosomal aberrations, mechanisms of origin, frequences. Aberrations of chromosomes X and Y and gene-dose effect. Mosaicism. Organization of human genome: types of DNA, structure of gene, homeoboxes and homeodomains. DNA-histones complex. Oncogenesis - molecular base of cancerogenesis, oncogenes, their function in organism, c-onc, v-onc. Mutations of oncogenes, relation to malignancy. Tumour suppressor genes (TSG) - function, character of TSG mutations. Multistep theory, gene-dose effect. Syndromes of increased spontaneous fragility of chromosomes. Neoplasmas associated with typical rearrangement of chromosomes. Multifactorial and polygenic inheritance. Normal variability. Qualitative and quantitative traits, methods of genetical analysis. Pathological traits with multifactorial inheritance, malformations, civilisation diseases. Threshold effect. Predisposition to "civilisation" diseases. Criteria of multifactorial inheritance. Possibilites of prenatal diagnostics. Mutagenesis, types and basic characteristics of mutagenes. Frequences of mutations. Teratogenesis - basic characteristics, mechanisms of origin, possibilities of differential diagnosis. Occurence of inborn defects in populations of spontaneous abortions and newborns. Prenatal genetic diagnosis and prognosis

LECTURES:

winter semester

The cell - basic characteristics, membraneous structures of cell; intercellular communication; cell cycle, mitosis. Viruses. Prokaryot and protozoa, medical impact. Molecular biology - structure and isolation of DNA and RNA, their interactions in various biological systems; genetic code; expression of genes in prokaryotic and eukaryotic cells; DNA recombinations (vectors), utilisation of molecular biology in clinical medicine.

summer semester

Organization of human genome: types of DNA, homeoboxes. Mechanisms controlling gene expression: transcription factors, homeodomains, DNA binding domains, inactivation of X chromosome, methylation. Regulation of the cell cycle, molecular basics. Mechanism of

oncogenesis: oncogenes, TSG, their mutations, multi-step theory. Chromosomal base if inheritance: chromosomes - functional units of DNA, structure and classification. Meiosis, recombination, segregation. Chromosomal aberrations - mechanisms of origin, mosaicism. Differential staining of chromosomes, nomenclature, ISH, FISH. Chromosomal aberrations in relation to malignancy. Familial origin of cancer - retinoblastoma. Syndromes with spontaneous instability of chromosomes. Biology of the most common types of neoplasms: cancer of breast, prostate and ovaries. Gestational trophoblastic disease. Single-gene inheritance autosomal dominant, codominant and recessive, X-linked, imprinting, most common diseases, possibilities of diagnostics and prognosis. Multifactorial and polygenic inheritance, threshold effect, prognostics. Basics of genetics of population. Mutagenesis and teratogenesis in vitro and in vivo, effect on population quality. Utilisation of genetics for medical practice, prenatal genetical diagnostics (at the level of chromosomes and DNA analysis).

PRACTICAL LESSONS:

winter semester

Basics of microscopy. Native and stained slides of different kinds of cells. Viral infections - seminar. Infections caused by bacteria and other single-cell organisms. Cell cycle, mitosis. Cultivation of cells and tissues. Molecular biology - overview of laboratory research and diagnostic techniques; isolation of DNA from biological material; genetic code, electrophoresis in gel, identification of DNA fragments; restrictive endonucleases; DNA denaturation; Southern, Northern and Western blottings; hybridisation with probe, PCR. Application of molecular biology - seminar.

summer semester

Introduction to human genetics. Gametogenesis and meiosis. Analysis of chromosomes in interphase and mitosis. Classification of chromosomal aberrations and reasons of their various frequences in different reproductive outputs. Single-gene inherited pathological traits - autosomal dominant and recessive, X-linked - seminar. Multifactorial and polygenic inheritance. Mutagenesis. Teratogenesis.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: HISTOLOGY AND EMBRYOLOGY 1, 2

Class	semester	hours of lectures/practical lessons	examination	credits
1st	summer	28/38	es	6
2nd	winter	28/38	E	6

Syllabus: HISTOLOGY AND EMBRYOLOGY 1, 2

Histology as a science. Methods of study of the cell (light microscopy, transmission and scanning electron microscopy, immunohistochemistry, histochemistry, cell fractionations, in vitro hybridisation, autoradiography, freeze-fracturing).

Cytology. Morphological and functional properties of the cell. Cell components. Cell cycle and cell division.

General histology. Tissues. Epithelial tissue (types, nutrition and function). Covering and lining epithelia. Glandular epithelia. Sensory epithelia. Connective and supporting tissue (types, general properties, structure and function), cartilage (types, structure, nutrition and function). Bone tissue (structure, function and repair). Osteogenesis and bone growth. Muscle tissue (types, structure, function, regeneration and innervation). Nervous tissue and nervous system (structure and function). Myelinization. Degeneration and regeneration of nervous fibres. Synapses. Menings. Blood (blood plasma and blood cells). Blood cells (types, structure and function). Hemopoiesis. Microscopic structure of bone marrow.

Microscopic anatomy. Circulatory system and heart. Microscopic structure of immune system. Monophagocytotic system. Microscopic structure of lymphatic tissue and immune system. Microscopic structure and function of endocrine system. Mouth cavity, tongue, and teeth (microscopic structure and function). Microscopic structure and function of the digestive system wall. Glands associated with the digestive tract, gallbladder. Microscopic structure and function of upper respiratory ways. Lung (structure, function, blood circulation, blood-air barrier). Microscopic structure and function of kidney, urinary tract and urinary bladder. Microscopic structure and function of male reproductive system. Microscopic structure and function of female reproductive system. Sensory organs. Microscopic structure and function of skin adnexa. Microscopic structure and function of eye. Microscopic structure and function of inner ear.

Embryology. Introduction to embryology, basic terms and methods. Gametogenesis (oogenesis and spermiogenesis). Fertilization. Cleavage and formation of blastocyst. Implantation. Decidual reaction. Gastrulation. Differentiation of germ layers. Development of amnionic cavity, yolk sac, chorionic cavity and chorion. Notogenesis (development of notochord, neurulation and sommits). Primitive embryo organs. Intraembryonic coelom. Derivatives of germ layers. Folding of the embryo, growth and external appearance of the body. Pharyngeal arches. Blood vessel and heart formation. Development of umbilical cord and its abnormalities. Growth and external appearance of embryo. Fetal period. Abnormal fetal growth. Signs of new-born maturity. Development of placenta and its abnormalities. Structure and function of mature placenta. Fetal membranes in twins. Multifetal gravidity. Development of vertebrae and spine. Development of limbs. Development of cardiovascular system. Development of large arteries and abnormalities of cardiovascular system. Circulatory changes at birth. Development of gastrointestinal system and its abnormalities. Development of respiratory system and its abnormalities. Development of urinary system and its abnormalities. Development of genital system and abnormalities. Development of face and neck. Development of ear. Development of eye. Development of skin and its derivatives. Development of central nervous system and autonomous nervous system.

LECTURES:

1st class, summer semester

Introduction to histology and embryology (history, methods and terms in histology and embryology). Relation of function and structure of the cell. Function and structure of loose connective tissue. Ossification, postnatal growth, bone remodelling and repair. Hemopoiesis. Neuroglia - morphology and function. Morphological and functional features of the endothelium. Lymphatic tissue - structure and function. Thymus - development, structure and function. Hypothalamo-hypophyseal system. Histophysiology of small intestine. Structure and function of the liver. Mucocilliary clearance. Histophysiology of the kidney. Spermiocytogenesis and spermiohistogenesis.

2nd class, winter semester

Embryology - process of fertilization and abnormalilties, fertilization in vitro. Blastogenesis. Implantation. Development of germ layers and early embryogenesis. Development of amnionic cavity, yolk sac, umbilical cord, and fetal membranes. Development, structure and function of placenta. Development of vessels and heart. Congenital heart abnormalities. Development of pharyngeal arches, face, oral cavity and their abnormalities. Development of the primitive gut and its derivatives. Development of the urinary system and its anomalies. Development of grey and white matter of CNS. Development of ear. Development of eye.

PRACTICAL LESSONS:

1st class, summer semester

Introduction to the study of histology and embryology, light microscope, histological processing of tissues for light and electron microscopy. Histochemical technique. Method of cell cultivation. Electron-microscopic methods. Immunohistochemical method.

Cell structure in light microscope. Ultrastructure of the cell. Tissues. Covering and lining epithelia. Glandular epithelia. Connective and supporting tissue. Collagen and connective tissue. Cartilage. Bone. Desmogenous and enchondral ossification. Blood. Differential white blood cell count. Hemopoiesis. Muscle tissue. Smooth muscle. Skeletal muscle. Cardiac muscle. Nervous tissue and nervous system. Microscopic anatomy of cardiovascular system.

2nd class, winter semester

Microscopic anatomy of immune system, lymphatic organs. Microscopic anatomy of endocrine glands. Microscopic anatomy of digestive system and its glands. Microscopic anatomy of urogenital system. Microscopic anatomy of respiratory system. Microscopic anatomy of female genital system. Microscopic structure of placenta, endometrium, and decidual reaction, structure of fetal membranes and umbilical cord. Structure of mammary gland (lactans and non-lactans). Microscopic anatomy of male genital system. Microscopic anatomy of integumentary system. Microscopic structure of inner ear. Microscopic structure of eye.

Evaluation of subject

Examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: MEDICAL CHEMISTRY FOR GENERAL MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	summer	36/36	E	6

Syllabus : MEDICAL CHEMISTRY FOR GENERAL MEDICINE

Chemical composition of living systems, structural forms of biogenic elements in an organism - ionic, covalent and coordinative forms, their biological function. Free radicals. Bioreactive forms of oxygen and nitrogen - their structure, properties and significance in biochemical and patobiochemical processes in the organism. Antioxidants. Dispersive systems in relation to the organism. Solutions. Cell as a colloidal and heterodispersive system. Chemical reactions in biological systems and their biological function. The organism as a thermodynamic system, chemical energy of nutrients, a mechanism of the energy release and transport in the organism. Biochemically important reactions of organic compounds, relationship of their structure, properties and biological function. Organic compounds significant from toxicological viewpoint. Structure, properties and biological function of natural compounds - relationship between the structure and biological function of saccharides and lipids. Biologically important derivatives of monosaccharides. Polysaccharides (glycans) - homoglycans, heteroglycans. Glycoproteins and proteoglycans. Lipids - triacylglycerols, phospholipids, glycolipids. ω-fatty acids. Chemical composition and function of biological membranes. Arachidonic acid, properties and biological activity of eicosanoids. Steroids. Terpenes. Alkaloids. Amino acids. Reactions of amino acids in biochemical pathways, biogenic amines, polyamines, catecholamines. Peptide hormones and other biologically active peptides. Biologically active proteins - structural proteins, plasma proteins, hemoproteins, their biological function. Nucleotides. Nucleic acids (DNA, RNA) and their susceptibility to mutagenic agents. Oxidative stress, its consequences in organism and protective antioxidative systems in organism. Structure and biological function of vitamins. Coenzymes. General characteristic of enzymes and mechanism of their catalytic action. Regulation of enzyme activity - enzyme activation and inhibition, allosteric enzymes. Classification of enzymes. Enzymes in medicine.

LECTURES:

Introduction to the study of medical chemistry, its contents, aim and significance. Chemical composition of living systems. Chemical elements and their inorganic compounds important from toxicological point of view. Dispersive systems in relation to the organism. Kinetics and equilibrium of chemical and biochemical processes. Protolytic (acidobasic) equilibrium of internal milieu, maintaining a constant blood pH. Redox processes in organism and their biological function. Biological significance of chemical reactions in biological systems. The organism as a thermodynamic system. Structure and biochemically significant reactions of organic compounds. Structure, properties and biological function of saccharides. Structure and biological function of lipids and their derivatives. Lysolecitins. Amino acids and peptides. Proteins. Colloidal character of proteins. Nucleotides and nucleic acids, nucleoproteins. Oxidative stress - its influence on the structure and function of biologically important macromolecules. Enzymology - introduction. Vitamins as biologically important nutrients. General characteristics and properties of enzymes. Mechanism of the effects of enzymes. Enzymes in medicine.

PRACTICAL LESSONS AND SEMINARS:

a) seminars:

Safety rules of work in the chemical laboratory. Physico-chemical methods in the chemical and biochemical laboratory. Spectrophotometry. Chromatographic methods. Biogenic elements as a

part of important bioinorganic compounds and their structural forms in the organism. Solutions. Composition and properties of solutions. Osmotic pressure – biological importance of osmolarity. The biological importance of osmotic and colloidal pressure. Dialysis. Calculation of osmolarity and ionic strength of solutions. Biochemical importance of protolytic reactions. "K" and "pK" values of weak acids and bases. pH and its significance for the organism. Maintaining a constant pH, buffers. Buffers in biological systems. Calculation of pH. Chemical properties of bioorganic compounds (derivates of hydrocarbons, alcohols, carbonyl compounds, carboxylic acids and functional and substitution derivates of carboxylic acids), biochemically important reactions. Biochemical transformation of saccharides. Structural damage of lipids by oxidative attack – effect of free radicals. Biochemical reactions of amino acids, important peptides, review of proteins and their biological function. Enzymes – kinetics of enzyme reactions, specificity of enzymes. Regulation of enzyme activity.
Preparation and presentation of semestral works.

b) laboratory practices:
Construction of calibration curve and its use for determination of Fe in biological samples. Preparation of solutions. Observation of osmotic fragility of membrane erythrocytes. by effect of heavy metal ions. Determination of pH of the body and natural fluids. Buffers solution. Determination of urea concentration in serum and urine. Detection of glucose in urine. Detection of cholesterol in lipids and determination of concentration of total lipids in serum. Determination of lipid peroxidation by effect of free radicals. Reactions of amino acids and their chromatographic separation. Determination of Michaelis-Menten constant (K_m) of enzyme. Determination of arginase activity in the homogenate of the liver, influence of activators and inhibitors on its activity.

Examination - written part
- oral part

Study branch: GENERAL MEDICINE

Course: LATIN MEDICAL TERMINOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	0/26	E	4

Syllabus: LATIN MEDICAL TERMINOLOGY

Language system of Latin. Essential grammar. Word stock 1 300 - 1 400 basic medical expressions including 100 Greek expressions. Basic principles of word construction, derived Latin and Greek words. Lexical and grammatical minimum to understand formal structure of medical terms. Latin and Greek declensions - nouns, adjectives. Comparisons of adjectives. Numerals cardinal, ordinal, percentage, measures, weight and volume. Verb and its use in medical and pharmaceutical practice. Medical prescription. Latin and Greek prefixes, suffixes. Compound words. Hybrids. Word construction.

LIST OF LECTURES:

Introduction into the study of the Latin language. The importance of international Latin terminology in scientific language. Differences between anatomical nomenclature and clinical terminology. Chemical nomenclature. Living Latin phrases and their moral. Latin phonemes, orthography. Latin and Greek declensions - consonant and vocal declensions. Adjectives of the 3rd declension. Comparisons of adjectives and adverbs. Latin numerals. Verb - its use in medical and pharmaceutical practice. Latin names of some pharmaceutical preparations. Latin prefixes, derivation. Latin and Greek suffixes. Word construction. Latin and Greek compound words, hybrids. Composition.

SEMINARS:

The importance of international Latin terminology in scientific language. Differences between anatomical nomenclature and clinical terminology. Chemical nomenclature. Living Latin phrases and their moral. Latin phonemes , orthography. Latin and Greek declensions - consonant and vocal declensions. Adjectives of the 3rd declension. Comparisons of adjectives and adverbs. Latin numerals - cardinal, ordinal, percentage, measures, weight and volume Verb - its use in medical and pharmaceutical practice. Latin names of some pharmaceutical preparations. Latin prefixes, derivation. Latin and Greek suffixes. Word construction. Latin and Greek compound words, hybrids. Composition.

Examination - written form

Study branch: GENERAL MEDICINE

Course: FIRST AID

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	6/12	es	2

Syllabus: FIRST AID

Characteristics of the subject, basic concepts, goals of the subject, related legislature. Motivational background of the first aid administration (personal and legal). Goals of first aid. Significance of oxygen for human organism. The Chain of Life. Basic life functions. Respiratory system, heart and circulatory system, blood (basics of functional anatomy and physiology) - attitude to first aid. Transport of oxygen. Diagnostics of basic life functions. Essential lifesaving actions. General principles of first aid provision (classification of sudden incidents, situation assessment, activation of emergency system, safety, treatment, handover). Basic life functions support - BLS (Basic Life Support). Cardiopulmonary resuscitation. Automatic external defibrilation. Accute Coronary Syndrome - prevention and first aid. Cerebrovascular accident - prevention and first aid. Respiratory malfunctions, apshyxia and first aid. Spasmatic conditions and first aid. Unconsciousness, intoxications and first aid. Injuries, bleeding from wounds (physical and chemical impacts, bleeding stoppage, wound treatment). Shock - pathophysiology, causes, symptoms, first aid provision. Fractures, injuries of backbone, muscles and joints. First aid kit, bandaging techniques. Scorch and scald. Effects of extreme temperatures (hypothermia, frostbites, hyperthermia, siriasis). Injury from electric current and first aid. Mass accidents (traffic accidents, fires, industrial and radiation emergencies).

LECTURES:

1. Characteristics of the subject, basic concepts, goals of the subject, related legislature. Motivational background of the first aid administration (personal and legal). Goals of first aid. Significance of oxygen for human organism. The Chain of Life.
2. Basic life functions. Respiratory system, heart and circulatory system, blood (basics of functional anatomy and physiology) - attitude to first aid. Transport of oxygen.
3. Diagnostics of basic life functions. Essential lifesaving actions.
4. General principles of first aid provision (classification of sudden incidents, situation assessment, activation of emergency system, safety, treatment, handover)
5. Basic life functions support - BLS (Basic Life Support). Cardiopulmonary resuscitation. Automatic external defibrilation.
6. Accute Coronary Syndrome - prevention and first aid. Cerebrovascular accident - prevention and first aid.
7. Respiratory malfunctions, apshyxia and first aid. Spasmatic conditions and first aid
8. Unconsciousness, intoxications and first aid.
9. Injuries, bleeding from wounds (physical and chemical impacts, bleeding stoppage, wound treatment). Shock - pathophysiology, causes, symptoms, first aid provision.
10. Fractures, injuries of backbone, muscles and joints. First aid kit, bandaging techniques.
11. Scorch and scald. Effects of extreme temperatures (hypothermia, frostbites, hyperthermia, siriasis). Injury from electric current and first aid.
12. Mass accidents (traffic accidents, fires, industrial and radiation emergencies).

INTERNSHIPS:

Diagnostics of basic life functions. Essential lifesaving actions. Cardiopulmonary resuscitation of adults and children. Automatic external defibrilation. First aid by selected sudden incidents (Accute Coronary Syndrome - heart attack, Cerebrovascular accident, traffic accidents and others, unconsciousness, asphyxia, repiratory obstruction and cardiovascular obstruction, major bleeding, spasmatic conditions. Prevention of sudden incidents. **Evaluation of subject**

Study branch: GENERAL MEDICINE

Course: PHYSICAL TRAINING

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	**winter**	**0/24**	**c**	**1**
	summer	**0/24**	**c**	**1**
2nd	**winter**	**0/24**	**c**	**1**
	summer	**0/24**	**c**	**1**
3rd	**winter**	**0/24**	**c**	**1**
	summer	**0/24**	**c**	**1**

Syllabus: PHYSICAL TRAINING

Sports and games as a form of physical culture are an important subject in the curriculum of the School of Medicine. During the whole study they help to develop the future physician's personality. They strengthen and improve the student's health, enhancing at the same time their theoretical knowledge, practical skill and experience in matters of physical culture. They introduce the students both to the natural interdisciplinary relation between medicine and physical culture, and the role of sports and games as an important means of prevention of diseases.

PRACTICAL LESSONS:
Theory, methodology and practice of one of the following sports and games: basketball, volleyball, football, foot-volleyball, tennis, swimming, handball aerobic, water sports, fitness, bodybuilding, hiking, callanetics, yoga, winter sports.

4th - 6th class, summer and winter semester
Optional sports and games (as given above) according to the student's interest.

Winter and summer courses

Optional participation.

Credits

Study branch: GENERAL MEDICINE

Course: SLOVAK LANGUAGE

Class	semester	hours of lectures/practical lessons	examination/es	credits
1st	winter	0/48	es	1
	summer	0/48	es	1
2nd	winter	0/48	es	1
	summer	0/48	es	1
3rd	winter	0/24	E	2

Syllabus: SLOVAK LANGUAGE

Phonetics and phonology of the Slovak language. Writing and pronunciation, reading. Listening. Basic Slovak grammar, declension of nouns, adjectives, pronouns and numerals. Verb conjugation, present, past and future tenses. Improvement of vocabulary for everyday topics, dialogue practice. Basic Slovak syntax, direct and indirect speech. Conditional. Reading of short medical texts. Taking personal, family and social history. Diseases of cardiovascular, alimentary, respiratory tracts, other diseases. Doctor – patient communication.

1st class, winter semester
Grammar: Slovak alphabet. Reading and pronunciation. Feminine surnames. Cardinal numerals. Personal pronouns. Verbs „byť", „mať". Reflexive formants sa, si. Word order. Questions. Gender forms of interrogative pronouns. Possessive pronouns. Pronouns „kto", „čo". Ordinal numerals. Gender classification of nouns. Negative and contrary adjectives. Seasons of the year. Months. Nominative. Plural of nouns, adjectives and pronouns.
Conversation topics: Addressing, greetings, meeting people. My family. University. Travelling. At the airport. Visit.

1st class, summer semester
Grammar: Present tense. Present tense of irregular verbs. Cardinal numerals. Days of the week. Modal verbs. Indefinite, negative pronouns. Negative pronouns. Accusative singular, plural of nouns, adjectives, pronouns and numerals. Imperative mood. Telling the time. Past tense. Degrees of comparison of adjectives. Genitive singular and plural of nouns, adjectives, pronouns and numerals.
Conversation topics: At the bank. In a restaurant. Travelling by taxi. Shopping. At the post-office. In a news-stand. At a bookstore. Inner organs. Sense organs.

2nd class, winter semester
Grammar: Forming adverbs from adjectives. Conditional mood. Perfective and non-perfective verbs. Future tense. Questions „kde", „odkial" and answers. Dative singular and plural of nouns, adjectives, pronouns and numerals. Conditional mood. Locative singular and plural of nouns, adjectives pronouns and numerals. Instrumental singular and plural of nouns, adjectives, pronouns and numerals.
Conversation topics: Stages of life. Illnesses, diseases. Medical staff. Symtoms of diseases. Disaeses and complaints. Pain. Doctor´s instruction. Pharmacy. Health condition. Medical centres.

2nd class, summer semester
Grammar: A real condition. An unreal condition. Numerals „jedni, jedny, dvaja, obaja, obidva, traja". Relative clauses with „ktorý". Inderect speech /statements, questions, commands/.
Conversation topics: Part of tooth. Dental arch. Dentist's office.

3rd class, winter semester

Further development and improvement of communicative abilities about general diseases and surgical interventions.

Reading of medical texts, taking history, manifestations of skin diseases, examination of cardiovascular system, abdominal examination, investigation of body systems, making diagnoses and therapy.

Conversation topics : Dental illnesses (dental caries, pulpitis, periodontitis, paradontosis). Patient - dentist dialog. Dental care.

Evaluation of subject

Examination - written part (test)

- oral part

Study branch: GENERAL MEDICINE

Course: MEDICAL BIOCHEMISTRY FOR GENERAL MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
2nd	winter	24/36	es	4
	summer	48/24	E	7

Syllabus: MEDICAL BIOCHEMISTRY FOR GENERAL MEDICINE

Biologic oxidations, important biological redox systems. transport of electrons in respiratory chain in mitochondrial membrane, synthesis of ATP. Compartmentation of oxidation-reduction processes in the cell, main ways if synthesis of reducing equivalents. Synthesis of acetyl-CoA from pyruvate, Krebs cycle. its meaning for energy metabolism of the cell and for connection of metabolism of main foodstuffs. Energy rich compounds. Transport across biological membranes. Metabolism of carbohydrates, its specifications in different tissues. Production of carbohydrate stores in the organism and their mobilization. Glycolysis, gluconeogenesis and pentose phosphate pathway, regulation of metabolism of carbohydrates at the level of the cell and level of whole body. metabolism of lipids. Synthesis and degradation of long chain fatty acids. synthesis of lipids stores and their mobilization. Synthesis of complex lipids. Metabolism of lipoproteins, their role in transport of individual lipids. Metabolism of proteins, proteolysis in GIT and in cells of the organs. general reactions of amino acid metabolism. production of ammonia, its detoxification, transport in the body and excretion. Interorgan relationships v ammonia metabolism, glucose-alanine cycle. Metabolism of individual amino acids, essential and non-essential amino acids. metabolism of tetrapyrrols, synthesis of heme and its degradation. production of bilirubin and its excretion. Metabolism of nucleotides. Synthesis and degradation of purine and pyrimidine nucleotides, metabolism of uric acid and its excretion. Biochemical aspects of transfer of genetic information. Synthesis of DNA, RNA and proteinsin animal cell. regulation of gene expression in procaryots and eucaryots. Reparation of DNA molecula. Vitamins as component of coenzyme systems of the enzymes. Role of nervous, endocrine and neuroendocrine systems in regulation of biochemical processes in the organism. Signal molecules, receptors, ionic channels. Role of vegetative nervous system in regulation. Endocrine system, production of hormones and their signal functions. Biochemical basis of nervous system function and sensoric functions. Internal environment of the organism. Metabolism of water and minerals. Acid-base balance, systems regulating acid-base balance, basic defects of acid-base balance. Biochemistry of GIT, secretion of digestive juices. Biochemistry of the liver, Metabolic heterogeneity of hepatocytes. Nutrition, food and its components. Energetics and essential components of the food. Biochemistry of the blood. Plasma proteins, their functions. Biochemistry of muscle. Mechanism of muscle contraction, energy metabolism of muscle cell. Biochemistry of connective tissue. Structure of intercellular and interfiber matrix of connective tissue. Metabolism of bones. Introduction to basis of pathobiochemistry and clinical biochemistry. Biochemical parameters and their evaluation, meaning of determination of enzyme activities in blood.

LECTURES:

winter semester

Biologic oxidations, production energy in the cell. Synthesis of acetyl-CoA, Krebs cycle. Metabolism of carbohydrates. Metabolism of lipids, phospholipids and steroids. Degradation of proteins and general reactions of amino acids. Metabolism of individual amino acids and defects in their metabolism. Metabolism of tetrapyrrols.

summer semester
Synthesis and degradation of nucleotides. Synthesis of DNA, RNA, basis of gene expression. Basic mechanisms of proteosynthesis, gene manipulations. Mechanisms of regulation of biochemical processes. Hormonal regulation - endocrine system. Nutrition and specific metabolic functions of organs in integration of metabolism. Essential components of the food. Biochemical aspects of transport of gases, regulation of homeostasis, role of kidneys. Biochemical basis of nerve function and sensoric functions. Biochemistry of the liver. Biochemistry of muscle and connective tissue. Composition of bone tissue, metabolism of bones and teeth. Introduction into pathobiochemistry. Biochemical parameters and their evaluation.

PRACTICAL EXERCISES AND SEMINARS:
winter semester
Biochemical parameters, their expression and calculation. Structure of the cell and functions of subcellular structures in intermediary metabolism. Oxidation-reduction processes in living systems and their compartmentation. Energy-rich compounds. transport compounds across biological membranes. Aerobic and anaerobic oxidation of glucose. Energy yield of oxidation of glucose. Main causes of hypoxia in pathologic situations in medicine. Result of short-lasting starvation on glucose level and glycogen content in liver. Hormonal regulation of blood glucose level. Acetyl-CoA - its meaning, production of ketone bodies. Requirement of glucose metabolism for utilization of fatty acids. Metabolism of lipids and liporpoteins. Enzymes of amino nitrogen metabolism. detoxification of ammonia, synthesis of urea. Role of kidneys in regulation of homeostasis and excretion of waste products of metabolism..

summer semester
Role of vitamins as essential components of food in metabolic processes. defect in purine nucleotide metabolism - hyperuricaemia. regulation of gene expression. GIT and digestion. Functional biochemistry of liver. Synthesis and degradation of tetrapyrrols, bilirubin metabolism. Mechanism of transfer of chemical signals into cells. vegetative nervous system. Metabolism and functions of eicosanoids. Metabolism of water and minerals. Role of kidneys in regulation of stable pH in organism and blood pressure. Risk factors of nutrition and civilization diseases. Biochemistry of blood. determination of enzyme activities in blood and their meaning in medicine.

Examination - written part
- oral part

Study branch: GENERAL MEDICINE

Course: PHYSIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
2nd	winter	60/60	es	8
	summer	60/60	E	11

Syllabus: PHYSIOLOGY

Physiology of excitable tissues. Transmembrane potential. Reflex and reflex arc. Function of receptors. Receptor potential. Nerve impulses, action potential. Conduction of nerve impulses. Stimulation of nerve fibres, rephractory periods. Weiss-Hoorweg's law of stimulation, rheobase, chronaxie. DuBois-Reymond's law, electrotonus. Classification of synapses. Synaptic transmission. Excitatory postsynaptic potential. Inhibitory postsynaptic potential. Neuromuscular transmission. Motor end plate potential. Excitation-contraction coupling in skeletal muscles. Muscle contraction and relaxation mechanism. Morphology and function of smooth muscles. Types of muscle contractions. Muscle work and fatigue. Function of the muscle spindle. Central nervous system - functions. Encephalization and corticalization. Blood supply and metabolism of the CNS. Cerebrospinal fluid, blood-brain barrier. Functions of sensory division of the CNS, sensation and perception. Sensation and perception of pain. Reticular Activating System (RAS), induction of sleep. Wakefulness ans sleep. Electroencephalogram, evoked potentials. Functions of motor division of the CNS, classification of movements. Function on the pyramidal tract. Function of extrapyramidal tracts. Function of the spinal cord in control movements. Regulation of body movements and posture. Function of basal ganglia. Function of the cerebellum in control of body movements. Function of projection and association areas of the cerebral cortex. Speech and disorders of speech. Functional specialization of brain hemispheres and sex dimorphism. Higher nervous functions - memory and learning. Conditioning, habituation, senzitization. Physiology of emotions, behaviour motivation. Functions of the autonomic nervous system. Electrocorticogram and electroencephalogram, evoked potentials. Blood. Functions of the blood. Physical properties of the blood. Blood plasma. Proteins of the blood plasma. Acid-base balance, pH of the blood. Blood osmotic pressure, oncotic pressure of plasma. Red blood cells. Haemoglobin and its derivatives. White blood cells. Blood platelets. Erythropoiesis. Blood coagulation and haemostasis. Internal environment, body fluids. Blood-groups. Defense mechanisms of the blood. Cardiovascular system. Physiological properties of cardiac muscle. Cardiac cycle. Pressures in cardiac cavities. Excitation-contraction coupling in the heart. Heart energetics. Work of the heart and its efficiency. External manifestations of cardiac activity. Heart sounds. Action potentials of cardiac muscle, electrocardiography. Initiation and conduction of cardiac impulses. Neural and humoral regulation of cardiac activity. Mechanism of the blood flow in blood vessels. Blood flow in arteries. Pressure gradients in vascular system. Function of the microcirculation. Transcapillary exchange of substances and fluids. Haemodynamics in veins. Central regulation of blood flow. Regional blood circulations: lung, brain, heart, muscles, kidneys, liver, skin. Function of the lymphatic system. Extracellular fluid and the lymph. Regulation of peripheral circulation. Blood pressure. Respiration. Breathing, biological significance, partial processes. Functional morphology of the respiratory system. Function of the upper airways. Tracheobronchial tree, function of lower respiratory airways. Dead space, classification, determination. Exchange of respiratory gases, alveolocapillary barrier. Diffusion capacity of the lungs. Function of respiratory muscles. Lung volumes and capacities. Intrapleural and intrapulmonary pressures. Lung compliance. Curve of relaxation and maximal respiratory pressures. Alveolar surface tension, the first breath of newborns. Function of the lung surfactant. Work of breathing. Mechanism of inspiration and expiration. Transport of the oxygen by the blood. Association-dissociation curve of the oxygen. Composition of atmospheric and alveolar air. Blood gases concentrations and their partial pressures. Transport of carbondioxide

by the blood. Dissociation curve of the carbondioxide. Significance of physically dissolved gases in the blood (O_2, CO_2, N_2). Breathing and regulation of the blood pH. Ventilation and breathing pattern. Regulation of breathing. Influence of atmospheric pressure changes on the organism. Defense respiratory reflexes. Digestion and absorption. Function of the gastrointestinal tract. Mechanism of secretion. Function of the saliva. Function of the gastric juice. Function of the bile. Pancreatic juice. Intestinal juice. Mastication and swallowing. Gastric movements. Motility of the small and large intestines. Mechanisms of digestion and absorption of carbohydrates, proteins and lipids. Chemical processes and absorption in the large intestine. Liver functions. Nervous and humoral regulation of the GIT. Energy intake and expenditure, fundamentals of nutririon. Energy balance. Caloric value of the nutrients, caloric equivalent of O_2, respiratory quotient. Metabolic rate. The whole body energy expenditure. Indirect calorimetry - energometry. Efficiency of physical performance of the body and its determination. Oxygen debt. Specific dynamic action of nutrients. Metabolism of carbohydrates, lipids and proteins. Nitrogen balance. Physiology of the nutrition. Principles of prudent healthy diet. Minerals, trace elements and vitamins, their importance in human nutrition. Regulation of ingestion of food, hunger, appetite, specific hunger. Thermoregulation. Body temperature (values, measurement, biorythms). Heat production and expenditure. Regulation mechanism of body temperature. Response of the body to low temperatures. Response of the body to higher external temperatures. Thermoindifferent zone of external environment. Sweating, evaporation, insensible perspiration. Renal physiology. Body fluids and their ion-structure. Functional morphology of the kidney and nephron. Renal blood supply and the regulation of blood flow. Gromerular filtration. Tubular processes. Formation of urine, its composition, physical properties. Function of ureters and bladder, micturition. Countercurrent mechanism of urine-concentration. Nitrogen excretion in urine. Renal functional tests. Participation of kidney in acid-base balance. Regulation of renal functions. Physiology of endocrine glands. The importance of endocrine secretion. Mechanism of hormonal action, feedback control. The hypothalamus and the pituitary gland. Function of adenohypophysis. Function of neurohypophysis. Function of the thyroid gland. Function of parathyroid gland, calcitonin. Function of the adrenal medulla. Function of the adrenal cortex. Endocrine function of the pancreas. Function of the testes. Function of the female sex glands. Physiology of special senses. Receptors, function, classification. Olfaction. Taste. Skin receptors. Vision - axial and spherical ametropias. Retinal functions. Color vision. Binocular and 3-dimensional vision. Function of external and middle ears. Function of the internal ear. Function of statokinetic apparatus.

LECTURES:

winter semester

Physiology of excitable tissues (electrophysiology of receptors, nerves and muscles). Physiology of the respiratory system. Physiology of the gastrointestinal system. Metabolism and physiology of nutrition.

summer semester

Physiology of the central nervous system. Physiology of the cardiovaskular system. Thermoregulation. Physiology of the kidney. Physiology of the endocrine glands.

PRACTICAL LESSONS:

winter semester

Taking blood from humans and from laboratory animals. Determination of haematocrit value. Measuring sedimentation rate of erythrocyte using the Fahreus-Westergren method. Determination of erythrocyte osmotic resistance. Blood haemolysis. Erythrocyte count. Determination of blood groups of ABO system. Determination of Rhesus system (Rh factor). Determination of haemoglobin by spectrophotometry. Blood coagulation time determination by Lee-White method. Determination of prothrombin time by Quick. Determination of bleeding time by Duke. Leucocyte count. Blood smear, leucogram. Calculating some derived haematological values. Hering model of respiratory system and parallelogram. Measurement of vital capacity. Lung and thorax relaxation curve and curves of maximal respiratory pressures. Observation and registration of intrapleural

pressure changes. Functional lung examination-spirometry. The influence of increasing CO_2 concentration and decreasing O_2 concentration on respiration. Demonstration of basic reflex respiratory changes variables of an anaesthetized mammal. Analysis of respiratory gases. Acid-base balance. Galvani experiments, biological evidence of action potential, indirect stimulation. Determination of rheobase of the intact nerve, validity of the Du Bois-Reymond law. Observation of skeletal muscle mechanical characteristics. Determination of work and fatigue in humans. Observation of electric manifestations of peripheral nerve impulse. Simulation of synaptic transmission. Models of emetropic, hypermetropic and myopic eye, formation of a visual image on the retina. Examination of the retina-direct and indirect ophtalmoscopy. Keratoscopy. Purkinje's figure. Detection of a shape and size of the visual field. Vision acuity. Experiments utilising Scheiner's optometer. Determination of the range of accomodation and accomodation area. Binocular vision and depth perception - stereoscopic vision. Detection of colour blindness by the use of Ishihara pseudoisochromatic charts. Additive mixing of colours by the use of Maxwell's discs. Successive and simultaneous contrasts. Otoscopy - examination of external ear. Ear tests with tuning forks. Audiometry. Examination of nystagmus in humans. Examination of cutaneous sensitivity. Detection of olfactory sensation. Detection of gustatory sensation.

summer semester

Observation and registration of frog's heart activity. Observation of physiological properties of cardiac muscle owing to Stannius's ligatures. Effect of ions and hormones in association with modulation of the cardiac functions of homeothermic animals. ECG. Ausculation of heart sounds. Phonocardiography. Model of blood vessel elasticity. Capillarioscopy. Measurement of arterial blood pressure in man. Mathematical model of blood pressure regulation. Reactive hyperaemia. Examination of the arterial pulse. Regulation of blood pressure in experiment.. Efect of food components on salivary secretion. Transport of food through the oesophagus.. Regulation of smooth muscle movements. Measurement of basal metabolic rate. Daily caloric and protein intakes, composition of foods (use of tables). Metabolism during physical work, oxygen - debt. Identification of applied hormones. Analysis of the reflex arc. Examination of spinal reflexes in a frog and determination of the reflex time. Examination of reflexes in man. Experimental learning, conditioned reflexes. Measurement of the reaction time. Testing of short-term memory.

SEMINARS:

winter semester

Red blood cells. Haemoglobin. Functions of leucocytes. Blood groups and subgroups. Immune system. Mechanisms of breathing. Functional lung examination. Regulation of respiration. Resting potential. Properties of skeletal muscle. Motor system, reflex arc, synapses, neurotransmitters. Action potential. Vision physiology, color vision, stereoscopic vision. . Pain.

summer semester

Metabolic rate. Use of tables with nutritional values of the food. Work metabolism. Digestion of carbohydrates, proteins and lipids. Movements of the GIT. Mechanisms of absorption. Physiological properties of heart muscle. ECG.

Blood pressure – characteristics, reflex and humoral regulation. Hypothalamus and regulation of hormonal secretion. Hormones of hypophysis, stimulation of peripheral endocrine glands. Hormones regulating metabolism and glycaemia. Hormones and neurotransmitters. Thyroid gland hormones, regulation of energy metabolism and ion concentrations. Hormones and physiology of reproduction. Reflexes, reaction time. Experimental learning, memory. Body fluids. Renal functions. Functional anatomy of kidney. Blood supply and its specifics. Glomerular filtration. Processes of transport in the nephron. Countercurrent multiplication system. Formation of hypertonic and hypotonic urine. Participation of kidneys in acid-base balance. Renin-angiotensin system, juxtaglomerular cells. Role of ADH and aldosteron. Renal functional tests. Urine formation changes observed in the experiment.

Examination - practical part - (written test, practical task)
- oral part

Study branch: GENERAL MEDICINE

Course: IMMUNOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
2nd	summer	36/18	E	5

Syllabus: IMMUNOLOGY

Introduction to the study of immunology. **Antigen.** Milestones of immunology. The immune system, its characteristics. Natural and acquired immunity. Antigen, its characteristic and properties. **Structure and function of antibodies**. B cells, plasma cells. Immunoglobulins, their structure, classification and function. Biological properties of immunoglobulins. Primary and secondary immune response. The generation of diversity of immunoglobulins. Hybridomas and monoclonal antibodies. **The complement system**. Classical, alternative, and lectine pathways of activation. Vasoactive and chemotactic factors. Receptors, regulatory proteins. Biological significance of the complement system. **Phagocytosis. Acute inflammation**. Professional phagocytes. Chemotaxis, opsonins. Process of phagocytosis. Microbicidal mechanisms. Pathogen associated molecular patterns and pattern recognition receptors. Acute inflammation, molecular and cellular events. **Cytokines**.
General properties of cytokines. Cytokines that mediate innate and adaptive immunity. Cytokines that stimulate haematopoiesis. Chemokines. **Differentiation antigens**. Membrane molecules, their characteristics, and nomenclature. Differential antigens of particular populations of cells of the immune system. **T cells**. T cells and their subsets. T cell receptors. NK cells, their receptors and function. NKT cells, their receptors and function. ADCC. **The major histocompatibility complex in man and its biological significance**. Genomic organisation of the HLA-complex. HLA-molecules, their biochemical structure and distribution. The biological significance of the HLA-complex. The HLA-complex in organ and tissue transplantations. **Endogenous and exogenous pathways of antigen presentation**. Cell cooperation, stimulatory and co-stimulatory interactions. Cell cooperation, stimulatory and co-stimulatory interactions. Apoptosis. **Anti-infectious immunity.** Immune defence mechanisms against bacteria, viruses and parasites. Ways of germ evasion from effector mechanisms of the immune system**. Hypersensitivity reactions**. Definition and divisions of hypersensitivity reactions. Anaphylaxis and atopy. IgE, FcεR, mast cells, basophils. Mediators of allergy. Diagnosis. Immunotherapy. Specific allergic therapy. Type II, III, IV and V of hypersensitivity reactions. **Mechanisms responsible for the development of autoimmune processes**. Mechanisms of T cell tolerance to self antigens. Peripheral tolerance. Genetic and hormonal factors in autoimmunity. Pathogenetic mechanisms for the development of autoimmune processes. Immunodiagnostic and immunotherapy. **Immunity to tumours**. General features of tumourogenesis. Immune response to tumours. Evasion of immune responses by tumours. Immunotherapy for tumours**. Organ and tissue transplantations.** Nomenclature of tissue transplantations. HvG and GvH reactions. Principles of donor –recipient selections. Eurotransplant, BMWD. Immunosuppression. **Foeto-maternal relationship**. **Immune system and aging**. Immune system of a pregnant woman. Immune system of developing foetus, a new-born and a child. Immune system of eldery persons. **Primary and secondary immunodeficiencies**. General consequences of immuno-deficiencies. Immunoglobulin deficiencies. Deficiencies of T-cells. Defects in phagocytosis. Complement deficiencies. Etiological agents of AIDS. Genetic variability of HIV. Interaction of HIV with cells of the immune system. Stages of the development of infection. **Immunotherapy.** Immunostimulation. Immunosuppression. Monoclonal antibodies and cytokines in the treatment of various disorders.

PRACTICAL CLASSES

Isolation and delivery of a material for an immunological investigation. Serological techniques. Classical methods based on antibody - antigen interactions (agglutination, precipitation, complement binding assay, immunodiffusion techniques). Modern methods based on antibody - antigen interactions (ELISA, RIA, immunoblotting, nephelometry, turbidimetry). Appreciation of the function of the complement system and its compounds. (CH50, AH50, levels of particular factors). Acute-phase proteins (CRP-determination from capillary blood by refractometry). Phagocytic and microbicidal capacity of leucocytes (phagocytic activity, phagocytic index, chemotaxis, cidial activity).. Methods for appreciation of the state of specific cellular immunity (isolation of lymphocytes using density gradient centrifugation, lymphocyte transformation assay, MIF, FACS, tuberculin test). Methods of transplantation immunology (HLA-typing, PCR, MLC, cross-match). Diagnostics of allergic diseases (RIA, ELISA, basophil degranulation test, CD63 basophil counts). Diagnostics of autoimmune diseases (latex agglutination, immunofluorescent techniques, appreciation of cytokines and T cell subsets). Diagnostics of tumour process (CRP, IL-6, onkomarkers, immunophenotyping, immunohistochemistry). Laboratory diagnosis of HIV infection (ELISA, Westtern blot, $CD4^+$ T cell counts, virus load). The immune profile of an individual. An immunocompromised patient.

Examination - written part (test)
- oral part

Study branch: GENERAL MEDICINE

Course: BASIC NURSING

Class	semester	hours of lectures/practical lessons	examination/es	credits
2nd	winter/summer	0/36	es	1

Syllabus: BASIC NURSING

Introduction of the course. Organization of the nursing care. Nursing process. Caring for patients´ basic human needs. Safety, mobility and transfer techniques. Measuring vital signs. Urinary elimination (catheterization). Bowel elimination (enema). Specimen collection. Drug administration - topical, enteral, parenteral administration. Preparing and administering injections. Caring for devices. Basic sterile technique. Skin integrity and wound care. Applying dressings. Applying bandages. Communication. Communicating with patients with special needs. Specific caring for patients at the ward of internal and surgery medicine (excursion).

Credit - written form (test), checking of practical knowledge

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: MICROBIOLOGY 1

Class	semester	hours of lectures/practical lessons	examination/es	credits
2nd	summer	24/24	es	4

Syllabus: MICROBIOLOGY 1

History of medical microbiology. Ecology of microorganisms. Microorganisms as the causative agents of human diseases. Pathogenesis of microbial diseases. Pathogenicity and virulence of microorganisms. Disinfection and sterilisation. General bacteriology. Bacterial morphology and anatomy of bacterial cells, their role in the diagnostic of infectious diseases. Physiology of bacteria and its role in the cultivation methods of infectious agents diagnostics. Mechanisms of genotypic and phenotypic changes in bacteria and their medicalrole. Virulence factors, mechanisms of their activity and their role in diagnostics, therapy, and prevention of bacterial diseases. Antibacterial drugs and mechanisms of their activity; acquiring and mechanisms of resistance to antibacterial drugs. In vitro antibacterial susceptibility testing and interpretation of the tests results. General parasitology. Basic classification and characteristics of causative agents of human parasitic diseases. Special parasitology - protozoa, helminths and arthropods. Current possibilities of parasitic diseases diagnostics. Antiparasitic drugs. General virology. Basic classification, taxonomy and characteristics of viruses. Pathogenesis of viral infections. Diseases caused by DNA viruses, RNA viruses and prions. Current possibilities of viral diseases diagnostics. Antiviral drugs. General mycology. Basic classification and characteristics of agents causing mycoses in humans. Special mycology - superficial, subcutaneous and systemic mycoses. Mycetomas. Mycotoxicoses. Current possibilities of mycoses diagnostics. Antimycotical drugs. Antiinfectious immunity. Interactions of microbes with immune mechanisms. Immunopathological status and microbial infections. Active and passive immunisation. Microorganisms in the role of immunomodulators.
(Note: A part of the topics is contained in the lectures and a part is included in idividual study.)

LIST OF LECTURES:
Introduction to the study of microbiology. Basic characteristics of microorganisms. Microorganisms as the causative agents of human diseases and the role of normal microbial flora. Establishment and course of microbial diseases. Bacteriology - basic nomenclature, taxonomy, morphology and anatomy of bacteria. Metabolism, growth, and reproduction of medically important bacteria. Genotypic and phenotypic changes in bacteria, their role in the resistance development against antiinfectious drugs and virulence changes. Bacterial pathogenicity and virulence. Interaction of bacteria with immune systém - basic aspects. Control of microorganisms: antimicrobial agents (general aspects). Decontamination, disinfection and sterilisation. Antibacterial drugs and mechanisms of their effect on gram-positive and gram-negative bacteria. Mechanisms of resistance to antibacterial drugs. Review of antibacterial drugs, spectrum of action. Combination of antimicrobials. Virology - structure, classification and replication of viruses. Viral genetics. Virus-cell interaction. Pathogenesis of viral infections. Types of viral infections on the cell and organism level. Antiviral drugs. DNA viruses (Herpesviridae, Adenoviridae, Parvoviridae, Poxviridae, Papilomaviridae, Polyomaviridae), RNA viruses (Orthomyxoviridae, Paramyxoviridae, Picornaviridae, Arenaviridae, Coronaviridae, Retroviridae, Reoviridae, Caliciviridae, Rhabdoviridae, Filoviridae, arboviruses). Viruses of hepatitis. Prions. Viral and prionic causative agents of degenerative CNS infections. Bacteriophages and their role in medicine. Parasitology - basic nomenclature and classification of parasites. Parasitoses – pathogenesis, epidemiology, prevention and therapy possibilities. Protozoa - Giardia intestinalis, Balantidium coli, Entamoeba

histolytica, Trichomonas vaginalis, Naegleria fowleri, Acanthamoeba, Toxoplasma gondii, Plasmodium, Leishmania, African trypanosones, babesia. intesinal coccidia, microsporidia. Parasitical worms (A. lumbricoides, T. trichiura, E. vermicularis, Toxocara sp., T. spiralis, F. hepatica, T. solium, T. saginata, H. nana, E. granulosus, Schistosoma sp., D. latum, S. stercoralis). Role of Arthropods as causative agens and vector of infections diseases. Mycology - microscopic fungi - basic nomenclature and classification of mycoses causative agents; their morphology and physiology. Superficial, subcutaneous and systemic mycoses and possibilities of their therapy. Mycetomas. Mycotoxicoses. Antiinfectious immunity. Microbial interactions with immunity mechanisms. Immunopathological states and microbial infections. Active and passive immunisation. Microorganisms in the role of immunomodulators.

PRACTICAL LESSONS AND SEMINARS:

Introduction to practical lessons. Organisational directions to the practical lessons. The general structure and equipment of microbiological laboratory. Safety rules in microbiological laboratory and the first aid by the accidents in the laboratory. Principles of microbial diseases diagnostics. Sampling and transport of the biological material and demonstration of the tools used for collection of biological material. Procesing of samples in laboratory. Disinfection and sterilisation. Microscopical identification of bacteria. Wet mount preparation. Fixed preparation. Simple staining methods. Gram staining. Burri's method for staining of capsules. Acid-fast staining (Ziehl-Neelsen staining). Staining of spores. Staining according to Giemsa. Role of microscopical examination in the microbiological diagnostics. Cultivation of bacteria - methods of cultivation. Culture media used in diagnostics of bacterial infections - their classification. Evaluation of bacterial growth on culture media. Identification of bacteria. Identification of bacteria according to their biochemical activity - biochemical identification tests. Identification of bacteria according to their antigenic structure - serotyping. Other methods used in differential diagnostics of bacteria. Susceptibility testing to antimicrobial drugs - qualitative and quantitative methods. Detection of beta-lactamase production. Antimicrobial combinations activity testing. Antimicrobial drug levels in blood and body fluids monitoring. Indirect diagnostics of microbial diseases. Skin tests. Antibody detection by serological reactions in microbiology - basic principles and interpretation of tests results. Serological reactions in the diagnostics of bacterial diseases. Basic principles of the direct and indirect diagnostics of viral diseases. Basic principles of the direct and indirect laboratory diagnostics of parasitic diseases; laboratory diagnostics of diseases cased by parasitic protozoa and parasitic worms. Basic principles of direct and indirect diagnostics of fungal diseases. PCR in diagnostics of microbial diseases. Interpretation of microbiological laboratory tests results. A student can get credit from microbiology only after active partipation at all practical lessons and passing both written tests.

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: MICROBIOLOGY 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	19/24	E	7

Syllabus: MICROBIOLOGY 2

Special bacteriology. System, classification, taxonomy and nomenclature of bacteria. Bacteria as the causative agents of human diseases Current possibilities of bacterial diseases diagnostics. Normal microbial flora of the skin and mucosal surfaces. Dental plaque and dental caries. Basics of clinical microbiology. Sepsis. Causative agents of respiratory tract, gastrointestinal tract and urogenital tract infections, of sexually transmitted diseases, of neuroinfections, of skin, soft tissue and eye diseases, of diseases endangering the normal development of foetus and newborn. Anaerobic non-spore-forming bacteria as the causative agents of diseases. Bioterrorism. Nosocomial infections. Immunocompromised patient and microbial infections. Clinical microbiology and its role in the prevention, diagnostics and therapy of microbial diseases. Organisation and providing for microbial diseases diagnostics in Slovakia.
(Note: A part of the topics is contained in the lectures and a part is included in idividual study.)

LIST OF LECTURES:
Introduction to the special bacteriology. Taxology, taxonomy and nomenclature of bacteria. Survey of the most important causative agents of bacterial diseases (Neisseria, Kingella, Acinetobacter, Moraxella, Streptococcus, Enterococcus, Staphylococcus, Erysipelothrix, Listeria, Enterobacteriaceae, Vibrionaceae, HACEK group of bacteria, Haemophilus, Helicobacter, Campylobacter, Streptobacillus. Pseudomonas and the other GNNFB, Legionella, Corynebacterium, Arcanobacterium, Rhodococcus, Rothia, Gardnerella, Francisella, Brucella, Alcaligenes, Bordetella, non-spor-forming anaerobic bacteria: gram-positive cocci (Peptostreptococcus), gram-positive rods (Lactobacillus, Bifidobacterium, Eubacterium, Propionobacterium, Actinomyces), gram-negative cocci (Veillonella),
gram-negative rods (Bacteroides, Prevotella, Fusobacterium, Mobiluncus),
Clostridium, Bacillus, Mycobacterium, Nocardia, Chlamydia, Mycoplasma, Ureaplasma, Borrelia, Leptospira, Treponema, Coxiella, Rickettsia, Orientia, Ehrlichia, Bartonella). Basics of clinical microbiology. Normal microbial flora of the skin and mucosa. Dental plaque and dental caries. Bacteriemia, fungemia, viremia, parasitemia, toxemia, antigenemia and sepsis. Survey of the causative agents of respiratory tract infections, gastrointestinal tract and alimentary infections, urogenital tract infections and sexually transmitted diseases. Survey of the causative agents of neuroinfections, skin, soft tissue and eye diseases; diseases endangering the normal development of foetus and neonate. Survey of diseases cased by anaerobic non-spore-forming bacteria. Bioterrorism. Nosocomial infections. Immunocompromised patient and microbial infections. Clinical microbiology and its role in the prevention, diagnostics and therapy of microbial disesaes. Organisation and providing for microbial diseases diagnostics in Slovakia.

PRACTICAL LESSONS AND SEMINARS:
Diagnostics of gram-negative aerobic cocci (Neisseria, Moraxella). Diagnostics of gram-positive cocci (Staphylococcus, Streptococcus, Enterococcus). Diagnostics of facultatively anaerobic gram-negative rods (from Enterobacteriaceae family and genus Haemophilus). Diagnostics of gram-negative non-fermenting rods (Pseudomonas and other GNNFB). Diagnostics of the genera Mycobacterium, Mycoplasma, Ureaplasma and Chlamydia.
Collection and transport of samples for microbiological examination (bacteriological, virological, mycological and parasitological). Microbiological diagnostics of sepsis and endocarditis,

respiratory tract infections, infections of the skin, soft tissue and gastrointestinal tract infections. Detection of dental plaque. Microbiological diagnostics of urogenital tract infections, neuroinfections, fetal and neonatal infections. Microbiological diagnostics of infections caused by non-spore-forming anaerobic bacteria.
Student can take examination from microbiology only after active participation at all practical lessons and passing both written tests.

Examination - written part (test)
- oral part

Study branch: GENERAL MEDICINE

Course: PHARMACOLOGY 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	summer	36/24	es	3
4th	winter	36/24	E	7

Syllabus: PHARMACOLOGY 1, 2

General pharmacology: Drugs and society. How drugs act. Information sources about drugs. Nomenclature. Types of drug action. Basic principles of the movement of drug in the organism. Absorption. Transport mechanisms. Distribution. Biotransformation. Elimination of drugs. Basic pharmacokinetic terms. Bioavailability. Biological half-life. Plasmatic concentration of the drug after single and repeated administration. First pass effect. Area under the curve. Clearance. Therapeutical monitoring of drugs. Doses. Mechanisms of action of drugs on molecular level. Receptors. Agonist. Antagonist. Dose dependent effect. Cumulation. Tachyphylaxis. Tolerance. Drug-dependence. Interaction of drugs. Adverse drug reactions. Risks of pharmacotherapy in pregnancy and during lactation. Risk of pharmacotherapy in elderly. Teratogenicity, functional impairment of fetus. Good clinical practice. Compliance. Pharmacogenetics. Pharmacoepidemiology. Pharmacovigilance. Pharmacoeconomy. Utilization of drugs. Principles of drug prescription. Pharmacology of autonomic nervous system. Mechanisms of neurochemical transmission. Sympathomimetics. Sympatholytics. Alpha-sympatholytics. Beta-sympatholytics. Indirect sympatholytics. Parasympathomimetics direct and indirect. Parasympatholytics. Ganglioplegic drugs. Peripheral myorelaxants. Local anaesthetics. Drugs affecting GIT. Drugs affecting digestion, food intake. Drugs used for the treatment of ulcer disease. Drugs used for the treatment of pancreatic, hepatic and biliary tract disorders. Drugs used in functional disturbances and diseases of the gut, gut adsorbents. Antiulcer drugs. Prokinetics. Antiemetics. Autacoids. Pain and its pharmacological treatment. Opioid analgetics. Non-steroidal antiinflammatory, antirheumatic drugs. Immunopharmacons. Antirheumatic drugs. Biological treatment. Antiosteoporotic drugs. Pharmacology of respiratory system. Antiasthmatic drugs. Antihistamines H_1. Cancer chemotherapy. Toxicology.

LECTURES:

3rd class, summer semester

Introduction to pharmacology, terminology. Basic principles of pharmacokinetics. Kinetics I. Kinetics II. Metabolism. Factors influencing the effect of drug. Basic mechanisms of drug actions. Receptor theory. Principles of drug interactions. Pharmacovigilance. Pharmacoepidemiology. Compliance of patient. Pharmacoeconomy. Pharmacogenetics. Autonomic nervous system. Mediator system. Sympathomimetics. Sympatholytics. Parasympathomimetics. Parasym-patholytics. Pharmacotherapeutic influence of inflammation. Autacoids. Non-steroidal antiinflammatory drugs. Immunopharmacology. Antirrheumatics. DMARDs. Biological treatment. Pharmacology of respiratory tract diseases. Antiasthmatics. Antihistamines H_1. Drugs affecting GIT. Antiulcer drugs. Prokinetics. Antiemetics. Cancer chemotherapy. Toxicology. Principles of antidotal therapy.

PRACTICAL LESSONS:

3rd class, summer semester

Sources of information in pharmacology. Basic principles in drug prescription, structure of prescription. The development of a new drug - GLP, GCP, GMP. Methods of drug evaluation. Industrial medicine products. Factors influencing drug actions. Pharmacokinetic modeling. Computerized information sources. Drug forms. Interactions of the drugs. Drug induced health damage. Pharmacovigilance. Adverse drug effects. Local anaesthetics. Vasoconstrictory agents. Principles of treatment of anaphylactic shock. Myorelaxants and drugs in general anaesthesia. Problem-based learning by analysis of cases in typical diagnoses. Pharmacotherapy of bronchial

asthma. Pharmacotherapy of ulcer disease. Pharmacotherapy of pain. Malignant pain. Pharmacotherapy of inflammation. Rheumatoid arthritis. Principles of antidotal therapy. Presentations of seminar works related to particular topics.

4th class, winter semester

Drugs affecting cardiovascular system. Cardiotonic drugs. Non-glycoside cardiotonic drugs. lowering drugs. Antihypertensives. Principles of antihypertensive combinations. Diuretics. Vasodilating drugs. Antiplatelet drugs and haemorrheologic drugs. Direct and indirect anticoagulants. Antidysrhythmics. Antianginous drugs. Drugs used in the treatment of heart failure. Lipid Fibrinolytics. Antianaemics. Drugs stimulating haemopoesis. General anaesthetics. Combination of anaesthetic drugs. Neuroleptanalgesia and neuroleptanaesthesia. Psychotropic drugs. Anxiolytics. Sleep disturbances and possibilities of pharmacological management. Antidepressants. Antipsychotic drugs. Psychostimulants and psychodysleptics. Cognitive drugs. Centrally acting muscle relaxants. Antiparkinsonics. Antiepileptics. Drugs affecting hormonal system. Glucocorticoids - systemic and local. Mineralocorticoids. Antidiabetics. Insuline and analogs. Insulin antagonists. Oral antidiabetics. Sulphonamide derivatives. Metformin. Glitazones. Hormones of thyroid gland as drugs. Hormones of parathyroid gland. Antithyreoidal drugs. Sex hormones as drugs. Anabolics. Female sex -hormones, estrogens, gestagens, use in therapy, antiestrogens. Hormonal contraception. Hormonal replacement therapy. Antiosteoporotic drugs. Hormones of adenohypophysis and neurohypophysis as drugs. Growth hormone and its use in therapy. Uterotonics and tocolytics. Antimicrobial drugs. Strategy of choice and treatment. Penicillins. Monobactams, carbapenems, beta-lactamase inhibitors. Cephalosporins. Macrolide antibiotics. Tetracyclines. Chloramphenicol. Lincomycine and vancomycine group. Glycopeptide antibiotics. Aminoglycosides. Polypeptide antibiotics. Oxazolidinones. Topically used antibiotics. Sulphonamides. Quinolones. Antimycobacterial drugs. Antifungal drugs - systemic and local. Antiviral drugs. Drugs in the treatment of HIV. Antihelmintic drugs. Chemotherapy of protosoal infections. Antimalarics. Desinfection and antiseptic agents. Cancer chemotherapy. Biological treatment. Drugs affecting TNF and other cytokines. Immunosupressants and immunostimulants. X-ray contrast and others diagnostic agents. Prostaglandins in pharmacotherapy. Antidota. General principles for treatment of poisoning. Vitamins. Vitagens.

LECTURES:

4th class, winter semester

Drugs affecting haemostasis. Antiplatelet drugs. Anticoagulant drugs. Fibrinolytics and haemostatics. Cardiotonic drugs. Calcium channels blocking drugs. Drugs in angina pectoris. Antidysrhytmics. Antihypertensives. Diuretics. Vasodilating drugs. Lipid lowering drugs. Neurotransmission of CNS, influence by drugs. Antiparkinsonics. Antidepressants. Antipsychotics. Anxiolytics. Priciples of Alzheimer disease treatment. Hypnotics. Antiepileptics. Pharmacology of endocrine system. Hormones of pituitary gland as drugs, glucocorticoids. Drugs in thyroid gland disorders. Antidiabetics. Preparations of hormonal contraception and hormonal replacement therapy. Antimicrobial drugs. Beta-lactam antibiotics, macrolides, aminoglycosides, tetracyclines. Antimycobacterial drugs. Antiparasitic drugs. Antiviral drugs. Strategy of antimicrobial treatment. Pharmacotherapy of AIDS. Antifungal drugs. Principles of drug evaluation. Pharmacotherapeutic audit.

PRACTICAL LESSONS:

4th class, winter semester.

Teaching takes part in form of problem based learning in small groups by analysis of cases for typical diagnose. Part of every exercise is presentation and analysis of seminar works related to particular topics. Drugs influencing cardiovascular system. Antimicrobial drugs. Pharmacology of central nervous system. Pharmacology of endocrine system. Clinically important drug interactions. Clinical evaluation of drugs. Therapy of urgent states. Form of the practical lessons: problem-based learning (PBL). Discussions on seminar works. **Evaluation of subject**

Examination - written part (test); oral part

Study branch: GENERAL MEDICINE

Course: SURGICAL PROPEDEUTICS 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	29/25	es	3
	summer	29/25	E	5

Syllabus: SURGICAL PROPEDEUTICS 1, 2

History of surgery from the oldest times. Brief evolution and development of Slovak surgery. The term of surgery, classification, principal terms and their significance. Antisepsis and asepsis. Sterilisation. Preparation of a patient for the operation. Preparation of a patient with acute disease. History. Respiratory tract. Heart and blood circulation. Urogenital tract. Gastrointestinal tract. Diabetes mellitus. Local anaesthesia, toxical signs by overdosing. Types of local anaesthesia. Spinal and epidural anaesthesia, contraindications and complications. Organisation of transfusion service. Types of transfusion. Contraindications of transfusions. Ways of blood transfers. Technique of transfusion. Compensatory solutions. Transfusion complications. Incisions, excisions, exstirpations, punctions, extractions, amputations, resections, trepanations. Catheterisation of urinary bladder. Tracheostomy. Drainages. Sutures. Anastomoses. Laparotomies. The immediate post-operative care of a patient. Prevention of decubitus and thromboembolism. Dressings, cover dressings, drainage of wounds, taking up samples for cultivation and sensitivity. Removing of suture material. Characterisatics of preoperative, perioperative and postoperative period. Division of childhood and differences between paediatric and adult surgery. Reactions of organism for the operative traumatism, postoperative complications. Complications in the operation wound. Gastrointestinal postoperative complications. Psychical postoperative disturbances. Postoperative disorders of central and peripheral nervous system. Postoperative complications of alergic nature. Postoperative acidosis and alcalosis. Postoperative complications - cardiovascular, thromboembolic, respiratory, urological, nosocomial. Classification and characteristics of wounds, definition. Diagnostics. The first aid. Surgical attendance of wounds. Healing of wounds. Injuries of tendons, muscles, vessels, nerves, central nervous system. Injuries of abdomen, thorax, urinary tract, thermical injuries. Injuries from electrical current. Sunstroke. Itching. Fractures. The first aid at fractures. Difference between injuries of children and adults. The definition of shock. Hypovolaemic, burning, septical shock. Inflammation in surgery. Neoplasms. Specialities of war surgery. Organisation of the first aid, transport and therapy of mass traumas and catastrophes. The aim and significance of opinion activity.

LECTURES:
History of surgery. Preparation of the patient for the operation. Local anaesthesia. Blood transfusion. Small surgical operations. Postoperative care of the patient. Significance and aims of preoperative and postoperative care of children. Complications of immediate postoperative period. Postoperative complications. Wounds. Thermal injuries. Injuries of bones. Difference between injuries of children and adults. Shock. Surgical inflammations. Anaerobic infections. Inflammative and suppurative diseases of fingers and hand. Neoplasms. Surgery of disasters. Opinion activity in surgery. Preoperative and postoperative care of children.

PRACTICAL LESSONS:
Acquaintance with the surgical department, system of work at the department. Hygienic standard, hygienic habits, nosocomial infections. Taking up blood, urine, stool samples for investigation. System of operating theatres. Surgical instrumentarium, suture material, knotting and sutures. Surgeon´s preparation before operation, preparation of the operation field, anaesthesia. Demonstration of patients - investigation of a patient, individual taking of the history, surgical

clinical picture, qualitative index, acute clinical picture. Investigative methods (rectoscopy, ERCP, irrigoghraphy, X-ray of stomach, ultrasonography, CT, angiography, measurement of gastric acidity). Preoperative preparation of the patient. Abdominal investigation. Acute status in surgery. Urological propedeutics. Preoperative care of a surgical patient. Burns, combustion disease. Fractures and their classification. Surgical infections. Investigative methods in paediatric surgery. Dressing techniques, reanimation and resuscitation. Investigation of a child with surgical disease, history, objective investigation, auxiliary investigations aiming at the differences between children and adults. Medical documentation (case record). Preoperative preparation of a child and postoperative care. Fractures of the childhood age. The basic principles of free skin transplantates and lobe plastic techniques. Attendance of tendons and muscles. Local attendance of burns and frostbites. Basic principles of atraumatic operation and operative technique, suture material, operative instrumentarium.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: INTERNAL MEDICINE 1, 2, 3, 4, 5

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	summer	29/40	es	3
4th	winter	36/30	es	3
	summer	42/30	es	4
5th	winter	26/50	E	5
	summer	26/45	es	3

Syllabus: INTERNAL MEDICINE 1, 2, 3, 4, 5

Cardiovascular diseases. Pulmonary and respiratory airway diseases. Tuberculosis. Gastrointestinal tract diseases. Diseases of the liver, gall-bladder, bile ducts and pancreas. Renal diseases and genitourinary system diseases. Haemopoietic system diseases. Haemostasis disorders. Metabolism and nutrition disorders. Diabetes mellitus. Connective tissue inflammatory diseases. Endocrine system diseases.Problem of the emergency medicine. Organ transplantation. Poisonings and occupational diseases. Special aspects in diseases of elderly patients. Rehabilitation and physical therapy.

LECTURES:

3rd class, summer semester

Cardiovascular diseases. Heart failure. Peripheral circulation failure. Acquired valvular diseases. Myocarditis. Cardiomyopathies. Endocarditis. Pericarditis. Atherosclerosis. Ischaemic heart disease. Cardiac arrhythmias. Hypertension. Hypotension. Peripheral vessel diseases. Aortic diseases. Neurocirculatory asthenia. Respiratory diseases. Bronchial diseases. Obstructive pulmonary disease.

4th class, winter semester

Lung tumours. Pleural and mediastinum diseases. Tuberculosis. Gastrointestinal disorders - diseases of the oesophagus and the stomach. Acute and chronic gastritis. Functional dyspepsia and irritable bowel syndrome. Peptic ulcer. Gastric cancer. Diseases of the small bowel - malabsorption syndrome. Crohn´s disease. Diseases of the large bowel. Ulcerative colitis. Diverticular disease. Colonic tumours. Gallbladder disorders. Hepatobiliary diseases. Liver diseases. Viral hepatitis. Liver cirrhosis. Hepatic carcinoma. Diseases of the pancreas. Acute and chronic pancreatitis. Pancreatic tumours.

4th class, summer semester

Acute and chronic renal insufficiency. Haemodialysis and renal transplantation - indications. Acute glomerulonephritis. Nephrotic syndrome. Chronic glomerulonephritis. Systemic renal diseases. Urinary system infections. Interstitial nephritis. Urolithiasis. Polycystic renal disease. Renal disease in metabolic disorders. Tumours of the urogenital system. Anaemias (normochromic, hypochromic, macrocytic). Haemolytic and aplastic anaemias. Myelodysplastic syndrome. Myeloproliferative diseases. Haemostasis disorders. Leucopenia. Thrombocytopenia. Acute leukemia. Malignant lymphomas - Hodgkin´s disease, Non-Hodgkin´s lymphomas, chronic lymphocytic leukemia. Diabetes mellitus.

5th class:

Rheumatoid arthritis. Sjögren´s syndrome. Rheumatoid vasculitis. Felty´s syndrome. Caplan´s syndrome. Still´s syndrome. Juvenile rheumatoid arthritis. Palindromic rheumatism. Seronegative spondyloarthrities (ankylosing spondylitis, psoriatic arthritis, Behcet´s syndrome, reactive arthritis, infective arthritis, Lyme´s disease). Gout. Polymyositis. Dermatomyositis. Vasculitis - polyarteritis

nodosa. Wegener´s granulomatosis. Pituitary and hypothalamic disorders. Endocrine inactive and active pituitary tumours. Acromegaly and gigantism. Hyperprolactinaemia. Cushing´s disease. Syndrome of inappropriate ADH release. Cushing´s syndrome. Primary hyperaldosteronism. Addison´s disease. Secondary adrenal insufficiency. Adrenogenital syndrome. Adrenomedullar disorders. Parathyroid glands - hyper and hypofunction. Thyroid gland. Hyperthyroidism and hypothyroidism. Endemic goitre. Thyroiditis. Thyroid tumours. Testicle - primary and secondary testicular insufficiency. Testicular tumours. Ovaries - ovarian insufficiency, ovary tumours. Breast cancer. Paraneoplastic endocrinopathies. Problems of acute medicine. Indication to surgery, risk evaluation.

CLINICAL TRAINING:

3rd class, summer semester

Knowledge revision. ECG findings - evaluation of ischaemic changes and arrhythmias. Ergometry, "Holter". Management in the coronary unit. Evaluation of dynamic ECG changes. Urinalysis. Haematologic laboratory. Differential blood count.Complete examination and writing of the case history in the patient with cardiovascular disease. Elaboration of the case history in the patient with hypertension, vascular disease. Lymphatic, cardiac, venocclusive oedemas. Basic neurologic examination. Respiratory airways and pulmonary diseases - special examination methods. Radiographic diagnostic methods in pneumology.

Credit: test 70 % of correctly answered quesstions.

4th class, winter semester

Knowledge revision from internal propedeutics. Complete examination and case history elaboration in patients with pulmonary or bronchial disease. Differential diagnosis of tuberculosis by X-ray and clinical findings. Abdominal ultrasonography Radiography of the gastrointestinal system. Gastrointestinal endoscopy. Hepatic puncture. Stool examination. Examination of the stool smear by Schuffner. Complete examination and elaboration of the case history in patient with gastrointestinal disease. **Credit: test 70 % of correctly answered quesstions.**

4th class, summer semester

Urinalysis - chemical analysis count. Quantitative proteinuria. Acute and chronic renal insufficiency. Evaluation of pyelograms. Renal radionuclide scans. Haemodialysis. Puncture of the bone marrow and differentiation of the bone marrow smear. Blood transfusion, indications and technique, complications. Examination of the haematologic patient, elaboration of the clinical notes. **Credit: test 70 % of correctly answered quesstions.**

5th class

Knowledge revision from internal propedeutics. Examination of the patient with connective tissue disease (joints, neuromuscular status, bone x-rays, x-rays of small and large joints). Calcium and bone metabolism, possibilities of its evaluation. Examination methods in endocrinology. Examination of the patient with thyroid gland or parathyroid glands disease. Pituitary disorders - diagnosis and therapy. Examination of the patient with adrenal disease. Differential diagnosis of secondary hypertension from endocrinologic point of view. Disorders of reproductive organ function. Risk evaluation of surgical procedures, preoperative management. Problems of acute medicine.

PNEUMOLOGY AND PHTHISEOLOGY

CLINICAL TRAINING:

5th class, summer semester

Radiographic classification of the lung and brocnhial tumor. Case study of the tumors. Differential diagnosis of the tumors. Bronchoscopic methods at the diagnosis of the tumors. Cytologic a histologic examination at the diagnosis of lung cancer.Lung resection for the tumors: choise of radiotherapy or chemotherapy for bronchial cancer. Prognosis of carcinomas of respiratory tract.

Epidemiology o tuberculosis (TB) in Slovakia and the world. Spread of tuberculois infection.Clinical picture and course of tuberculosis. Differential diagnosis of pulmonary tucerculosis from other diseases. Cavitary tuberculosis - differential diagnosis. Case studies of pulmonary TB. Analysis of X-ray a laboratory findings. TB treatment - duration, therapeutic regimes .

Principles of lung function testing. Methods of measurements of static, dynamic lung volumes and capacities, airways resistance. Measurement of flow-volumes and diffusion capacity. Methods of arterial punction for analysis of blood gases and acid-base balance. Interpretation of function data in the respiraratory diseases. Sleep apnoea syndrome. Obstructive sleep apnoea. The overlap syndrome. Nocturnal hypoventilation.

Evaluation of subject

Examination: - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: INTERNAL PROPEDEUTICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	43/50	E	5

Syllabus: INTERNAL PROPEDEUTICS

Anamnesis - basic principles (present illness, past medical history - personal history, family history, regimen, habits). Special anamnesis (focused on specific system diseases), chief clinical symtoms. General present status. Physical examination (inspection, palpation, percussion, auscultation) of the head and neck. Physical examination of the chest. Physical examination of the abdomen. Physical examination of the extremities and locomotory system. Electrocardiography. Radiographic and imaging techniques. Laboratory tests in internal medicine. Special diagnostic procedures in internal medicine. Individual patient examination and elaboration of case report form.

LECTURES:

Definition and content of internal propedeutics. The first contact with the patient. History obtaining. Case report form - elementary medical documentation. Physical examination - inspection, palpation, percussion, auscultation of the head and neck, chest, abdomen, genital system, rectum and extremities. Electrocardiography. Radiographic examination. Auscultation finding in valve diseases (mitral stenosis and insufficiency, aortic stenosis and insufficiency). Physical finding in respiratory system diseases (bronchitis, bronchial asthma, lung emphysema, lung atelectasis, cardiac stasis, pneumothorax, bronchopneumonia, pleuritis dry and wet). Auxilliary examination methods.

Practical lessons:

History. Examination of the head and neck, chest, abdomen, extremities. Evaluation of ECG curves. Evaluation of X-rays. Elaboration of case report form.

Examination - oral part (questions + ecg, rtg)
- practical part (physical examination)

Study branch: GENERAL MEDICINE

Course: MEDICAL PSYCHOLOGY AND COMMUNICATION WITH PATIENTS

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	12/12	E	2

Syllabus: MEDICAL PSYCHOLOGY AND COMMUNICATION WITH PATIENTS

The main concepts, problems and methods of medical psychology. Structure of psyche of an adult person. Consciousness. Unconsciousness. The concept of experiencing and experience. Attention, vigilance, dreams. Cognitive functions – perception, thinking, phantasy, memory. Instincts, emotion, will processes, acting. Personality, construction of personality, mechanisms of personality. Typology. Psychoanalysis, behavioralism, humanistic psychology, basic principles and concepts. Psychosomatic relation, the concept of psychogenesis. Psychosomatic disorders, psychophysiological disorders, somatisation, conversion. Psychotherapy:concept, mechanism, schools, technics. Ontogenetical phases. Problems of pedopsychiatric patients. Psychology of a patient, attitudes of a patient towards the illness, cooperation of the patient with the medical professional, patient with an acute illness, patient with a chronical illness, aptient with an uncurable illness, problems of dying and death. Adaptation of the sick to the hospital environment. Psychology of a physisian and of a medical professional in general, ethical and expert relation, medical ethics, professional deformation. Problems of informing the patient and his relatives, reverse. Psychology of the sanitary environment, healing routine, risks of long-lasting hospitalisation, hospitalism and its prevention. Psychology of medical examination, factors influencing the cause of medical examination. Iatrogenisation. Preparing the patient for a difficult examination (therapy). Attitudes toward a patient with various illnesses in differnt stages of the developement of the illness. Identification of incorrect attitudes and their correction. Psychology of therapy. Importance of cooperation of patient in therapy. Importance of mental factors by therapy in general. Placebo effect. Abreaction.Relaxation. Basic variants in therapeutical relation. Ontogenetical phases of human life. Psychological problems of children and adolescents and of an eldery patient.

LIST OF LECTURES:

Basic concepts of medical psychology. Tasks of medical psychology in the system of medical sciences. Basic methods and concepts of the medical psychology. Structure of psyche of an adult person. Consciousness. Attention. Cognitive functions - perception, thinking, memory. Instincts, emotions, will processes, acting. Unconsciousness, hypothesis about the importance of the unconscious mental processes. Personality, construction, mechanisms. Typology of personality. Psychosomatic relation. Psychogenesis, psychophysiological disorders. Psychosomatic illnesses. Psychotherapy, concepts, mechanisms, technique, schools. Psychodiagnostic. Developement psychology, life stages. Psychical crises..

SYLLABUS OF PRACTICUM:

Psychology of a patient, attitudes towards illness, reactions on illness. Psychology of a medical examination and therapy, medical environment, medical staff. Demonstrations of attitudes towards the illness and the therapy. Psychology of the treatment, placebo effect. Specificity of communication in child and adolescence

Examination: - oral form

Study branch: GENERAL MEDICINE

Course: PATHOLOGICAL ANATOMY 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	48/48	es	5
	summer	48/48	E	8

Syllabus: PATHOLOGICAL ANATOMY 1, 2

General pathology: Methods in pathology. Cell pathology. Death and postmortal changes. Regressive and metabolic changes. Disorders of blood and lymph circulation. Inflammation. Progressive changes. Growth disturbations. Teratology. Causes and origin of disease. Nutrition deficiency diseases. Immunopathology.

Oncology: General oncological terms. Growth of tumors. Tumor influence on organism. Precancerous lesions. Causes of tumors origin. Cancerogenic factors. Benignity and malignancy of tumors. Microscopic structure of tumors. Tumor diagnosis-biopsy. Classification of tumors. Epithelial and mesenchymal tumors. Neuroectodermal tumors. Mixed tumors. Teratomas. Germinative tumors. Tumors of the placenta. Mesothelioma. Radiation disease. Most common tumors of childhood.

Special pathology: Pathology of circulation, hemopoetic, respiratory, alimentary, urinary, genital, nervous and locomotion systems. Pathology of the endocrine and neuroendocrine system, skin, senssoric organs. Neonatal pathology.

Histopathology: Basic histological techniques. Histological staining. Necrosis. Atrophy. Dystrophy. Pigments. Circulation disorders. Inflammation. Progressive changes. Regeneration. Reparative processes. Hypertrophy. Hyperplasia. Adaptation. Benign tumors. Malignant mesenchymal and epithelial tumors. Hemopoetic tumors. Neuroectodermal tumors. Immunopathology. Transplantation pathology. Diseases of pericardium, endocardium, myocardium. Atherosclerosis. Dystrophy and inflammation of vessels. Respiratory system - inflammations, tumors, pleura. Kidney - vascular disorders, inflammations, tumors, hydronephrosis. Urinary bladder, inflammations, tumors. Oral cavity. Salivary glands. Pathology of pharynx. Esophagus. Stomach and intestins. Diseases of liver, gall bladder, pancreas. Pathology of peritoneum, endocrine system, skeletal and muscle disorders. Skin diseases. Reproductive organs. Diseases of the breast. Pathology of pregnancy. Pathology of newborns. Neuropathology.

Autopsy: Death and postmortal changes. Basis of gross description of dissected tissues and organs. General external and internal inspection of the body. Pathological report and arrangement of diagnoses. Dissection of brain and spinal cord. Dissection of: neck and chest organs, liver and urogenital complexes. Autopsy of pediatric patients. Dissection of bones. Macroscopic findings of brain and spinal cord diseases, neck and chest organ diseases, liver complex diseases, urogenital system diseases, hemopoetic system and RES diseases.

PROGRAM OF LECTURES:

Definition of pathology, philosophical aspects, history. Methods in pathology. Cell pathology. Death. Necrosis. Atrophy. Dystrophy (metabolic disorders of proteins, saccharides and lipids). Pigments. Circulation disorders. Local circulation disorders. Acute inflammation. Chronic inflammation. Chronic granulomatous inflammation (specific). Progressive changes. Developmental disorders. General oncology: nomenslature, taxonomy of tumors, benign, malignant tumors, causes of neoplasia, histological diagnostics, grading, staging, tumor markers, invasion and metastases, epidemiology of tumors, influence of tumors on the whole organism. Defects of immunity: mediators, cellular immunity. Autoimmune diseases, AIDS, Defects in nutrition. Environmental pathology: nicotinism, alcoholism, pneumoconiosis.

The Heart and Lung Disease, Congenital Heart Diseases, Diseases of Red Cells and Hemorrhagic Diatheses, Pathology of Blood Vessels, Diseases of White Cells, Lymph Nodes and Spleen, The Gastrointestinal Tract I - IV: inflammation, tumors, ulcer disease, ulcerous colitis, Crohn´s disease, specific and nonspecific enteritis, coeliakia, appendicitis, colorectal carcinoma. The Endocrine System, Nephropathology I, II, Genitourinary System, Hepatopathology, Diseases of the Skin, The Female Genital Tract I, II: inflammations, dysplasia, neoplasia, dysfunctional changes, trophoblastic disease. Pathology of pregnancy. Obesity, Starvation, Neuromuscular diseases, Diffuse Neuroendocrine system, Central and peripheral nerve system. Pathology of the newborn. Cytology, Diseases of the pancreas and gallbladder, *Seminar: Clinico-pathological conference.*

HISTOPATHOLOGY PRACTICALS

winter semester

Histopathology: Introduction. Autopsy. Basic histological techniques. Histological staining (acidic, basic, histochemistry). Necrosis. Encephalomalacia. Hemorrhagic infarction - lung. Anemic infarction - kidney. Focal necrosis - MI. Diffuse necrosis of the liver. Atrophy. Dystrophy. Pigments. Brown atrophy of myocardium. Muscle atrophy. Lipomatosis - pancreas. Parenchymatous dystrophy - kidney. Vacuolar dystrophy. Amyloidosis - kidney. Steatosis - liver. Brown induration of lungs. Anthracosis of lungs. Silicosis of lungs. Circulation disorders. Inflammation. Embolus - pulmonary artery. Pulmonary edema. Chronic venostasis - liver. Catarrhal bronchitis. Fibrinous pericarditis. Pseudomembranous inflammation. Appendicitis. Cerebral abscess. Actinomycosis. Oxyuriasis. Miliary TBC - lungs. Sarcoidosis. Progressive changes. Regeneration. Reparative processes. Hypertrophy. Hyperplasia. Adaptation. benign tumors. Fibrinous pericarditis - organization. Thrombus - organization. Foreign body granuloma. Hyperplasia - endometrium. Hypertrophy of myocardium. Metaplasia. Oncology: Fibroma. Leiomyoma. Cavernous hemangioma. Papilloma. Adenomatous polyp - colon. Malignant mesenchymal tumors. Fibrosarcoma. Chondrosarcoma. Osteosarcoma. Kaposi sarcoma. Malignant epithelial tumors. Epidermoid carcinoma. Basalioma. Adenocarcinoma. Medullary carcinoma. Scirrhotic carcinoma. Ductal carcinoma - breast. Immunopathology. Transplantation pathology. Hemopoetic tumors. Myelosis. Chronic lymphocytic leukemia [CLL]. Acute lymphoblastic leukemia [ALL]. Plasma cell lymphoma. Mycosis fungoides. Morbus Hodgkin. Neuroectodermal tumors. Meningioma. Glioblastoma multiforme. Neurinoma. Pigment nevus. Malignant melanoma. Chronic rejection - transplanted kidney.

Autopsy:

Death and postmortal changes. Basis of macroscopic description of dissected tissues and organs. General external and internal inspection of the body. Pathological report and arrangement of diagnoses. Dissection of brain and spinal cord. Macroreactions. Dissection of neck and chest organs. Dissection of liver and urogenital complex. Autopsy of pediatric patients. Dissection of bones.

summer semester

Histopathology: Cardiovascular system. Diseases of pericardium, endocardium and myocardium. Atherosclerosis, dystrophy and inflammation of vessels. Respiratory system, inflammations, tumors. Pleura. Endocarditis ulcerative, polypous. Cardiomyopathy. Medial dystrophy of Ao (Erdheim´s disease). Polyarteritis nodosa. Pulmonary emphysema. Bronchopneumonia, lobar pneumonia. Small cell Ca. Bronchioloalveolar Ca. Nasal polyp. Atherosclerosis. The use of Electron Microscopy in Pathology. Oral cavity, salivary glands. Pathology of pharynx, oesophagus, stomach and intestines. Diseases of liver, gall bladder, pancreas. Pathology of peritoneum. Chronic sialoadenitis. Pleomorphic adenoma. Gastric ulcer. Chronic atrophic gastritis. Ulcerative colitis. Micronodular cirrhosis, biliary cirrhosis. Acute infectious hepatitis. Chronic active hepatitis. Chronic cholecystitis. Acute hemorrhagic necrosis of pancreas. Radicular (dental) cyst. Giant cell epulis. Uropoetic system. Kidney - vascular disorders, inflammations, tumors, hydronephrosis. Urinary bladder, inflammations, tumors. Arteriolosclerotic nephrosclerosis. Polycystic kidney disease. Glomerulonephritis - proliferative, acute, progressive, chronic, membranous.

Pyelonephritis acute, chronic. Renal cell Ca. Nephroblastoma. Bladder papiloma. Bladder Ca. Endocrine system. Diabetes mellitus – kidney. Struma. Feochromocytoma. Carcinoid. Skeletal and muscle disorders. Oosteomyelitis. Osteodystrophy. Dermatomyositis. Skin diseases. Verruca vulgaris. Molluscum contagiosum. Atheroma. Basocellular papilloma. Reproductive organs. Benign hyperplasia of prostate. Ca of prostate. Seminoma. Cervical dysplasia I. II. III. Cervical polyp. Granulosa cell tumor. Serous cystadenoma. Serous cystadenocarcinoma. Diseases of breast. Breast - fibroadenoma. Fibrocystic change (benign dysplasia). Paget carcinoma. Ductal carcinoma of the breast. Neuropathology: circulation disorders, encephalopaties, inflammations, tumors. Viral encephalitis. Panencephalitis Van Bogaert. Sclerosis multiplex. Sympatoblastoma. Pathology of pregnancy. Pathology of newborn. Fetal erythroblastosis. Amnial fluid aspiration. Hyaline membrane disease. Tuberculous meningitis. Abortion remnants. Extrauterine pregnancy. Hydatidiform mole. Choriocarcinoma.

Autopsy:

Macroscopic findings of brain and spinal cord diseases. Macroscopic findings of neck and chest organs diseases. Macroscopic findings of liver complex diseases. Macroscopic findings of urogenital system diseases. Macroscopic findings of genital organs diseases. Macroscopic findings of hemopoetic system and RES diseases.

Examination - practical part (description of gross finding at autopsy, histo-pathological dg. of a slide)
- written part (test)
- oral part

Study branch: GENERAL MEDICINE

Course: PATHOLOGICAL PHYSIOLOGY 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	winter	36/36	es	4
	summer	36/36	E	7

Syllabus: PATHOLOGICAL PHYSIOLOGY 1, 2

The response to damage. The phases of inflammation. Cellular exudate. The role of neutrophils in host defence. The role of neutrophils in host tissue damage. Regulation of neutrophil function. Macrophages and monocytes. Biological functions of macrophages. The role of macrophages in angiogenesis. Eosinophils. Mast cells and basophils. T-lymphocytes. Vascular endothelial cells. Endogenous mediators of inflammation. Lipid mediators of inflammation. Products of the complement system. The role of haemocoagulation system in inflammatory processes. The kinin-forming system. The cytokines participating in inflammatory responses. Chemokines. The acute phase reactants (proteins). Molecule mechanisms of acute inflammatory reaction. Regulation and control of body temperature. The pathogenesis of fever. Fever course and accompanying symptoms. Fever from the clinical point of view. Genetics of the monogenic pathological states. Diagnosis of mutations by DNA analysis. Tumour-supressor genes. Frequent monogenic pathological states. Hereditary forms of breast and ovarian cancer. Carcinogenesis. The stages of carcinogenesis. Chemical and viral carcinogenesis. Characteristics of cancer cells. Tumor cell biomarkers. Malignant tumor growth. The immune system and malignant diseases. Mechanisms of innate and adaptive immunity. Antibody production. Antigen presentation by induction of specific immune response. Immunodeficiencies. Combined specific immudeficiencies. Immudeficiencies as additional complications of primary disease. Deficiency of phagocytosis. Secondary immunodeficiencies. The immune system malignancies. Immediate (anaphylactic) hypersensity reaction. Cytotoxin hypersensity reaction. Immune complex hypersensity reaction. Autoimmune diseases. The characteristic of the main body fluid compartments. Fluid flow between compartments. The regulation of total body fluid volume. Osmotic regulation. Water deficit. Water excess. Sodium. Sodium deficit. Symptoms of hyponatremia. Hypernatremia and hypernatremic states. Potassium. Potassium deficit and hypokalemia. Hyperkalemia and hyperkalemic states. Chloride deficit and hypochloremia. Hypocalcemia and hypocalcemic states. Hypercalcemia and hypercalcemic states. Magnesium deficit and hypermagnesemia. Hypophosphatemia and hypophosphatemic states. Hyperphosphatemia and hyperphosphatemic states. Classification of acid-bace balance disturbances. Compensation of acid-bace balance disturbances. Nociperception and pain. Pain in nociceptive pathways impairment. Theories explaining pain. Central regulation of pain. Opiate analgesia. Hypoxia. The influence of hypoxia on organs and systems. Dyspnea. Hyperventilation. Hypoventilation. Pneumonia. The simple and obstructive chronic bronchitis. Lung emphysema. Bronchial asthma. Bronchiectasis. Cystic fibrosis. Interstitial lung diseases. Acute and chronic respiratory failure. Adult Respiratory Distress. Syndrome – ARDS. Pathogenesis of ARDS. The role of surfactant in ARDS development. Progress and consequences of ARDS. Primary malignant tumors of the lungs and bronchi. Pleural diseases. Haematopoiesis. Metabolism of erythrocytes. Iron deficiency anemia. Megaloblastic anemia. Haemolytic anemia. Acquired haemolytic disorders. Haemoglobinopathies. Normochromic normocytic anemia. Anemias due to impaired haematopoiesis. Disorders of thrombocytes. Qualitative disorders of thrombocytes. Hemophilia A. Contact factors defects. Disseminated intravascular coagulation. Thromboembolic diseases. Leukocytosis. Leukopenias. Chronic leukemias. Acute leukemias. Lymphomas. Plasmatic cells disorders. Metabolism of cardiac muscle cell. Contraction-relaxation cycle. Contractile function of myocardium and pumping function of the heart. Preload. Afterload. Pump function of the heart. Pathomechanism of heart failure. Symptoms of left ventricular failure. Cyanosis. Gallop.

Diastolic heart failure. Right heart failure. Pathomechanism of cardiomyocytes damage in heart failure. Pathophysiological principles of heart failure therapy. Principles of heart failure therapy based on neurohumoral activation. Mechanism of ACE inhibitors protective effect in heart failure. Hypertrophy of the heart – mechanism of adaptation to chronic hemodynamic overload. Pressure and volume heart overload. Direct stimulus of hypertrophic growth. Stages of heart hypertrophy. Pathophysiological importance of heart hypertrophy and hypertrophy regression in clinical practice. Heart hypertrophy and dilation. Mitral stenosis. Mitral insufficiency. Aortal stenosis. Aortal insufficiency. Valvular defects of the right heart. Dilative cardiomyopathy. Hypertrophic cardiomyopathy. Restrictive cardiomyopathy. Stress. Congenital heart diseases. Non Cyanotic congenital heart diseases with left to right shift. Non Cyanotic congenital heart diseases without the shift. Cyanotic congenital heart diseases with decreased pulmonary circulation. Infective endocarditis. Determinants of blood pressure. Systolic, diastolic, pulse and mean arterial blood pressure. Mechanisms of arterial blood pressure changes. Arterial pulse. Systemic arterial hypertension. Etiopathogenesis - the decrease of vascular compliance and the increase of cardiac output. Etiopathogenesis - the increase of the total peripheral vascular resistance. Renal and vascular mechanisms of hypertension stabilization. Primary hypertension. Secondary hypertension. Circulation and orthostasis. Postural hypotension. Syncope. Neurocardiogenic syncope. Cardiogenic syncope with arrhythmia. Cardiogenic syncope without arrhythmia. Tissue hypoperfusion and hypotension. Hemodynamic adaptation and compensation of tissue hypoperfusion. Neural regulation during tissue hypoperfusion. Humoral regulation during tissue hypoperfusion. Autoregulation and microcirculation changes during tissue hypoperfusion. Shock. Distributive shock. Cardiogenic shock. Etiopathogenesis of shock. Organ functions disorders and defence systems failure. Endothelial vasodilators. Endothelial vasoconstrictors. Cellular adhesion and cell growth. The transport of substances and detection of signals by endothelial cells. The role of eicosanoids in the modulation of vascular endothelium functions. Possible ways of endothelial function of influence. Atherogenesis. Endothelial dysfunction. Molecular interactions and growing factors. Cellular and molecular interactions. Plaque rupture. Autoregulation of coronary flow. Metabolic regulation of coronary flow. Neurohumoral regulation of coronary flow. Endothelium-induced vasodilation and vasoconstriction. Ischemic heart disease. Atherosclerosis and ischemic heart disease. Haemocoagulation in ischemic heart disease. Angina pectoris. Unstable angina pectoris. Causes and consequences of myocardial ischemia. Myocardial infarction. Acute myocardial infarction. Biophysical principles of atherogenesis and plaque stability. Biophysical and biological mechanisms of unstable plaques rupture. Paracrinne and autocrinne regulation of the left ventricular function. Physiologic and pathophysiologic importance of NO in cardiac performance regulation. Pathomechanisms of reperfusion cardiac damage. Calcium paradox. Oxygen paradox. Reperfusion, oxygen free radicals and oxygen paradox. Sudden cardiac death. Etiology and pathogenesis of the sudden cardiac death. Sudden cardiac death in non-coronary heart diseases. Electrically unstable myocardium. Mechanisms of Sudden cardiac death in consequence of malignant tachyarrhythmias. The key role of reentry phenomenon in potentially lethal ventricular tachyarrhythmias. Non-tachyarrhythmic pathogenesis of sudden cardiac death. Pathophysiological principles of identification and clinical management of patients with high risk of sudden cardiac death. Pathophysiology of pulmonary circulation. Pulmonary vascular endothelium. Mononuclear phagocyte system in pulmonary circulation. Dynamics of pulmonary circulation. Hypoxic vasoconstriction in pulmonary circulation. Pulmonary edema. Pulmonary edema due to increased permeability. Peculiarities of some types of pulmonary edema. Pulmonary hypertension. Pulmonary hypertension with high blood flow. Pulmonary hypertension with venous hypertension. Alterations of the organism function occurring in pulmonary hypertension. Primary pulmonary hypertension. Pulmonary embolism. Chronic recurrent pulmonary embolism. Cor pulmonale. Peculiarities of cerebral circulation. Cerebral ischemia. Generalized brain ischaemia. Local brain ischaemia. Intracerebral and subarachnoideal hemorrhage. The resting and the action potential. Automatic cells. The electrocardiographic changes in cardiac disorders. The electrophysiological basis in the generation of cardiac arrhythmias. Automacity disturbances. Excitability disturbances. Conduction disorders. Sinoatrial node dysfunction. Disturbances of AV conduction. Sinoatrial node

dysfunction - terminology. First, second, third degree AV block (complete AV block). Disturbances of AV conduction in context of acute myocardial infarction. Supraventricular tachyarrhythmias. AV node reentry tachycardia. Ectopic atrial tachycardia. Atrial extrasystoles. Atrial fibrilation and atrial flutter. Ventricular tachyarrhythmias. Ventricular extrasystoles. Ventricular tachycardia. Ventricular flutter and ventricular fibrillation. Rheumatic fever. Heart malignancies. Pharmacological and traumatic heart injury. Varices. Phlebothrombosis. Chronic venous insufficiency. Peculiarities of renal blood flow. Glomerular filtration. Maintenance of extracellular milieu stability. Decrease of glomerular filtration rate. Alterations of glomerular membrane permeability. Proteinuria. Hematuria. The involution of nephrons. Acute renal failure. Chronic renal failure. Cell, organ and metabolic alterations due to uraemia. Pathophysiology of uremia symptoms. Consequences of alterations occurring in chronic renal function. Pathogenesis of renal disorders. Immunopathologic mechanisms. Hyperfiltration damage. Effect of toxic substances. Glomerulopathies with nephritic pattern. Acute glomerulonephritis (poststreptococcal glomerulonephritis). Rapidly progressive glomerulonephritis. Gradually progressive glomerulonephritis: membranous proliferative glomerulonephritis. Glomerulopathies with nephrotic syndrome. Glomerulopathies in systemic diseases. Pathogenesis of tubulointerstitial diseases. Chronic interstitial nephritis. Nephropaties. Diabetic nephropathy. Vascular renal diseases. Defects of tubular transport of substances. Infections of urinary system. Urolithiasis. Tumors of urinary tract. Diseases of the oesophagus. Gastritis. Peptic ulcer. Duodenal ulcer. Gastric ulcer. Stress ulcers and erosions. Helicobacter pylori and diseases of gastrointestinal tract. Acute pancreatitis (acute haemorrhagic pancreatitis). Cystic fibrosis of the pancreas (mucoviscidosis). Inadequate digestion (maldigestion). Inadequate absorption (malabsorption). Disorders of colon motility.

Diarrhea. Diarrhea due to abnormal intestinal motility. Constipation. Chronic idiopathic constipation. Irritable bowel syndrome. Intestinal obstruction. Pathophysiological principles of ileus prevention. Ulcerative colitis. Crohn´s disease. Ischaemic colitis. Carcinoma of the stomach. Carcinoma of the large intestine. Gastrointestinal hemorrhage. Abdominal pain. Acute hepatitis. Chronic hepatitis. Chronic viral hepatitis B. Autoimmune hepatitis. Chronic liver insufficiency. Hepatic cirrhosis. Portal hypertension. Ascites. Prehepatic and intrahepatic icterus. Intrahepatic cholestasis. Posthepatic icterus. Cholecystitis. Mechanisms of hormone function on the target cells and their disorders. Membrane receptors. G protein-linked receptors. Receptor-effector system linked with cAMP signal pathway. Receptor-effector system linked with phosphatidylinositol signal pathway. Receptors linked with kinase activity. Receptors linked with cGMP signal pathway. Intracellular receptors. Disorders of hormone function on the level of target cells. Hypothalamic neuroendocrines disorders. Pathophysiology of neurohypophyseal functions. Pathophysiology of adenohypophysis. Pathophysiology of somatotropic, lactotropic, adrenocortical, gonadotropic and thyreotropic axis. Hormone blood transport. Metabolism of thyroid hormones. Syndrome of low triiodothyronine. Hypophyseal thyrotropine hormone (TSH) and its feedback regulation. Autoimmune etiology of thyroid gland diseases. Iodine deficiency diseases. Endemic struma. Hyperthyreosis (thyreotoxicosis). Hypothyreosis. Inflammation of thyroid gland. Tumors of thyroid gland. Hypoparathyreosis. Pseudohypoparathyreosis (resistance to parathyroid hormone). Hyperparathyreosis. Regulation of the adrenal cortex function. Effects of the adrenal cortex hormones. Pathophysiology of the adrenal cortex. Cushing´s syndrome (hypercortisolism). Iatrogenic Cushing´s syndrome. Hyperaldosteronism. Adrenal virilisation (adrenal hyperandrogenism). Adrenal cortex hypofunction. Primary chronic adrenal cortex hypofunction. Acute adrenocortical insufficiency (Addisonian crisis). Pheochromocytoma. Ovarial endocrine hypofunction (hyposecretion). Ovarial endocrine hyperfunction (hypersecretion). Hyposecretion of testicular hormones. Hypersecretion of testicular hormones. Diabetes mellitus. Pathogenesis of diabetes mellitus symptoms. Acute complications of diabetes mellitus. Chronic complications of diabetes mellitus. Diabetic microangiopathy. Diabetic macroangiopathy. Diabetic neuropathy. Insulinoma (nesidioma). Multiple endocrine neoplasia type I. (Wermer´s syndrome). Biological effect of insulin. Insulin resistance. Type II diabetes mellitus and insulin resistance. Obesity and insulin resistance. Syndrome of insulin resistance (metabolic syndrome X, Reaven´s syndrome).

Pathogenetic mechanisms of insulin resistance symptoms. Pathophysiological principles of therapy in insulin resistance rsp. syndrome of insulin resistance. Gastrointestinal hormones. Neuronal injury. Diseases of nervous system with mainly intrinsic causes. Diseases of nervous system with mainly extrinsic causes. Diseases of nervous system with mixed or unknown etiology. Head injuries. Brain injuries. Brain edema. Intracranial hypertension. Hydrocephalus. Demyelination diseases. Multiple sclerosis. Degenerative diseases of the CNS. Parkinson´s disease (paralysis agitans). Pathophysiology of Alzheimer's disease. Notes to Alzheimer's disease etiology and risk factors that may illuminate its pathogenesis. Epilepsy. Etiopathogenesis of an epileptic seizure. The neurophysical and electrophysical substrate of epilepsy. Classification of epileptic seizures. Experimental epilepsy. Disturbances of brain oxygen supply. Hypoxic syndrome. Cerebral infarction. Intracranial hemorrhage. Subdural haematoma. Viral infections of the central nervous system. Transmittable spongiform encephalopathies: non-standard immune reaction neuroinfections. Encephalophaty in AIDS. Diseases caused by exogenous toxic substances. Secondary conditioned metabolic injury to the nervous system. Myasthenia gravis. Dopaminergic system. Parasympathicus. Involvement of the ANS in the pathophysiology of disease states. Pathophysiology of autonomous nervous system. Auditory disorders. Pathophysiology of tympanum and middle ear. Sensory-neural (perceptive) auditory disorders. Tinnitus. Refractive vision problems. Glaucoma. Retinopathia diabetica. Amblyopia. Hormones influencing the bone tissue. Generalized skeletal disorders. Negative skeletal balance. Positive skeletal balance. Insufficient osteoid mineralization. Renal osteodystrophy – a combined disturbance of mineral metabolism. Osteitis deformans. Degenerative disorders of joints. Rheumatoid arthritis. Arthritis urica. Early gestoses. Late gestoses. Pregnancy-induced pathophysiologic states. Cardiovascular diseases in pregnancy. Feto-maternal ABO incompatibility. Endocrine diseases during pregnancy. Viral hepatitis during pregnancy. Disorders of involution, genital haemorhage. Puerperal infection. Disorders of lactation.

LECTURES:

winter semester

Preliminary pathophysiology. Response the body to damage. Congenital heart and great vessels diseases. Regulation of the blood pressure, arterial hypertension. Heart failure. Pathophysiological principles of heart failure therapy. Pathophysiology of pain. Reperfusion syndrome. Atherosclerosis. Shock - etiopathogenesis. Cardiac arrhythmias. Sudden cardiac death. Pathophysiology of pulmonary circulation.

summer semester

Ischaemic heart disease. Anemic syndrome. Disorders of white blood cells and thrombocytes. The role of receptors in pathogenesis of diseases. Pathophysiology of CNS disorders I. Pathophysiology of CNS disorders II. Diabetes mellitus I. Diabetes mellitus and its complications II. Pathophysiology of thyroid gland. Pathophysiology parathyroid glands. Hepatic failure. Renal failure.

SEMINARS AND PRACTICAL LESSONS:

winter semester

Introduction to the seminars and practical lessons of pathological physiology. The experiment - preparation and evaluation. Anaesthesia. The basic of operation with experimental animal. Anaesthetic and operative techniques. Disorders of acid-base homeostasis. Disorders of body fluid volume end electrolytes regulation. Dehydration. Inflammation. Experimental hyperemia. Stress and the general adaptation syndrome. Pathophysiology of red and white blood cells. Electrical activity of the heart and its disorders. Experimental myocardial infarction. Cardiac arrhythmias. Diabetes mellitus. Diabetic coma and hypoglycemic shock. Systemic arterial hypertension.

summer semester

Heart failure. Alterations of ventricular biophysical properties. Atherosclerosis.

Disorders of pulmonary ventilation and perfusion, bronchoconstriction. Brain chemical systems. Experimental ileus. Pathophysiology of the malignant diseases.

Disorders of gastrointestinal motility. Icterus. Urine and urine sediment Investigation. Proteinuria and nephrotic syndrome. Introduction to the molecular medicine. Pathophysiology of sensory organs. Etiopathogenesis of epilepsy.

Examination - written part; oral part

Study branch: GENERAL MEDICINE

Subject: INTERNAL PROPEDEUTICS - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	compulsory practice	0/40	c	2

Objective of the subject: INTERNAL PROPEDEUTICS - summer practice

The objective of the practice is to obtain practical knowledge at the internal department and check theoretical knowledge at the bedside as well as to become acquainted with physicians' activities, their work at the bedside and in internal medicine outpatient department of polyclinics.

Syllabus (practice description)

1) Independent managing of basic diagnostic and therapeutic performances:
   a) writing medical documentation and conducting records of clinical course (decursus morbi), urine examination and ECG recording
   b) administration of injections (s.c., i.m., i.v.) and infusions i.v.
   c) managing basics of nursing technique

2) Medical students are obliged to take part in ward rounds at the department and work in internal medicine outpatient department according to the working schedule which is stated by the consultant of the department.

3) At the assistance of a senior doctor to learn:
   a) to give transfusion from the reading of crossmatch up to administration of stored blood
   b) evaluation of the differential blood count
   c) interpretation of an X-ray scan
   d) examination per rectum and examination of the blood in stool

4) To assist or to take part in the following examinations:
   a) sternal puncture and its evaluation
   b) ascites puncture, hydrothorax puncture
   c) rectoscopy
   d) stomach X-ray, irigoscopy
   e) sonographic examination of abdominal cavity (pancreas, kidneys, gall bladder)

During the summer clinical practice at internal medicine department a medical student has to perform two emergency service duties.

Credits

Study branch: GENERAL MEDICINE

SUBJECT: SURGICAL PROPEDEUTICS - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
3rd	compulsory practice	0/40	c	2

Objective of the subject: **SURGICAL PROPEDEUTICS - summer ractice**

The objective of the practice is to obtain practical knowledge for the work in appropriate care doing the fieldwork and to test theoretical knowledge from the field of study in solving various, particularly acute conditions in both outpatient and inpatient departments and in ICU.

Syllabus (practice description)

1. Managing of washing before the operation, sterile dressing of a surgeon before surgical procedure, preparation of the operation field, positioning and draping of a patient.
2. Assistances at surgical procedures, practical use of particular surgical instruments.
3. Managing of re-bandage at the outpatient department, minor surgical procedures (incisions, excisions, wound sutures), using of local anaesthesia (infiltration and block), drainage technique in minor surgery.
4. Managing of the bandage techniques (Desault, capistum, spicas, testuda, etc.). Plastering technique, practical application of plaster bandages under the supervision.
5. Examination of a surgical patient, medical record, preoperative examinations and preoperative preparation (premedication, dietetic, psychological).
6. Administration of intramuscular injections, venous injections under the supervision of a physician and assistance at transfusion and blood transfers. Re-bandage of surgical wounds.
7. Assistance at some investigative and therapeutical methods (rectoscopy, X-ray examinations, gastrofibroscopy, ERCP, thoracic and abdominal paracentesis, paracentesis of the vegetative nerve system blockage, major veins cannulation, etc.)
8. Regularly taking part in ward rounds.

Credits

Study branch: GENERAL MEDICINE

Course: ANESTHESIOLOGY AND INTENSIVE MEDICINE 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	12/15	es	2
	summer	12/15	E	2

Syllabus: ANESTHESIOLOGY AND INTENSIVE MEDICINE 1, 2

Anesthesiology. Differentiated Medical Care - place and role of Anesthesia and Intensive Care Medicine. Preoperative Evaluation and Preparation of Patients for Anesthesia and Operation. General and Special Preoperative Evaluation, Preoperative drug Medication. General Anesthesia, Regional Anesthesia - General Principles, Distribution. Anesthetic Technique. Pharmacology of Drugs Used in Anesthesia. Monitoring, Preservation end Support (Maintenance) of Basic Life Functions in Perioperative Period, Management of Fluid and Blood Therapy. Special Anesthetic (Considerations) Proceeding in Traumatology, Obstetrics, Cardiac Surgery, Neurosurgery, Pediatric Surgery. Care of Organ Donors, Brain Death.

Resuscitation. Cardiopulmonary resuscitation - BLS - Basic Life Support in Adults, Infants and Children.
Cardiopulmonary resuscitation - ALS (Advanced Life support). Defibrillation, AED.

Intensive Care Medicine. Definition and Role of Intensive Care Medicine in Differentiated Medical Care, Relation to Urgent Pre - hospital and In - hospital Care. Basic Principles of Haemodynamics, Determinants of Cardiac Output.
Assesessment of Hemodynamics and Interpretation of Basic Hemodynamic Parameters. Oxygen Transport, Monitoring and Interpretation of Oxygen Related Parameters. Mechanical Ventilation, Acute Respiratory Distress Syndrome (ARDS). Shock, MODS, Definitions, Basic of Therapy. Fluid - Elektrolyte Physiology and Basic Disorders, Acid - Base Balance. Nutrition in Intensive Care Medicine. Trauma and Intensive Care Medicine. Toxicology and Intensive Care Medicine. Selected Diseases in Several Medical Departments and Intensive Care Medicine in clinical disciplines (Surgery, Neurology, Obstetrics, Internal Medicine).

LIST OF LECTURES:

winter semester

Anesthesiology and Intensive Medicine - Basic Medical Specialization, its Place and Role. Cardiopulmonary resuscitation - BLS (Basic Life Support). Preoperative Evaluation and Preparation of Patients for Anesthesia and Operation. Premedication. General and Special Preoperative Evaluation, Preoperative Medication. General Anesthesia, Regional Anesthesia. Anesthetic Technique and Drugs Used in Anesthesia. Clinical and Technical monitoring of Patient during Anesthesia. Care of Organ Donors, Brain Death.

summer semester

Definition and Role of Intensive Care Medicine in Differentiated Medical Care, Relation to Urgent Pre - hospital and In - hospital Care. Cardiovascular Physiology - Basic Principles of Haemodynamics, Determinants of Cardiac Output. Respiratory Physiology - Minute Ventilation, Blood Gases, Basic of Mechanical Ventilation. Oxygen Transport. Monitoring and Interpretation of Basic Hemodynamic Parameters and of Oxygen Related Parameters.
Cardiopulmonary resuscitation - ALS (Advanced Life Support, Defibrillation , AED). Acute Respiratory Distress Syndrome (ARDS) - Pathophysiology and Therapy. Coma and brain death. Fluid - Electrolyte Physiology and Basic Disorders, Acid - Base Balance.
SIRS, Sepsis, Shock- diagnosis and therapy, MODS, Definitions, Basic of Therapy.

SYLLABUS OF PRACTICALS:

winter semester

Definition and role of Anesthesiology and Intensive Care Medicine - interdisciplinary collaboration with other medical specializations. Relationship between anesthesia, operation, patient and anesthetic risk (ASA 1-5). Introduction to CPCR. Chain of Survival. ICU - ward round of students. Basic of CPR (diagnostic and treatment). BLS - Practical training. Airway managment, practicing of endotracheal intubation.

Anesthetic workstation - premedication and process of general anesthesia. Anesthesia delivery machine. Clinical and technical monitoring of patient during anesthesia. Principles of regional anesthesia - spinal and epidural anesthesia. Post - anesthetic care - Recovery room.

4th class, summer semester

Fluid and blood therapy in perioperative period. Total parenteral and enteral therapy - principles. Avanced CPR - diagnostics of cardiac rhythm, ECG analysis - therapeutical algorithm of ALS - Practical training. Defibrillation and external pacing. CPR guidelines- ERC 2005. Oxygen therapy: mask, noninvasive ventilation and mechanical ventilation. Explanation of blood gases analysis.

ICU - ward round of students. Toxicology . Central venous catheter placement., arterial line placement. Shock treatment - volume, catecholamines. Syringe drivers and infusion pumps. Management of trauma patients. Coma and brain death. Nosocomial infections and its prevention.

Examination

Study branch: GENERAL MEDICINE

Course: HYGIENE

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	12/24	E	2

Syllabus: HYGIENE

Environmental health. Environmental, chemical, physical, biological and psychosocial factors and health. Impact of education and lifestyle on health and disease.
Outdoor and indoor air pollution and morbidity. Water quality, water-borne diseases. Hazardous wastes. Nonionizing radiation. Ionizing radiation and health hazards. Environmental noise. Urbanization, housing and health. Nutrition and health. Alternative types of nutrition. Xenobiotics. Environmental factors and infectious diseases. Environmental factors and common noncommunicable diseases. Principles of psychohygiene. Living conditions, alcohol and drug abuse. Age and physiological peculiarities in primary prevention. Hygiene of pedagogical process. Environmental health risks in children and adolescents. Work and health, occupational hazards and risks, accidents. Physical factors in the occupational environment. Toxic chemicals in the occupational environment. Selected occupational risk categories, exposures and work-related diseases. Regimen of work and rest and prevention of occupational diseases. Hospital hygiene, outpatient departments and hospital wards. Nosocomial infections. The documentation in environmental medicine, legislation. Risk assessment and risk management. Preparedness in emergency situations (natural and technological disasters, war conflicts, terrorism), compensatory accommodation, water supply, nutrition in emergency situations.

LIST OF LECTURES:
Introduction to hygiene (environmental medicine). Exposure to environmental chemicals and physical agents and risk assessment. Food and nutrition. Occupational health. Hygiene of health care facilities, hygienic aspects of nosocomial infection prevention.

SYLLABUS OF THE PRACTICALS:
Environmental factors and the health status. Health protection against ionizing radiation. Analysis of food consumption and nutrient intake, evaluation of nutritional status. Prevention of cardiovascular diseases. Hospital hygiene.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: SURGERY 1, 2, 3, 4

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	29/35	es	3
	summer	24/30	es	3
5th	winter	24/25	es	3
	summer	29/25	es	3

Syllabus: SURGERY 1, 2, 3, 4

General surgery. Hernias, surgical disease of the oesophagus, stomach and duodenum. Tumours and cysts of the liver. Disease of the gallbladder, the biliary duct and the ancreas. Acute peritonitis. Intestinal obstruction. Paediatric abdominal surgery. Appendicitis - acute, subacute and chronic. Tumours of the small and large intestine. Surgical diseases of rectum and anus, thyroid gland and parathyroid gland. Injuries of the thorax, surgical diseases of the mediastinum, bronchi and lungs. Surgical diseases of arteries and veins. Congenital diseases of the heart. Injuries of bones and joints of upper and lower limbs. Injuries of the spine and spinal cord. Diagnosis of acute abdomen in children.

Neurosurgery Classification of CNS tumors. Neuroimaging (Neuroradiology of brain tumors) Magnetic resonance imaging(MRI), advance magnetic imaging - Functional MRI, Diffusion tensor imaging of nerve fiber tract (dti), Positron emmision tomography. Surgical and adjuvant treatment of brain tumors. Head trauma(open and closed head injuries). Skull base injuries.
Traumatic intracerebral hemorrhage(TICH), pathophysiology, presentation(clinical manifestation) and it´s diagnosis(evaluation). Indications and treatment(surgery technique) of head injuries. Pathophysiology, clinical manifestation(evaluation), diagnosis and treatment for spine injuries, spinal cord injuries and spinal cord nerve roots(peripheral nerves). Vascular lesions of the CNS pathophysiology, diagnosis(evaluation) and treatment options (Cerebral aneurysms, AVMs-Arteriovenous malformations, Cavernous malformation. Treatment options - surgery, radiation treatment, endovascular techniques. Diagnosis and treatment of degenerative cervical and lumbosacral disc disease. Surgical treatment of developmental anomalies of nervous system, skull and spine. Hydrocephalus, pathophysiology, clinical manifestation and surgical treatment. Infections, inflammatory disease in neurosurgery. Stereotactic surgery technique, nonfunctional(brain tummor biopsy, evacuation of brain abscess etc.) and functional stereotaxis(functional neurosurgery)(pain surgery-pain procedures, surgical treatment of movement disorders(Parkinson´s disease) and epilepsy-seizure surgery

Orthopaedics Development , growth and healing of bones, cartilages, tendons, ligaments , fascias and muscles. Management of diagnostics and treatment of the orthopaedic patient. Radiodiagnostics , ultrasonography, CT, MRI , gamagraphy, PET, angiography and laboratory investigation in orthopaedics. Acute episodes in orthopaedics. Inflamatory diseases of muscles, tendons, ligaments, bones and joints. Systemic and metabolic diseases of the sceleton. Aseptic (avascular bone necroses). Tumor like bone affections. Benign , semimalignant and malignant bone tumors. Arthritis - dignostics and treatment. Alloplastics of the large and small joints and complications. Arthroscopic treatment of large joints and complications. Congenital defects of the upper and lower limb, division , diagnostics and treatment. Diseases of spine in orthopaedics: congenital defects of cervical and thoracolumbar spine, fail of posture, scolioosis , kyphosis, segmental instability, reumatic diseases and tumors of the spine, spondylolysis, spondylolisthesis, degenerative diseases of the spine and instability. Inflamatory diseases of the spine, differential diagnostics of low back pain.Developmental dysplasia of the hip joint . Congenital defects of the foot. Pes equinovarus congenitus. Neuroorthopaedics. Orthopaedic prothetics and rehabilitation.

Traumatology Acute management of the injuried pateint with upper and lower limb injury, spine, pelvis, thorax, abdoment at the place of injury, his transport , dignostics and treatment after hospital admission. Contemporary division and classification of fractures. Fractures and disclocations of the upper limb. Injury of the spine and spinal cord. Fractures and dislocations of the cervical , thoracolumbar spine and sacrum. Fractures of the pelvis. Fractures and dislocations of the lower limb. Opern fractures. Diagnostics and management of polytrauma and algorithm of treatment. Complications of fractures of the spine.

Urology Tumours of kidneys. Acute and chronic renal insufficiency. Kidney transplant and organ harvesting for transplantation. Acute episodes in urology. Infections of the urogenital system. Urinary incontinence. Infertility in men. Impotence. Benign prostatic hyperplasia. Cancer of the prostate Haematuria. Tumours from the urothelium.

LECTURES:

4th class

Hernias. Oesophagus. Stomach and duodenum. Early and late gastric post-operative complications. Surgical diseases of liver, gallbladder and biliary duct, pancreas. Acute peritonitis. Intestinal obstruction. Paediatric abdominal surgery. Acute appendicitis. Small and large intestine tumours. Surgical diseases of rectum and anus. Thyroid and parathyroid gland. Injuries of the thorax. Surgical diseases of bronchi and lungs. Surgical diseases of arteries and veins. Congenital diseases of the heart. Injuries of bones and joints of the upper and lower limb. Spine injuries.

5th class

Tumours of kidneys. Acute and chronic renal insufficiency. Transplantation of kidneys and organ harvesting for transplantation. Acute episodes in urology. Infections of the urogenital system. Urinary incontinence. Infertility in men. Impotence. Benign hyperplasia of the prostate. Cancer of the prostate. Haematuria. Tumours from the urothelium. Neurooncology. Cerebral vessels diseases. Craniocerebral injuries. Injuries of the spine and spinal cord. Inflammatory diseases in neurosurgery. Congenital and developmental diseases of the nervous system. Vertebrogenous diseases. Stereotactic neurosurgery. Acute stomach on congenital basis. Paediatric thoracic and vascular surgery. Hepatoportal surgery.

Introductions to orhtopaedics - growth and healing of muscles, tendons, cartilages and bones. Investigation of the orthopaedic patient and management of his diagnostics and principles of orthopaedic treatment. Traumatology of locomotor apparatus division, classification, traumatology of the limbs. Traumatology of the spine and pelvis, rehabilitation. Systemic and metabolic skeletal diseases. Avascular necroses. Bone tumors and soft tissue tumors of the limbs. Spine tumors. Neuroorthopaedics Orthopaedic problems of muscle diseases.Reumorthopaedics. Arthropaties. Inflamatory bone and joint diseases of the limbs. Spine and pelvis inflamatory diseases. Degenerative diseases. Failure of blood circulation. Alloplasties and arthroscopic management in orthopaedics and their complications. Impingement syndroms of the upper and lower limb. Acute episodes in the orthopaedics. Pediatric orthopaedics..

Plastic surgery of clefts and other congenital anomalies. Surgery of the hand. Skin transplants, lobes and other transplantations. Cutaneous and subcutaneous tumours.

CLINICAL TRAINING:

4th class

Surgical diseases of the oesophagus, stomach and duodenum. Cancer of the stomach. Gastroduodenal ulcer, injury of the oesophagus and gastroduodenum. Tumours of the liver and biliary duct, portal hypertension, cholelithiasis, choledocholithiasis, cysts of the biliary duct. Acute and chronic pancreatitis, tumours of the pancreas, cysts and pseudocysts of the pancreas. Injuries of the liver, biliary duct and pancreas. Surgical diseases of the small and large intestine. Intestinal obstructions. Surgery of the rectum and anus. Surgical diseases of the thyroid and parathyroid glands. Acute stomach. Surgical vascular diseases. Varices, thrombophlebitis, phlebothrombosis.

Pulmonary embolism. Lymphoedema. Traumatology - types of fractures - mechanism of trauma, classifications, therapy. Acute stomach in children. Paediatric surgery of the thorax.

CLINIC OF ONCOLOGICAL SURGERY
Research fellowships
SEMINARS:
Introduction to oncological surgery, options of surgical procedures in solid tumors diseases. The role of sentinel node biopsy and lymphadenectomi in carcinomas.

Surgical treatment of:
- CA gl. thyroideae,
- CA mammae,
- Carcinomas of gastrointestinal tract (stomach, pancreas, colorectum),
- Malingnant melanoma
- Metastasis in liver

5 th class
Investigation of male genitals and prostate. Complete ultrasonographic investigation of the urogenital system. Demonstration of acute urological operations. Visit of haemodialysis centre. Demonstration of endourology. Out-patient urology. Basic investigation of the neurosurgical patient. Paraclinical investigation in neurosurgery. Basic surgical intracranial and spinal canal accesses. Demonstrations of neurosurgical instrumentaria. Description of techniques of surgical procedures. Treatment of a neurosurgical wound. Surgery of pain. Practical demonstration of electrothermocoagulation. Stereotactic surgery. Surgery of congenital and developmental malformations.
Investigation of the orthopaedic patient and management of his diagnostics. Basic types of surgical procedures in orthopaedics. Congenital and acquired diseases. Systemic diseases and avascular necroses in children and adults. Neuroorthopaedics .Traumatology of the upper and lower limbs. Spine traumatology, management of polytrauma patient and algorithm of his diagnostics and treatment. Degenerative diseases of the spine and peripheral joints. Reumosurgery, chondrosis, osteochondrosis, spondylarthrosis, spondylosis, arthritis of the hip, knee shoulder. Impingement syndroms of the upper and lower limbs. Pediatric orthopaedics: pes equinovarus, torticolis, developmental dislocation of the hip joint, axial deformity of the limbs, failure of posture, scoliosis, kyphosis, spondylolisthesis, morbus Scheuermann, morbus Perthes, epiphyseolysis capitis femoris. Malignant and benign bone tumors. Inflamatory diseases of bones, joints and spine.
Operation instrumentarium and bandage technique in plastic surgery. Congenital malformations of hands and face. Skin tumours. Basics of treatment technique. Free skin transplants. Lobe plastic surgery.

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: MEDICAL ETHICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	12/24	es	1

Syllabus: MEDICAL ETHICS

Human being as bio-psychic-social being in health and in illness. Human right to life, its respect in modern medicine. Ethical problems in clinical genetics. Care of handicapped, elderly and terminal ill from ethical aspect. Care of drug abusers. Euthanasia. Hospices. Transplantation of cells, tissues, organs and ethical problems. Ethical aspects of biomedical research, of molecular biology, of cellular therapy. Truth telling.

LECTURES:
Subject of medical ethics - the human being. Dignity of human person, his/her identity, integrity and individuality in the context of modern medicine. A short history of medical ethics from ancient time to nowadays. The most important international ethical codes, declarations and conventions in biomedicine. Ethical dilemmas on the beginning of human life, prenatal diagnostics, research on human embryos. Ethical dilemmas on the end of human life (terminal and palliative care, hospices, euthanasia). Tolerancy and some other parts of life in democratic society from medicoethical point of view.

SEMINARS:
The relationships between physician-patient and physician-relatives of patient, principles of optimal communication with emphasis on stomatology. Truth telling, truth and hope at the bedside, rights of patients. Fetal medicine, regulation of human reproduction, abortion,..Ethical problems in pediatrics. Biomedical research, genetic testing, CE´s Convention and its Protocols. Ethical aspects in transplantology and urgent medicine. Ethical aspects of medical care of elderly and of terminal ill. Some social problems and the attitude of physocians to them. Future of marriage and family in 21st century from medicoethical point of view.

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: NEUROLOGY 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	24/25	es	2
	summer	26/25	E	4

Syllabus: NEUROLOGY 1, 2

Basics of anatomy and physiology of the nervous system. Structure and function of the muscle fibre; myoneural junction. Monosynaptic and polysynaptic spinal reflexes. Regulation of movements. Physiology of sensory systems. Cerebral cortex: Anatomy, physiology and main cerebral syndromes. Subcortical syndromes. Brain stem and clinical signs and symptoms of injury. Cranial nerves - clinical signs and symptoms of injury. Spinal cord - clinical signs and symptoms of injury. Clinical signs and symptoms of lesions. Diseases of vestibular apparatus and system. Clinical symptoms and signs of central weakness and paralysis according to the site of lesion. Signs and symptoms of peripheral palsy. An overview of organic types of paralysis; syndromes and aetiology. Ventricular syndromes and meningeal syndrome. Autonomic (vegetative) nervous system. Cerebrospinal fluid tapping types. Examination of cerebrospinal fluid. Rehabilitation in neurology, therapeutic exercise, physiotherapy. Basics of neuroradiology. Electroencephalography. Electromyography. Ultrasonography in neurology. Brain death. Cerebral blood flow: anatomy and physiology. Head and spine trauma, traumatic lesions of peripheral nerves. Diseases due to affections of the vertebral column and disks. Inflammatory diseases of the nervous system. Intracranial and intraspinal space occupying processes. Epilepsy and other paroxysmal disorders. Polyneuropathies and polyradiculopathies. Demyelinating diseases. Degenerative, developmental and hereditary diseases. Neuroses. Diseases of muscles. Tetany. Headache types. Neuropharmacology. Ageing of the brain. Facial palsy. Back pain.

LECTURES:

winter semester

Basic concepts in neurology. Peripheral palsy syndrome. Extrapyramidal syndromes. Central paralysis syndrome. Cerebellar syndromes. Cerebrospinal fluid syndromes. Speech and its disturbances. Spinal cord syndromes. Syndrome of elevated intracranial pressure. Brain stem syndromes. Cortical syndromes. Examination methods in neurology.

summer semester

Introduction into neurological diseases. Epilepsy and other paroxysmal diseases. Cerebrovascular disease. Tumours of the brain and spinal cord. Diseases due to vertebral column and intervertebral disk affections. Inflammatory, infectious, viral and prionic diseases of the CNS (AIDS, Jakob-Creutzfeld disease). Traumatic injuries of the CNS. Degenerative diseases (parkinsonism). Headache. Brain death. Lesions of the peripheral nervous system.

CLINICAL TRAINING:

winter semester

History of the neurological patient. General examination. Neurologic examination. Examination of cranial nerves, upper and lower extremities.

Examination of abdominal reflexes. Examination of the spine, standing, walking and sensation. Examination of the cerebellum and extrapyramidal system. Peripheral and central paralysis, disturbances of sensation. Cortical syndromes (prefrontal, frontal, parietal, occipital, temporal). Disturbances of symbolic functions. Spinal cord syndromes (transverse spinal cord lesion, Brown-Séquard syndrome - hemisection of the spinal cord, syringomyelic and tabic syndrome; conus

medullaris and epiconus syndrome; cauda equina syndrome). Syndrome of capsula interna lesion. Brain stem syndromes (alternating hemiplegias). Individual examination of the patient under supervision of the teacher. Analysis and evaluation of written medical report of the examined patient, checking of students´ knowledge.

summer semester

Principles of medical ethics in examining the neurologic patient. Information of the spectrum of the most frequent neurological diseases and demonstration of patients.

a) Cerebrovascular diseases (brain ischaemia, TIA, haemorrhage, subarachnoidal haemorrhage, vertebrobasilar insufficiency, vascular lesions of the spinal cord).
b) Tumours of the nervous system (glioblastoma, astrocytoma, acoustic neurinoma, meningioma, ependymoma, medulloblastoma).
c) Traumatic lesions of the NS (brain and spinal cord concussion and contusion, epidural and subdural haematoma acute and chronic, fractures of the skull, cranial base and vertebrae, traumatic subarachnoidal haemorrhage).
d) Diseases due to spine and intervertebral disk disorders (sciatica, cervical radicular syndrome, diskopathies).
e) Infectious, inflammatory and demyelinating diseases of the NS (various types of encephalitis, encephalomyelitis, meningitis, herpes zoster, polyneuritis and polyradiculoneuritis; arachnoiditis and arachnopathy; neurologic manifestations of AIDS, Jakob-Creutzfeldt disease).
f) Degenerative and heredodegenerative diseases of the NS (Parkinson´s disease, Huntington´s chorea, hepatolenticular degeneration - Wilson´s disease,spinocerebellar heredoataxia - Friedreich´s disease; amyotrophic lateral sclerosis, spinal muscular atrophies; myopathy).
g) Epilepsy and other paroxysmal NS diseases (narcolepsy, migraine, trige minal and glossopharyngeal neuralgia).
h) Lesions of peripheral nerves.
i) NS disorders of psychic origin (neuroses, hysteria, psychogenic seizures and consciousness clouding).

Complementary examinations: basic laboratory screening tests (blood, urine). Technique of cerebrospinal fluid tapping, examination of CSF, the most frequent findings. X-ray scans of head and spine, carotic and vertebral angiography, perimyelography, demonstration of procedure and scans). Demonstration of CT and MR scans. Duplex ultrasonography, embolidetection. Demonstration of the most frequent records. Evoked potentials. The most frequent EMG findings. Psychologic laboratory, the most frequently used psychologic tests.

Strategy of diagnostic process and treatment. In all cases of examined patients, main characteristics of the disease, clinical signs and symptoms, diagnostics and differential diagnostics, course, treatment and prognosis. Epicrisis.

Individual examination of the patient by a student under the teacher's supervision. Analysis and evaluation of students' written medical reports of the examined patient and checking of students' knowledge.

Examination - practical part (examination of a patient)
- written part
- oral par

Study branch: GENERAL MEDICINE

Course: ONCOLOGICAL PROPEDEUTICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	12/15	E	2

Syllabus: ONCOLOGICAL PROPEDEUTICS

Aim of the study is to provide students with basic knowledge of aetiopathogenesis, diagnostics and therapy of neoplastic diseases and the theoretical basis for study of clinical oncology. The course is aimed to technical skills and methodological approaches in the localisation diagnostics of tumours and the methodology of radiotherapy and chemotherapy.

LECTURES:
Tumour cell, morphological, metabolic, antigenic, and growth differentiation from the normal cell. Basic regulation mechanisms of cell replication and their changes in oncogenesis. Mechanisms of malignant cell conversion. Premalignant stages, risk aetiologic factors. Kinetics of malignant conversion, cancer prevention. Tumour pathogenesis. Primary cancer, the mechanisms of local invasive and infiltrative growth, tumour dissemination. Classification of malignant tumours, grading, staging, TNM. Epidemiology of cancer. Tumour immunology. Diagnostics of cancer, multimodal cancer treatment.

CLINICAL TRAINING:
The course provides students with basic knowledge of diagnostic and therapeutic modalities and skills needed to deal with cancer patient. New, highly specific modalities will be discussed including tumour markers. Basic instructions to establish diagnosis of a malignant disease and to propose its pertinent treatment.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: PAEDIATRIC PROPEDEUTICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	29/25	E	3

Syllabus: PAEDIATRIC PROPEDEUTICS

Characteristics of different age stages. Psychomotor development: gross motor skills, fine motor skills, language development, social-adaptive development and sensoric perception. Evaluation of psychomotor development. Growth characteristics during childhood. Growth proportionality. Evaluation of growth parameters. Bone age and teeth age. Puberty - main characteristics. Energetic and biological composition of nutrients. Vitamins. Nutrition of infants - breast feeding and artificial feeding. Nutrition of toddlers and children. Screening of inborn errors of metabolism. Vaccination. Preventive examinations in infancy. Dispensarisation of children with chronic diseases. History. Physical examination in pediatrics. Prenatal care. Care of the newborn after delivery. Examination of the newborn. Characteristics of the mature and premature newborn. Hypotrophic, overweight and postmature newborn, Elementary reflexes in the newborn. Nutrition of the newborn. Preventive measures in the neonatal period. Neurological examination of the newborn, infant and child. Special features of the developing blood circulation. Examination of the cardiovascular system. ECG characteristics in childhood. Echocardiography. The most frequent symptoms of cardiovascular disease. Anatomical and physiological characteristics of the respiratory system. Physical examination of respiratory system. The most frequent signs and symptoms of respiratory disease. Pulmonary function tests. Development of haemopoiesis. Haemostasis. Metabolism of iron. Anatomical and physiologic features of the digestive system in childhood. Examination methods in gastroenterology. The most frequent symptoms and signs of gastrointestinal disease. Anatomy and physiologic characteristics of the infant kidney. Examination of the urinary system. The most frequent signs and symptoms of urinary tract diseases. Distribution of body fluids in children. Regulation of water and electrolyte balance. Acid-base balance. Special features of the endocrine system in children. Main characteristics of hypo and hyperfunction syndromes in pediatric endocrinology. Sexual differentiation and its disorders. Disorders of muscles, bones and joints - general symptoms.

LECTURES:

Introduction to pediatrics. Characteristics of different age stages in childhood. Psychomotor development. Growth and puberty. Breast feeding. Artificial feeding. Nutrition of toddlers and older children. Preventive care in childhood - vaccination. History taking. Principles of physical examination in newborns, infants and children. Mature and premature newborn. Main characteristics and essential examinations of the cardiovascular system, blood, respiratory, urinary and gastrointestinal systems in childhood.

CLINICAL TRAINING:

Characteristics of different age stages in childhood. Assessment of main milestones of psychomotor development in children. History taking. Examination of infants and children. Nutrition. Breast feeding. Human milk bank (Lactarium). Formula feeding - "milk kitchen" in hospital. Essential diagnostic and therapeutic skills in pediatrics.

Examination - written part (test)
- oral part

Study branch: GENERAL MEDICINE

Course: PAEDIATRICS 1, 2, 3

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	24/25	es	2
5th	winter	29/25	es	2
	summer	29/25	E	3

Syllabus: PAEDIATRICS 1, 2, 3

Newborn at risk. Asphyctic syndrome. Cardio-respiratory disorders, metabolic, haematologic disorders, the infant of a diabetic mother. Birth injury. Infections of the foetus and newborn. Congenital diseases of the newborn. The importance of prenatal care, prenatal diagnostics. Morbus haemolyticus neonatorum. Morbus haemorrhagicus neonatorum. Premature child. Disorders of adaptation. Respiratory diseases. Congenital disorders of the respiratory organs. Acute respiratory infections. Pneumonias. Pleurisy. Recurrent and chronic respiratory diseases. Bronchiectasis. Respiratory allergies. Cystic fibrosis. Foreign body aspiration. Tuberculosis. Congenital disorders of the genitourinary tract. Infections of the urinary tract. Glomerulonephritis. Nephrotic syndrome. Renal failure - causes, clinical course, laboratory findings, therapy, prognosis. Renal tumours. Tubulopathies. Enuresis nocturna. Disorders of the endocrine glands. Diseases of the adrenal glands. Disorders of sexual differentiation. Disorders of puberty. Obesity. Anorexia nervosa. Diabetes mellitus. Hypoglycaemic states. Disorders of calcium metabolism. Rickets. Polyuria and polydypsia. Anaemias. Disorders of the white blood cells. Lymphadenopathies. Malignant diseases of the lymphatic system. Bleeding disorders. Congenital diseases of the heart and great arteries. Cardiomyopathies. Systemic hypertension. Heart failure - acute, chronic. Rheumatic heart diseases. Infectious endocarditis. Pericarditis. Myocarditis. Diseases of the connective tissue. Diseases of the gastrointestinal tract. Diseases of the liver. Types of dehydration. Inborn errors of metabolism of carbohydrates, fats and proteins. Phenylketonuria. Mitochondria! disorders. Congenital diseases of the CNS. Cerebral palsy. Inflammatory diseases of the CNS. Disorders of muscles. Convulsions. Headache. Diseases of bones, Dermatologic diseases of infants. Chromosomal aberrations. Monogenous diseases. Emergencies in paediatrics. Principles of pharmacotherapy in childhood. Social paediatrics. Ethics in paediatrics. Abused child. Children rights. Handicapped child. Functioning of the family, mistakes in family care. Foster care. Medical care of children in institutional facilities.

LECTURES:

Pediatrics 1

Acute respiratory tract infections. Pneumonias. Relapsing and chronic diseases of the respiratory tract. Bronchiectasis. Foreign body aspiration. Cystic fibrosis. Bronchial asthma. Anaemias - diagnostics. Diseases of the white blood cells. Diseases of the lymphatic system. Bleeding disorders. Dyspepsia simplex, toxica - dehydration. Rehydration, parenteral nutrition, realimentation. Failure to thrive. Malabsorption. Diseases of the liver, gallbladder and pancreas. Peptic ulcer of the stomach and duodenum. Diseases of the large intestine.

Pediatrics 2

Hypertension. Physiologic aspects of the neonatal period. Emergencies in the neonatal age. Newborn at risk. Low-birth-weight newborn. Asphyxia and respiratory diseases of neonates. Morbus haemolyticus neonatorum. Mental anorexia. Puberty. Diabetes mellitus. Obesity. Diseases of the thyroid and parathyroid glands. Congenital adrenal hyperplasia. Disorders of growth. Diseases of the connective tissue.

Pediatrics 3

Inherited diseases - monogenic and chromosomal. Congenital heart diseases. Heart failure. Treatment of heart defects. Glomerulonephritis. Nephrotic syndrome. Infections of the urinary tract, obstructive uropathies and vesicoureteral reflux. Acute and chronic renal failure. Tubulopathy.

CLINICAL TRAINING:

Newborn at risk. Birth injury. Infections of the foetus and newborn. Asphyxia and hyaline membrane disease. Congenital diseases of the newborn. Morbus haemolyticus and morbus haemorhagicus neonatorum. Convulsions of the newborn. Premature child. Disorders of adaptation. Acute respiratory diseases. Chronic respiratory diseases of non-allergic origin. Respiratory allergoses. Infections of the urinary tract. Glomerulonephritis. Nephrotic syndrome. Renal insufficiency. Tubulopathy. Enuresis nocturna. Disorders of growth. Diseases of the thyroid. Diseases of the adrenal glands. Disorders of sexual differentiation. Disorders of puberty. Obesity. Anorexia nervosa. Diabetes mellitus. Hypoglycaemic states. Hypocalcaemia. Polyuria and poiydypsia. Anaemias. Diseases of the white blood cells. Lymphadenopathies. Malignant diseases of the lymphatic system. Haemorrhagic diseases. Congenital diseases of the heart and great arteries. Acquired valve defects. Cardiomyopathy. Systemic hypertension. Rheumatic fever. Rheumatic carditis. Infectious endocarditis. Pericarditis. Myocarditis. Juvenile chronic arthritis. Congenital disorders of the gastrointestinal tract. Vomiting. Abdominal pain. Diarrhoea. Chronic disorders of nutrition. Diseases of the liver. Metabolic diseases. Congenital disorders of the CNS. Cerebral palsy in infancy. Disorders of muscles. Convulsions. Headache.

Evaluation of subject

Examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: PSYCHIATRY 1

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	24/25	es	2

Syllabus: PSYCHIATRY 1

Introduction to general psychiatry. Disturbances of perception attention, memory and thinking. Disturbances of intelligence, emotions, drives, will and action. Disturbances of personality.
Overview of methods of examination in psychiatry, psychiatric interview, special diagnostic methods Basic of psychological testing methods. Overview of therapeutic methods in psychiatry - biological methods. Psychotherapy. Principles of emergency treatment in psychiatry. Legal issues in psychiatry. Mental health care system in psychiatry. Psychiatric syndromes. Clinical psychiatric examination, psychiatric medical history. Assessment of cognitive function with screening instruments (MMSE, Clock test)

LIST OF LECTURES:
Introduction to general psychiatry. Disturbances of perception attention, memory and thinking. Disturbances of intelligence, emotions, drives, will and action. Disturbances of personality.
Overview of methods of examination in psychiatry, psychiatric interview, special diagnostic methods Basic of psychological testing methods. Overview of therapeutic methods in psychiatry - biological methods. Psychotherapy. Principles of emergency treatment in psychiatry. Legal issues in psychiatry. Mental health care system in psychiatry. Psychiatric syndromes

PRACTICAL TRAINING TOPICS:
Basic terminology in psychiatry:mental illness, mental disorder, psychosis, non-psychotic disorder, personality disorder, drug addiction. Causative factors and classification of mental disorders. Psychiatric examination. psychiatric medical history. Assessment of cognitive function with screening instruments (MMSE, Clock test)
Demonstration of patients with psychosis. Overview of therapeutic methods in psychiatry. Principles of emergency treatment in psychiatry. Demonstration of electroconvulsive treatment. Basic principles of psychotherapy in general medicine . Mental disorder in childhood and adolescence. Psychiatric service for mental disorder in in childhood and adolescence.

Credits (evaluation´s test in general psychiatry during practical training.)

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: RADIOLOGY AND NUCLEAR MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	12/24	E	2

Syllabus: RADIOLOGY AND NUCLEAR MEDICINE

RADIOLOGY - SYLLABUS OF LECTURES:

Introducing into the radiology. W.C.Röntgen and the discovery of X-rays. Principles of radiophysics. Definition of the radiology and its role in the medecine. Basic and special imaging methods - classification. Conventional and digital radiography - principles. Conventional and Whole body computerised tomography - technics and methodic. Use of contrast media in the radiology - distribution, technic of use, risk factors of their application. Conventional nad digital subtraction angiography - principle, use in praxis. Imaging methods using another form of energy: ultrasonography, magnetic resonance imaging and termography.

RADIOLOGY - SYLLABUS OF PRACTIC:

Imaging of the chest, lungs, heart and vessels, general and special X-ray symptomatology of patological changes. Diagnostic algorithm in the detection of heart lesions, role of mammography an mammosonography. Whole body computed tomography. Imaging of the gastro-intestinal tract - general and special symptomatology of its pathological changes. Use of endocavitary sonography and duplex-doppler sonography. Magnetic resonance imaging. Genitourinary tract - diagnostic algorithm. Skeletal system. Basics of neuroradiology - diagnostic algorithm. Interventional radiology.

NUCLEARE MEDECINE - SYLLABUS OF LECTURES:

Priciple of diagnostic and therapeutic methods in nuclear medecine. Dividing of in vitro and in vivo diagnostic methods in nuclear medecine. Scintillation detector, Scinigraph. Scintigram. Scintigram camera. Scintillation camera joined with computer system. Emission Computed Tomography (ECT), Positron emission tomography (PET). Radiopharmaceuticals. Definition and characteristics of radiopharmaceuticals. Tailoring of radiopharmaceuticals. Clinical forms of radiation damages. Acute radiation disease. Chronic radiation disease. Internal contamination with radionuclides. Principle of radiation hygiene in nuclear medecine. Risk from radiation in nuclear medecine. Main principle for save manipulation in nuclear medecine.

NUCLEARE MEDECINE - SYLLABUS OF PRACTICE:

Dividing and general principles of diagnostic methods in nuclear medecine. Functional radionuclid methods of organs. Localization scintigraphic methods. Radioimmunoassay /RIA). Measuring of body spaces. Radionuclide renography. Diagnosis of gastrointestinal tract disorders. Hepatal localization methods. Diagnosis of pulmonary and cardial disorders. Thyroidal diagnosis. Investigation of osteoarticular system. Diagnosis of central nervous system disorders. Diagnosis of heamatological and lymphatic system disorders. Oncological diagnosis. Radionuclide therapeutic methods (local and metabolic).

Examination - practical part (interpretation of results of diagnostic procedures)
- oral part

Study branch: GENERAL MEDICINE

Course: SOCIAL MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	12/24	E	2

Syllabus: SOCIAL MEDICINE

Social medicine - its origin, development, content and position within medical sciences. Position and objectives of physician in society. The beginning and mission of health care and health care services. Basic phases in the development of public health. Basic health laws in Slovak Republic /history and present/. Health and illness, definition, their interrelationship. Overview of causes of disease. Aethiology, pathogenesis, aethiologic triad. Natural history of disease. Determinants of health and disease, risk factors. International classification of disease. Social and economic significence of health and disease. Chronic non-infectious diseases and their control. Health care systems, objectives of the service delivered /promotional, preventive, curative, rehabilitative, social-medical/, levels of complexity of health care /primary, secondary, tertiary/. Scientific knowledge and limitation of its implementation in health care. Study of health state of population, resource of information, information systems. Basic methods used in social medicine and public health /epidemiology, biostatistics, and social sciences/. Health education and their impact on determinants of health and disease. Employees in health care. Health care and health care services in Slovak Republic. Policy and strategy of health care in different countries. National Health Promotion Programme. Major health problems, possibility of their resolution. Intervention for particularly vulnerable groups. World Health Organisation, its goals and tasks. Non-governmental and profession´s organisations in health care. Quality and economics utilised health services. Health policy in EU and principles utilisation health services in EU. Health policy in Slovak republic.

CONTENT OF LECTURE:
Origin and development of social medicine. Phases of historical development of public health. Theory of health and disease. Determinants of health and disease. Basic principles of study of health state of population. Holistic conception of health and disease. Health activities according to the objective: promotional, preventive, curative, rehabilitative, social-medical. Health care according of level of complexity: self-care, primary, secondary, tertiary. Basic legislation in health care. Medicine and society, social determinantion of health services. Health care and health care systems, international comparisons. WHO “Health 21-health for all in the 21s century”. National Health Promotion Programme. Reform of the health care in the world and in Slovak Republic. Social-medical consequences of non-infectious diseases and their resolution. Quality and economics utilised health services. Health policy in EU and principles utilisation health services in EU. Health policy in Slovak republic.

CONTENT OF SEMINARS:
Resources of information on health state of population. Systems of health care and health care services in general, and in Slovak Republic especially. Health education and life-style determinants of health and disease. Social and health care for particularly vulnerable groups. Legislation in health care services providing. Profession´s organisations in health care. Health care systems in generale, especially in SR.
Credit **(**active participation at all seminars)

Examination - oral form

Study branch: GENERAL MEDICINE

Course: DENTAL MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	winter	12/14	E	2

Syllabus: DENTAL MEDICINE

Restorative dentistry: dental caries - ethiology, prevention, diagnostics and treatment. Diseases of dental pulp and apical periodontium. Septic foci. Defects of dental hard tissues. Management of uncooperative and handicapped patients. **Periodontology** : ethiology, diagnostics, therapy of gingivitis and periodontitis. Prevention in periodontology. Oral mucosa diseases. Oral manifestations of systemic diseases. **Orthodontics:** prevalence of malocclusions, classification. Development of dentition, ethiologic aspects of malocclusions and possibilities of prevention. Diagnostics and treatment. **Prosthetics** : defects of dentition. Importance and aims of prosthetics. Basic types of prosthetic restorations - fixed and removable. Prosthetic treatment of congenital (inborn) defects of teeth and jaws and acquired defects of jaws and face. Implants and replants. Prevention and dispensarisation. Geroprosthetics. **Oral surgery and maxillo-facial surgery:** basic examination, diagnostics and treatment methods. Inflamations - their spreading into the spaces of maxillo-facial and neck region. Traumatology, oncology, temporomandibular joint (TMJ) disorders, lip an palate clefts, reconstruction of the maxillo-facial skeleton and soft tissues. Salivary glands diseases - diagnostics and treatment.

LECTURES:
Developmental anomalies in oral cavity and their therapy. Ethiology and prevention of dental caries. Dental caries and his therapy. Diseases of dental pulp . Endodontic therapy. Findings in oral cavity and prosthetic therapy. Diseases of periodontal tissues - ethiology. Mucosal diseases of oral cavity . Content and problems of maxilofacial surgery. Pain in orofacial area. Diseases of salivary glands. Oncology in orofacial area. Traumatology of orofacial area . Temporomandibular joint disorders.

CLINICAL TRAINING:
Examination and findings in oral cavity. Defects of hard tissues. Hygiene of oral cavity - methods, aids, instructions. Examination and findings on soft tissues and principles of treatment. Findings and diagnosing of mucosal diseases of oral cavity. Case reports - findings on soft tissues of oral cavity. Developmental anomalies in mouth of children and principles of treatment. Dental defects and principles of their treatment. Case reports – dental defects and defects of orofacial area. Diagnostics of diseases of patients on inpatient management ward of maxilofacial surgery. Symptoms and therapy of inflammation. Case reports, oncology of oral area. Case reports – traumatology of oral area. X-ray diagnosing. Cooperation with other medicine disciplines in dental practice.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: SPORTS MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	12/10	E	2

Syllabus: SPORTS MEDICINE

Definition and the aims of sports medicine. Physiological responses and adaptations to exercise (central nervous system, autonomic nervous system, endocrine, sensory, musculoskeletal, cardiovascular, respiratory and excretory system). Immunobiologic resistance. Indications and contraindications of the physical activities in diseases. Physical education and sport in the primary and secondary prevention diseases. Basic principles of physical training. Hypokinetic disease. The state of overtraining. Fatigue. Regeneration. Health risk during exercise. Prevention and treatment of sports injuries. Acute sports injuries. Chronic overloading of the musculoskeletal system. Special populations in sport and exercise (children, adolescents, female athletes, older athlete). Genetic factors limiting physical performance. The athlete's nutrition. Water and electrolyte balance during and after effort. Physical activities and sport under extreme environment (underwater, heat, humidity, cold, medium and high altitude). Desynchronization of circadian rhythms. Medical examination of sportsmen, ECG, X-ray, echocardiographic investigation of athletes. Anthropometry applied to sports medicine. Influence of the body constitution on the physical efficiency. Functional diagnostics in laboratory. Assessment of alactic and lactic anaerobic capacity. Assessment of endurance capacity. Ergometry, spiroergometry. Assessment of strength. Sports medical field evaluation. Doping and doping control.

LECTURES:
Definition and the aims of sports medicine. Musculoskeletal responses and adaptation to exercise. Indications and contraindications of the physical activities in the musculoskeletal diseases. Neural, hormonal and sensory responses and adaptation to exercise. Indications and contraindications of the physical activities in the endocrine, metabolic and neurological diseases. The athlete's nutrition. Respiratory responses and adaptation
to exercise. Cardiovascular responses and adaptation to exercise. Differential diagnosis between hypertrophic cardiomyopathy and physiological heart enlargement. Exercise in the prevention of cardiovascular and respiratory diseases. Basic principles of physical training. Health risk during exercise. Special populations in sport and exercise (children, adolescents, female athletes, older athlete). Physical activities and sport under extreme environment (underwater, heat, humidity, cold, high altitude). Desynchronization of circadian rhythms. Doping and doping control.

CLINICAL TRAINING:
Medical examination of sportsmen. Anthropometry applied to sports medicine. ECG, X-ray, echocardiographic investigation of athletes. Prevention and treatment of sports injuries. Acute sports injuries. Chronic overloading of the musculoskeletal system. Functional diagnostics in laboratory. Sources and release of energy at different stages of the effort. Assessment of alactic and lactic anaerobic capacity. Assessment of endurance capacity. Functional tests of cardiovascular and respiratory systems. Ergometry, spiroergometry. Biochemical measurements before, during and after sports effort. Assessment of strength. Field tests.

Examination - written part (test)

Study branch: GENERAL MEDICINE

Course: DIPLOMA WORK 1

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	summer	0/25	es	2

Syllabus: DIPLOMA WORK 1

Preparation period
Topic and title of the written work.
Cooperation with the supervisor
Condition of the final work at the MFCU
Establishment of goals and schedule for individual periods of the work
Information sources
Sources and expert literature
Survey of chosen sources of medical information on the internet
Bibliographic references and citations
Presentation of authors
Examples of bibliographic references
Citations of bibliographic references
Realization period
Structure of written work
Sections of the main text
Creation of introduction and conclusion of written work
Systemization of parts of written work
Formal arrangement of written work
Final period
How to submit the written work
Opponent's assessments
Progression for defense of the written work

Evaluation of subject

Study branch: GENERAL MEDICINE

SUBJECT: INTERNAL MEDICINE - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	compulsory practice	0/80	c	3

Objective of the subject: INTERNAL MEDICINE - summer practice

The objective of the practice is to obtain practical knowledge at the internal department and check theoretical knowledge at the bedside as well as become acquainted with physicians' activities, their work at the bedside and in internal medicine outpatient department of polyclinics.

Syllabus (practice description)

1. The student gets acquainted with the work of a house officer. Under the supervision of the head of the department or an authorised physician he works at the outpatient and inpatient departments and the inpatient work dominates.
2. The student writes complete medical documentation on admission and discharge of the patient (specialist history, he takes medical records of new patients and records of clinical course (decursus morbi) in patients who were assigned to him (4-5 patients). All work is performed under the supervision of the attending physician. The student takes part in ward rounds of the head of the department.
3. Work in laboratories is an integrated part of the practice. The student carries out basic examinations in assigned patients and assesses findings.
4. Students have two seminars - ECG and X-ray - where they under the supervision of a responsible physician interpret and evaluate ECG and X-ray images. They take part in seminars where they report on particular cases of disease.
5. The student takes active part in practical diagnostic and therapeutic procedures: application of injections, infusions, transfusions (under supervision of the physician), blood, urine, sputum and other material samplings. The student passively takes part in various punctures (sternal, thoracic, abdominal, hepatic) and in various sophisticated examinations (gastroscopy, bronchoscopy, laparoscopy).
6. In assigned patients the student independently carries out urine tests (chemical, biochemical and microscopic). Under the supervision of the chief laboratory worker the student familiarizes with examinations of blood picture, haemoglobin and blood smear.
7. The student familiarizes with the work at admission office and occasionally with work of general practitioner.
8. The student is obliged to perform 2 night shift duties.
9. The student takes active part in educational activities among patients, morning staff meetings and scientific seminars.

Credits

Study branch: GENERAL MEDICINE

SUBJECT: SURGERY - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th	compulsory practice	0/80	c	3

Objective of the subject: SURGERY - summer practice

The objective of the practice is to obtain practical knowledge for the work in appropriate care doing the fieldwork and to test theoretical knowledge from the field of study in solving various, particularly acute conditions in both outpatient and inpatient departments and in ICU.

Syllabus (practice description)

1. To approach professionally to diagnosis and differential diagnosis of emergency episodes, to recognize indications for the surgical treatment and invasive and non-invasive investigative procedures.
2. To familiarize with the principles of antisepsis and asepsis, with techniques and procedures of surgical treatment, preoperative surgical preparation, postoperative care and solution of postoperative complications.
3. In outpatient part the student becomes acquainted with investigative procedures and indications for admitting patients for surgical treatment, with particular documentation and extent of the interdisciplinary cooperation for the needs of diagnosis and treatment in surgical outpatients.
4. Working at the ward the student under the supervision of a specialist familiarizes with the principles of preparing documentation in inpatients, indication of preoperative examinations, preoperative preparation and postoperative care in surgical patients.
5. Under the supervision of a physician the student performs re-bandaging of surgical wounds, catheterises patients, inserts nasogastric probe, administers i.v. injections and infusions. He/she cooperates in administering blood transfusion, in correction of the nutritious deficiency and disorders of aqueous and electrolytic balance, evaluates laboratory findings in correlation with clinical condition.
6. The student participates in drainage and puncture of the bodily cavities, endoscopic examinations, X-ray examinations, invasive and non-invasive examinations of vascular cannulation for parenteral nutrition and monitoring of fundamental functions, he/she assesses X-ray pictures.
7. In the operating theatre the student acquires the principles of antisepsis and asepsis. He/she assists at common surgical procedures and anaesthesia. The student manages local and epidural anaesthesia, premedication, indications for endotracheal anaesthesia, possible complications connected with anaesthesia.
8. The practice includes consultation seminars on chosen topics. The student is active in using his/her knowledge in consultation on present clinical problems.
9. The student performs two night shift duties.

Credits

Study branch: GENERAL MEDICINE

Course: DERMATOVENEROLOGY 1, 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	12/15	es	2
	summer	24/15	E	3

Syllabus: DERMATOVENEROLOGY 1, 2

Physical and chemical damage of skin, Bacterial infections, Viral infections, Sexually transmitted infections, Fungal infections, Episoonosis (Cutaneous infestation), Eczema and dermatitis, Erythematous diseases, Erythemato- squamous and papulous diseases, Blistering diseases, Pustular diseases, Urticaria, Exanthema medicamentosum (toxicodermia medicamentosa), Pruritus, Prurigo, Connective tissue disease, Disorders of vasculature, Disorders of hemostasis, Porphyrias, Disorders of melanin pgmentation, Granulomatosus and necrobiotic diseases, Disorders of the sebaceous glands and relative disorders, Disorders of the hair, Disorders of the nails, Disorders of lips and oral mucosa, Disorders of keratinisation, Nevi, Precanceroses, Benign tumours of skin, Malignant tumours of skin, Pseudolymphomas and malignant lymphomas, Mastocytoses.

LIST OF LECTURES:

winter semester

Erythemato-squamous diseases - psoriasis, parapsoriasis, erythroderma, pityriasis rosea. Papulous diseases - lichen rubber, dyskeratosis follicularis.

Prurigo, pruritus. Blistering diseases - pemphigus, pemphigoides, dermatitis herpetiformis, herpes gestationis. Viral infections - herpes simplex, herpes zoster, verrucae, condylomata acuminata, molluscum contagiosum and other disorders caused by HSV. Bacterial infections - corynebacterium, pyodermas, skin forms of Boreliosis, tbc. Fungal infections - epidermophytia, trichophytia, microsporia, favus, candidiasis.

summer semester

Reactions to medications, urticaria, oedema Quincke. Dermatitis contacta toxica, eczema contactum allergicum. Seborrhoeic dermatitis, Atopic dermatitis , Acne, rosacea, dermatitis rosaceiformis. Sexually transmitted infections - syphilis, gonorrhoea, ulcus molle, lymphogranuloma venereum, granuloma inguinale. Diseases of blood vessels, chronic venous insufficiency. Alopecia - cicatricial, noncicatricial, Diseases of the nails. Disorders of melanin pigmentation. Episoonosis (Cutaneous infestations). Diseases of connective tissue - scleroderma, lupus erythematosus, dermatomyositis, lichen sclerosus et atrophicus.

Disorders of lips and oral mucosa - cheilitis, glossitis, gingivitis. Nevi - organoid, melanocytic. Precanceroses - keratosis actinica, cornu cutaneum, M. Bowen, Leucoplakia, lentigo maligna. Benign tumours - seborrhoeic keratosis, lipoma, fibroma, haemangioma. Malignant tumours - BBC, SCC, M.Paget, malignant melanoma, Peculiar signs of children dermatoses, Genodermatoses - ichtyoses, epiedermolyses, palmo-plantar keratoses.

CLINICAL TRAINING:

Anatomy, physiology and pathophysiology of the skin mucous membranes, principles of morphology. Histological investigation, allergologic anvestigation, patient´s examination. Epidemiological survey, registration. Topical and physical therapy. Mycological investigation. Round in patient´s rooms, demonstration of the skin lesions. Examination of the patient. Venereological examination.

Examination - practical part, oral part

Study branch: GENERAL MEDICINE

Course: EPIDEMIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	12/24	E	2

Syllabus: EPIDEMIOLOGY

Epidemiology - definition, principles, objectives, importance for human society. Methods in epidemiology. Causation in epidemiology. Descriptive epidemiology. Analytic studies. Surveillance. Epidemiology and prevention, levels of prevention.
Basic epidemiological characteristics of cardiovascular diseases, cerebrovascular diseases, chronical respiratory diseases and diabetes.
Sources of infection. Kinds of sources of infection. Characterization of particular kinds of sources of infection, their importance, control measures. Transmission of infectious agents. Classification of infectious diseases - principal groups of diseases. Nosocomial infections, control measures. Epidemic process. Principles of modern control of infectious diseases. Specific prophylaxis and basic immunological principles of vaccination. Adverse reactions and complications following immunization. Basic schedules of immunization. Passive immunization. Active immunization. Decontamination methods of disinfection and sterilization. Disinsection. Rodent control. Statistics in epidemiology. Information systems.

LIST OF LECTURES:
Epidemiology - definition, principles, objectives, importance for human society. Methods in epidemiology. Epidemiology of chronic diseases. Evolution of parasitic properties. Sources of infection. Patient as a source of infection. Carriership of pathogenic microorganisms. Animals as sources of infection. Transmission of infectious agents. Classification of infectious diseases. Intestinal infections. Epidemiology of acute diarrhoeal diseasses. Respiratory tract infections. Infections of skin and external mucosae. Sexually transmitted diseases. Epidemic process. Principles of infectious control of diseases.

PRACTICAL LESSONS:
Nosocomial infections and their prevention. Disinfection and sterilisation in health-care facilities and control of their efficacy. Analysis of chain of infections and possibility of control. Evaluation of efficacy of some vaccines. Vector-borne (blood-borne) infections and demonstration of the most important arthropod vectors. Information systems in epidemiology. Essential epidemiological features of some elected infectious diseases. Actual epidemiological situation in Slovakia and in the world. Epidemiological methods and their application in follow up of some chronic diseases (cancers, diabetes mellitus, etc.).

SEMINARS:
Analysis of published and well documented outbreaks of various infectious diseases, including nosocomial infections.

Examination - oral form

Study branch: GENERAL MEDICINE

Course: GYNAECOLOGY AND OBSTETRICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	24/35	es	3
	summer	24/35	es	3
	compulsory practice	0/80	c	3

Syllabus: GYNAECOLOGY AND OBSTETRICS

Gynaecology: History of gynaecological and obstetrical care in the world and in Slovakia. System of gynaecological and obstetrical care in Slovakia. Development of female genital organs. Normal and topographical anatomy of female external and internal genitalia, pelvic organs. Developmental disorders of female genitalia. Physiology of specific functions of the female reproductive organs. Woman's life periods. Examination methods in gynaecology. Special examination methods in gynaecology. Microbiological examination, cytology, determination of sex, cervical mucus examination, hormonal analysis, menstrual diary and basal temperature, endometrial histology, X-ray examination methods, endoscopic examination methods, ultrasonography, histologic excision, Douglas´s pouch puncture, exploratory laparotomy and diagnostic methods in breast diseases. Sexual life and its disturbances. Menstrual disorders. Anovulatory cycle. Dysfunctional uterine bleeding.Amenorrhoea. Dysmenorrhoea, premenstrual syndrome. Climacteric syndrome, pubertas praecox, delayed puberty. Inflammatory diseases of the female reproductive organs. Sexually transmitted diseases. Tuberculosis of the genital tract. Endometriosis. Benign tumours and false tumours of the reproductive organs and of the mammary gland. Malignant tumours of the female reproductive organs and of the breast. Prebioptic examination methods. Family planning. Malpositions of the reproductive organs. Sterile couple, including methods of assisted reproduction and assisted fertilisation. Infertility. Paediatric and adolescent gynaecology. Specifications of gynaecological examination of child. Congenital abnormalities of genital organs. Foreign bodies in vagina. Medico-legal questions. Urogynaecology. Emergency situations in gynaecology. Gynaecological endocrine diseases. Gonadal dysgenesis, adrenogenital syndrome, pubertas praecox, pubertas tarda, Fröhlich´s syndrome, Kallman´s syndrome, Laurence-Moon-Biedl syndrome, pituitary nanism, anorexia mentalis, Sheehan´s syndrome, hyperprolactinaemia, acromegaly, Cushing´s disease, Cushing´s syndrome, Addison´s disease, hyper and hypothyroidism, polycystic ovary syndrome, climacterium praecox and other endocrine disorders of hypothalamic -pituitary aethiology. Hormonal therapy in gynaecology. Ovarian steroids. Main principles of hormonal therapy. Operative treatment in gynaecology. Conservative treatment in gynaecology.

Obstetrics: Fertilisation of the ovum and its development. Foetus at the end of pregnancy. Morphology and functions of its organs. Placenta and foetoplacental blood circulation. Endocrinology of pregnancy. Galactopoiesis and lactation. Maternal changes in pregnancy. Diagnosis of pregnancy. Obstetrical examination. Basic prenatal care and antenatal education programme. Antenatal care of at risk pregnancy and pathological pregnancy. Normal labour and delivery. Management of precipitate labour and of labour in unfavourable situation. Principles of obstetrical cleanliness. Physiology of normal newborn. Care of newborn. Perinatal demographic statistics. The quality assessment of mother and newborn care. Normal puerperium. Breech delivery. Abortions - spontaneous abortion, termination of pregnancy - causes, clinics, diagnosis, therapy and prevention. Abortion sequelae. Preterm labour. Preterm newborn. Prolonged pregnancy. Ectopic pregnancy. Early gestoses. Preeclampsia. Pregnancy and intercurrent diseases. Abnormalities of the female pelvis and pregnancy and labour. Abnormal development of the foetus. Abnormalities of the placenta. Gestational trophoblastic disease. Foetal membranes, amniotic fluid

and umbilical cord disturbances. The foetus at risk in pregnancy. The foetus at risk during labour. Abnormal uterine action during the labour. Transverse and oblique lie. Abnormal mechanics in vertex presentation. Compound and cord presentation. Malpresentations. Abnormalities of the third labour stage. Genital tract trauma during delivery. Abnormal puerperium. Emergencies in pregnancy, labour, and puerperium. Operations in obstetrics. Obstetric analgesia and anaesthesia.

LECTURES:

Gynaecology: Normal and abnormal development of the female genital tract. Physiology of the female genital tract. Woman`s life periods. Sexual life and sexual dysfunction. Family planning and contraception. Menstrual irregularities. Inflammations of female genitalia. Benign tumours of the female genital tract. Malignant tumours of the female genital tract. Brest diseases. Endometriosis. Malposition of female internal genitalia. Urinary incontinence. Emergencies in gynaecology. Infertility. Evaluation of the infertile couple. Gynaecologic disorders in childhood, puberty and adolescence.

Obstetrics: Fertilisation and further development of the fertilised ovum. Morphology and function of the placenta, foetal membranes, umbilical cord and amniotic fluid. Maternal changes in normal pregnancy. Diagnosis of pregnancy. Basic prenatal care. Identification of pregnancy at risk. Psychoprophylactic preparation for childbirth. Assessment of foetal state in early and in late pregnancy. Reproductive genetics and prenatal diagnosis. Congenital anomalies. Antenatal and intrapartum foetal assessment (amnioscopy, cardiotoco-graphy, doppler ultrasound assesment of blood flow, foetal biophysical assment by ultrasound, biochemical testing). Normal labour and delivery: mechanisms of labour in vertex presentations, stages of labour, clinical course and management of labour. Physiological newborn. Puerperium. Abortion. Premature labour and delivery. Prolonged pregnancy. Ectopic pregnancy. Abnormal pregnancy: preeclampsia, eclampsia. Renal and urinary tract diseases. Gastrointestinal diseases. Hepatobiliary and pancreatic diseases. Haematologic diseases. Cardiovascular and thromboembolic diseases. Abnormal pregnancy: infectious diseases: diabetic pregnancy, isoimmunization, dermatological diseases, malignancy in pregnancy, gynaecological diseases in pregnancy. Abnormal development of the foetus. Pathology of the placenta (exclusive GTD). Abnormalities of the foetal membranes, of the amniotic fluid and the umbilical cord. Intrauterine asphyxia (foetal distress, foetal bleeding). Dead foetus syndrome. Abnormal uterine action: inefficient uterine contractions. Hypotonic uterine activity. Hypertonic uterine activity. Incoordinate uterine action. Diagnosis and management. Abnormal labour and delivery. Malpresentations and malpositions: transverse site, oblique site. Anterior asynclitism or obliquitas Naegele and posterior asynclitism or obliquitas Litzmanni. Positio occipitalis alta sacralis and pubica. Deep transverse arrest. Vertex occipitoposterior position. Compound presentation. Syncipital presentation. Brow presentation. Face presentation. Breech presentation. Pelvic contracture and pregnancy. Cephalo-pelvic disproportion. Obstetric analgesia and anaesthesia. Abnormalities of the third stage of labor and postpartum haemorrhage. Normal and abnormal puerperium. Lactation suppression. Obstetric emergencies. Sudden maternal death.

CLINICAL TRAINING:

Examination of a gynaecologic patient. Microbiology of the vagina, vaginal discharge smear, taking specimens for microbiological, cytological and histological examinations. Practical evaluation of cytological smears. Assistance with gynecological diagnostic and therapeutic tasks. Up-to-date family planning methods, contraception methods. Management of out-patient clinic for family planning. Early diagnosis of pregnancy, examination of a pregnant woman. Early diagnosis of malignant tumours of female genitalia. Obstetrical examination of a woman before labour, treatment in sequential labour stages, obstetrical management of labour. Normal newborn care, pathologic newborn care, resuscitation of the newborn. Suture of vagina and perineum rupture, episiotomy. Examination of women in puerperium. Examination of cases of physiological and pathologic puerperium. Case analysis. Antenatal care, physiological pregnancy, risk and high risk pregnancy, pathologic pregnancy. Management of the prenatal outpatient clinic. Invasive diagnostic methods in gynaecology and obstetrics, operative techniques in gynaecology and

obstetrics. Diagnostic methods for breast diseases. Analysis and case reports of at risk and pathologic pregnancy cases. Diagnosis and differential diagnosis in perinatology. Sterile couples. Management of out-patient clinic for sterile couples. Assisted reproduction. Laboratory diagnostic methods in gynaecology and obstetrics. Analysis of gynecological and obstetrical cases. Processing and elaborating medical patient´s by medical students. Diagnosis and differential diagnosis.

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: INFECTOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	12/25	E	2

Syllabus: INFECTOLOGY

Introduction and general consideration: The relationship of the pathogen and host, virulence factors, host defence mechanisms, epidemiology of infectious diseases, the course of infectious diseases. Fever, haematological, metabolic and biochemical changes during infectious. Changes in consciousness due to infection. Diagnosis, treatment, prevention, prophylaxis of infectious diseases. Anti-infective therapy.

Special section: viral, bacterial, chlamydial, rickettsial, mycotic and parasitic infections.

The most common syndromes and specific issues: Infections of the central nervous system, respiratory tract, urinary tract infections, cardiovascular infections, sepsis, infectious diarrhoea, infections of bones and joints. Differential diagnosis of splenomegaly, hepatomegaly, and lymphadenopathies. Imported infections. HIV infection/AIDS. Nosocomial infections. Infections in compromised host.

LECTURES:
General principles of infectology. Manifestations of infectious diseases, principles of diagnosis, treatment, prevention and prophylaxis of infectious diseases.. Diagnostic and therapeutic problems of fever and fever of unknown origin. Neuroinfections. Infectious diarrhoea. Infectious damages of the liver. HIV infection/AIDS. Infections transmitted by ticks. Failure of antibiotic treatment. Interesting case studies from infectology. Introduction to parasitology.

CLINICAL TRAINING:
Principles of operating and running of a department of infectious diseases. Bed-side discussions. Management of medical records and other documentation of the department. Practical training in the laboratory. Diagnosis and differential diagnosis of infectious diseases. History of illness. Epidemiological and travel history. Rational indication of the laboratory tests. Taking and collecting of biological material for laboratory examination and manipulation with it. Prevention of nosocomial infections.

SEMINARS:
Infectious diarrhoeal diseases. Neuroinfections. Serious bacterial, viral, fungal and parasitic infections. Picture presentation of selected infectious diseasaes. Demonstartion of microscopic preparations. HIV infection/AIDS. Sepsis.

Examination - practical part (patient)
- written part (test)
- oral part

Study branch: GENERAL MEDICINE

Course: OPHTHALMOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	24/25	E	2

Syllabus: OPHTHALMOLOGY

To obtain basic knowleges of the embryology, anatomy, physiology and biochemistry of the eye. To get an overview of the diagnostics and therapy of the most common ophthalmic diseases.

LECTURES:

The place of ophthalmology in the system of medical disciplines. History of ophthalmology. Clinical morphology, embryology and physiology of the eye. Postnatal development of the eye and visual functions.Principles of physiology and photochemistry of the vision. Refractory system of the eye.

Principles of the paediatric ophthalmology and ophthalmogenetics.Congenital glaucoma. The most frequent causes of the blindness and low vision in the infancy - retinopathy of prematurity, tapetoretinal dystrophies, optic nerve anomalies, pediatric cataract, high myopia, and ocular tumours. Strabismus concomittans and paralyticus; amblyopia. Principles of the treatment.

Diseases of auxilliary organs of the eye. Orbit: Anatomy; Exophthalmus; Enophthalmus. Eyebrows: defects of position. Inflammatory diseases (reasons, differ. diagnosis, treatment). Allergic states on the skin. Tumours. Lacrimal organ: glandula lacrimalis. Lacrimal ways - reasons of obstruction. Hydrops sacci lacrimalis. Dacryocystitis purulenta and phlegmonosa: diagnosis, principles of treatment. Dacryocystorhinostomia. The eye and the systemic diseases.

Diseases of the optic nerve and the visual pathways. Neuritis n.opticici intraocularis and retrobulbaris. Aethiology, diagnosis and differential diagnosis. Oedema of the disc. Atrophia n.optici post neuritidem and atrophia simplex. Elementary neouroophthalmology. Intraocular tunours

Diseases of the conjunctiva: Conjuctivitis. Aethiology, diagnostic, treatment. Diseases of the fibrous capsule of the eye. Keratitis: a/ superficial b/ deep: parenchymatosa (profunda) and disciformis. Aetiology, diagnosis, and treatment. Complications and consequences. Episcleritis and scleritis. Degenerative diseases of the cornea, keratoplasty. Diseases of the uveal tract: Iridocyclitis. Chororetinitis. Glaucomas: Principles of the intraocular pressure maintance and accepted theories of the regulation. Glaucoma diseases : primary glaucoma a/ Closed-angle glaucoma b/ Open angle glaucoma; c/ Other types of the glaucoma, Secondary glaucoma; Absolute glaucoma. Principles of the treatment (medicamentous and surgical). Differential diagnostics of the red eye, importance for a general practician.

Lens: Developmet, physiology and bichemistry. Cataracta senilis, complicata,traumatica, secundaria. Diagnosis and microsurgical treatment. Aphakia and correction of aphakia. Subluxatio et luxatio of the lens and artifitial lens. Abnormalities of the lens shape and position. Principles ofthe refractive surgery.

Vitreous body.Diseases of the vitreous body. Retinal detachment. Macular diseases.Age related macular degeneration.

Vascular diseases of retina. Disturbances of the circulation in retinal vessels (embolia and thrombosis). Retinopathies: sclerotic and hypertonic, diabetic, eclamptic and diseases of the blood. Laser treatment of the diabetic retinopathy. Ophthalmo-gerontology and geriatry. Traumatology of the eye. Lid wounds. Orbital fractures. Mechanical injuries of the globe: closed and open. Terminology, diagnostic, treatment. Thermo-chemical burns of the eye and

mixts. Damage of the eye caused by ionizing (X-Ray) and non-ionizing radiation (ultraviolet and infrared spectrum). First aid and professional ophthalmological aid.

PRACTICAL LESSONS:

Anatomy of the eye. Dissection of the animal eye. Demonstration of the most common intraocular surgeries on the animal eye. Dioptric sysem of the eye. Visual acuity testing. Refractive errors of the eye, diagnostic and correction. Accomodation and presbyopy. Colour sense and its examination. Examination of the optic parts of the eye. Transillumination of the eye. Patinets demostration.

Glaucomas: diagnostic and treatment. Perimetry. Tonometry. Screening of glaucomas. Demonstration of: ultrasonography ,fluorescein angiography, optical coherence tomography

Objective examination of the eye: inspection, exophthalmometry, tear film-Schirmer test. Diagnostic procedures in the day light. Slit-lamp biomicroscopy. Diagnistic of the lacrymal ways disturbances.

Pedoophthalmology. Examination of the patients at the children´s department. Squint. Consevative and surgical treatment of the squint.

Patients examination. Direct and indirect ophthalmoscopy. Ophthalmic injuries. First aid in ophthalmology. Local treatment by drops and ointments. Demonstration of patient before and after various types of intraocular surgeries (cataract, retinal detachment, vitrectomy).

Patient examination. Recording of the patients history, examination of the eye, diagnosis. Discussion with an assistent. Classification.

Examination

Study branch: GENERAL MEDICINE

Course: OTORHINOLARYNGOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	summer	14/35	E	2

Syllabus: OTORHINOLARYNGOLOGY

Clinical anatomy and physiology of the nose, paranasal sinuses, pharynx, larynx, oesophagus, ear and neck. Basic investigation methods of ENT organs in children and adults. Symptomatology of the ENT diseases. Diseases of ear, nose, paranasal sinuses, pharynx, larynx, oesophagus, neck lymph nodes. Urgent situation in otolaryngology (tracheotomy, coniotomy, intubation). Intracranial complications. Basics of phoniatrics.

LECTURES:
Otolaryngology, introduction. Diseases of the larynx, pharynx and oesophagus. Diseases of the neck, endoscopy. Voice, speech and hearing disorders. Diseases of the nose and paranasal sinuses. Hearing and diseases of the ear. Paediatric otolaryngology.

CLINICAL TRAINING:
Introduction to the clinical anatomy, physiology, symptomatology of the diseases with the stress to the oncological diseases. Anterior and posterior rhinoscopy, endoscopy of the nose and paranasal sinuses, diaphanoscopy. X-ray of nose and paranasal sinuses, CT, MR, ultra-sonography, irrigation. Anterior and posterior nasal packaging. Review of surgical procedures in the nose and paranasal sinuses. Training in the methods of investigation, demonstration of the patients, medical history of patients. Epi-, meso- and hypopharyngoscopy, laryngoscopy, endoscopy, auscultation of the larynx in stridor. Voice rehabilitation after laryngectomy. Otoscopy, hearing tests with voice, audiological tests, vestibular tests. Demonstration of the patients, medical history of patients. Urgent situations in otolaryngology: Surgery of major neck vessels. Otogenic and rhinogenic intracranial complications and their management. Recent developments in otolaryngology. Examination of the patient, writing medical history of patients. Classification of voice, speech and hearing disorders, their pathophysiology. Speech therapy and psychology in phoniatry. Hearing aids. Methods of investigation in phoniatrics with the stress to laryngostroboscopy. Introduction to the paediatric oto-laryngology: Developmental disorders. Nasal bleeding in children. Injuries, reposition of nasal fractures. Pharynx and oesophagus: developmental disorders, methods of investigation. Salivary glands: methods of investigation. Diagnosis of the neck lymphnodes. First aid in asphyxia in children. Indication for tracheotomy and intubation, laryngoscopy in children. Extraction of foreign bodies, myringotomy. X-ray, CT, MR of the temporal bone. Audiologic tests in children, otoacustic emissions. Indication for ear surgery in children.

Examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: PSYCHIATRY 2

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter	12/25	E	3

Syllabus: PSYCHIATRY 2

Introduction to special psychiatry. Organic mental disorders, mental disorders due to psychoactive substance use. Affective disorders. Schizophrenia, delusional disorders. Stress-induced and anxiety disorders, personality disorders. Mental disorders in old age and in childhood and adolescence. Eating disorders.

LIST OF LECTURES:
Introduction to special psychiatry. Organic mental disorders mental disorders due to psychoactive substance use. Affective disorders. Schizophrenia, delusional disorders. Stress-induced and anxiety disorders, personality disorders. Mental disorders in old age and in childhute and adolescence. Eating disorders.

PRACTICAL TRAINING:
Training in clinical psychiatric interview, in special assessment methods and screening methods (MMSE, MINI, CAGE), in formulation of treatment plan and assessment .Demonstration and examination patients with organic mental disorders. Demonstration and examination of patients with stress-related disorders, with drug addiction. Psychology of the consumatory behaviour (anorexia). Basic principles of psychotherapy in general medicine . Mental disorder in childhood and adolescence. Psychiatric service for mental disorder in in childhood and adolescence.

Evaluationś test during practical training

Examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: URGENT MEDICINE AND MEDICINE OF DISASTERS

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	summer	12/12	E	2

Syllabus: URGENT MEDICINE AND MEDICINE OF DISASTERS

1. Characteristics of the subject Emergency medicine and disaster medicine is a basic branch of medicine that focuses on providing urgent (immediate) health care to persons with acute health threats and / or life threats. This activity is carried out mainly in the first contact with the patient at the stage of pre-hospital care in the emergency medical service and emergency medical department. It has major role in the activities necessary for the health and saving lives in the public interest as particular incidents, mass casualty, unilateral threats, military capabilities of state and so on.
2. The objective of the training course is to acquaint students with these issues and activities:
   a. Disruptions of vital functions - their characteristics, causes and interactions, diagnostic and treatment possibilities.
   b. Primal urgent procedures - immediate resuscitation, basic procedures and enhanced resuscitation, diagnosis of the causes of sudden circulatory arrest, therapies in the immediate resuscitation, securing a patent airway, artificial lung ventilation, circulation and renewal of its support, pharmacological support of immediate resuscitation.
   c. Follow up urgent procedures - oxygen, mechanical ventilation, defibrillation, cardioversion, pacing, peripheral vein, assistance in the implementation of central venous catheter via intraosseal access, assistance in puncture and thoracic drainage, the introduction of nasogastric probe, Blakemor-Sengstaken/Linton probe gastric lavage, bladder catheterization, the measures in convulsion, sedation, analgesia, anesthesia, monitoring and management of documentation in the pre-hospital care.
   d. Postagressive syndrome - a response to the load. shock and its forms, prevention and treatment in pre-hospital stage.
   e. Urgent traumatology care for patients - the treatment of wounds, stopping bleeding, dressing technique, treatment and fixation of fractures and joint injuries, traumatic amputations and treatment amputates, fixation and immobilization techniques.
   f. Rescue and transport equipment, positioning of patients with sudden impairment of health.
   g. Nursery care of patients and injuries in the pre-hospital stage.
   h. Department of urgent income - income and continuous care of patients with regard to patients in critical condition. Stabilization of vital functions, participation in the work of a team of specialists. Knowledge of symptoms for the diagnosis, treatment and prognosis conditions requiring resuscitation and intensive therapy, ways to support vital functions and substitution of critical conditions. Psychological aspects of care for critically ill patients. The criteria for brain death, transplantation program.
   i. Medicíne of disasters - disasters, mass casualty, wounded sorting, START, terrorism, biological agents annoying, annoying chemical substances, radiation protection, trauma-tology and emergency plan.

Examination

Study branch: GENERAL MEDICINE

Course: FAMILY MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	winter/summer	10/0	es	1

Syllabus: FAMILY MEDICINE

Aim of the course: to induce the students into problems related to family doctor praxis

LECTURES:
Primary health care in Slovak Republic, capitation, inssurances, role of the familly doctor in Slovakia and in the world. Diferencial diagnosis of the abdominal pain, chest pain, anemias and endocrinopathies in family doctors praxis. Basic role of the family doctors from psychologist point of view.

PRACTICALS:
Problem oriented education : fever, diarhoe, enlarged lymphnodes syndrome, icterus.

Evaluation of subject

Study branch: GENERAL MEDICINE

Course: FORENSIC MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	summer	12/25	E	2

Syllabus: FORENSIC MEDICINE

Forensic medicine - its purpose and role in medicine and society. System of forensic medicine service. Structure of courts and prosecution office. Criminal code, code of criminal procedure, civil code and code of civil procedure. Classification of crimes and offences. Definition of crimes and offences. Exculpation from criminal liability. Crimes against life (murder, infanticide, illegal abortion, inducing to suicide). Crime against health (assault and battery, spreading veneral diseases). Serious bodily harm and its sign. Crimes against human dignity (rape, sexual abuse, incest). Children maltreatment (abuse). Criminal trespass and nuisance (offences under drug intoxication, drunkeness, rowdiness, procuring immoral and indecent crime, negligence in first aid). Bribery. Classification of punishment. Qualified defence in criminal liability. Medical practicioner as a professional witness, as an expert witness. Perjury, false expertise (expert testimony). The role of medical practicioner within a system of criminal justice. Order of protective treatment. Medical responsibility. Professional secrecy in medical practicioner and medical staff. Legal and ethical aspects of transplantation. Death and the process of dying. Uncertain and certain signs of death. Procedure in the death, duties of medical practicioner. Vital reactions of human organism. Early and late postmortem changes. Establishing the time of the death. Sudden death in children and adults. Abrasions and heamatoma. Lacerations and lacero-contused wounds. Wounds from biting. Stab wounds, incision wounds, hacking wounds. Gunshot wound caused by single projectile, shotgun pellets, explosion. Mechanical asphyxia and its classification. Asphyxia due to hanging, strangulation and throttling. Asphyxia due to the chest immobilization, obstruction of airways. Drowning and the death in water. Starvation. Fractures of cranial roof and cranial base. Traumatic haemorrhage, epidural, subdural haematoma, traumatic encephalorrhagia. Fall from the height. Injuries in the road traffic: pedestrian, bicyclist, motorcyclist, driver, passenger. Injuries in the railway traffic. Effect of high and low temperature on human organism. Effect of increased and decreased air pressure on human organism. Electrical injuries including stroke of lightning. Medico legal expertise of pregnancy, delivery and abortion. Abortion and death following abortion. Murder of newborn child committed by a mother. Definition of poison and poisoning. Arsenic, mercury and talium poisining. Carbon monoxide poisoning, asphyxia in carbon dioxide enviroment. Ethanol and methanol poisoning. Hydrocyanic acid and pesticide poisoning. Mushroom and psychopharmaceuticals poisoning. Collection and sending material for toxicological and chemical analysis. Medicolegal aspects of drug addiction.

LECTURES:

Forensic medicine. Selected parts of criminal code. Basic principles of the code of criminal procedure. Examination of the corpse. Autopsy. Death, process of dying, supravital reactions and their importance for transplantations and investigation of the crime. Post mortem changes, establishing the time of the death. Mechanical injuries. Gunshot wounds. Biomechanics of bone fractures. Suffocation. Effect of increased decreased air pressure, high and low temperature and electricity on human organism. Starvation. Traffic accidents. Selected poisonings.

PRACTICAL LESSONS:

Demonstration of autopsy. Examination of the corpse. Death certificate. Examination of drunkeness. Simulation, dissimulation. Disability and its examination. Expert witness, expertise, medicolegal certificate. Forensic chemistry and toxicology: obtaining samples for examination from living persons, corpses, basic examination procedures.

Examination - oral form

Study branch: GENERAL MEDICINE

SUBJECT: GYNAECOLOGY AND OBSTETRICS - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	compulsory practice	0/80	c	3

Objective of the subject: GYNAECOLOGY AND OBSTETRICS - summer practice

The main objective of students' summer clinical practice is to acquire or deepen the bases of obstetrical and gynaecological examination and special examining methods together with diagnostic procedures in this field.

Syllabus (practice description)

1. During the practice at the gynaecological-obstetrical department the student will familiarize him/herself with work at particular units of the department. Under supervision of delegated experienced physicians the student will perform the activities of a junior house officer.
2. **Delivery room:** The student will familiarize him/herself with work policy under supervision of a physician in attendance. He/she participates in admitting women in labour, in performing obstetrical examination, in labour monitoring, in assisting at delivery, in suturing of obstetrical wounds. He/she performs at least two physiological deliveries under supervision of an obstetrician. He/she acquires the principles of obstetrical cleanliness (noninfections, asepses, antisepses, disinfections and sterilizations). At the lying-in department he/she observes postpartum course in puerperal women, their treatment, process of breast feeding, etc.
3. **Operating theatre:** At the ward the student attends to preoperative preparation and postoperative care of patients. In the operating theatre he/she assists at routine surgical interventions, establishes the principles of antisepsis and asepsis, assists at administering anaesthesia.
4. **Inpatient department:** At the department of pathological pregnancies he/she familiarize him/herself with cases of risk and pathological pregnancy, diagnostics and treatment of such cases. At the gynaecological department and a gynaecological day surgery room he/she observes diagnostics and treatment of gynaecological diseases and participates in performing minor interventions (punctures, curettages).
5. **Outpatient department:** At the surgery the student shall learn methods and techniques of gynaecological examination and minor gynaecological affections. Concerning oncological prevention he/she shall familiarize him/herself with the methods of early diagnostics of carcinomas (cytology, colonoscopy, breast examination), with description of health education and methods of its performance. At the antenatal centre he/she shall acquire the principles of prevention in obstetrics, obstetrical examination, occupational risks in the course of pregnancy, and he/she familiarizes him/herself with hospitalization requirement in threatened pregnancy.
6. **Counselling:** The student participates in performing specialised counselling (for pathological pregnancy, for sterile couples, contraception and oncogynaecological counselling, etc.).
7. **Specialised units of the department:** The student familiarizes him/herself with the principles of sonographic and X-ray examination in gynaecology and obstetrics, with special laboratory methods, etc. He/she participates in meetings and professional seminars. Appropriate division and rotation at particular units will be performed by the head of the practice in collaboration with the head of the department or his deputy.
8. The student shall perform 2 night shift duties.

Credits

Study branch: GENERAL MEDICINE

SUBJECT: PAEDIATRICS - summer practice

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	compulsory practice	0/80	c	3

Objective of the subject: PAEDIATRICS - summer practice

The objective of the summer clinical practice is to gain practical knowledge necessary for work and performance of a doctor in the field of primary healthcare and to check theoretical knowledge of the subject field while solving problems connected with the work of a doctor - paediatrician in the outpatient and inpatient departments.

Syllabus (practice description)

1. The student works at the bedside under the house officer's supervision, examines the patients, takes medical records, drafts diagnostic and examination methods, follows administrative procedures and keeps medical documentation. The student familiarizes him/herself with the forms and manages administrative procedures in admitting and discharging patients.
2. The student regularly takes part in ward rounds, in cooperation with the house officer monitors the progress of the disease, makes the diagnosis and participates in the therapy.
3. During this practice the student masters venipuncture, administration of injection treatment, inserting a gastronomic probe, bladder catheterisation, taking biomaterial for laboratory tests (blood, urine, stool and puncture samples). The student acquires all diagnostic and administrative procedures connected with blood transfusion administration.
4. The student attends special examinations – ultrasound screening, special X-ray examinations (cystography, i.v. urography, etc.), endoscopic examination.
5. During their work at the children's outpatient department the student becomes acquainted with the system of dispensation, keeping medical documentation and duties of a paediatrician-specialist related to health insurance companies requirements.
6. The student performs 1 night shift duty.
7. Preparation of a seminar - case reports or a review from specialist literature.

Credits

Study branch: GENERAL MEDICINE

Course: GYNAECOLOGY AND OBSTETRICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
6th	state examination block	18/54	es	6

Syllabus: GYNAECOLOGY AND OBSTETRICS

Enlargement of the basics gynaecology and obstetrics and the practical procedurs in gynecology and obstetrics.
Students are assigned to various parts of the department, where they work as junior registrars under the supervision of senior lecturers and associate professors. They improve themselves in basic examination methods, diagnosis, differential diagnosis and conservative and operative therapy options in obstetrics and gynaecology and in some special diagnostic procedures including X-ray examination, ultrasonography. Doppler sonography, amnioscopy, amniocentesis, endoscopic diagnostic procedures, etc. Students assists with gynecological and obstetrical operations. In special outpatient departments they acquaint themselves with special branches and aspects of obstetrics and gynaecology.

Evaluation of subject

State examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: INTERNAL MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
6th	state examination block	72/396	es	18

Syllabus: INTERNAL MEDICINE

CLINICAL TRAINING:
Attendance in the out-patient department, introduction to the work of the physician in the out-patient department, approach to urgent situations and acute conditions management (stomach irrigation). Attendance in oncologic, haematologic and transfusion departments. Becoming familiar with the work in the intensive care unit - cardiopulmonary resuscitation, defibrillation. Practice covering the range of a registrar: Participation in the morning conference, bedside examination and ward round reports, elaboration of medical documentation, diagnostic and therapeutic proposals, epicritic and differential diagnostic analyses. Insight into propedeutic examination methods and their use for diagnosis. Evaluation of results of the complementary examinations. Insight into diagnostic and standard therapeutic methods in internal medicine. Acquiantance with all available standard non-invasive methods used in internal medicine. Preoperative examination and operative risk evaluation. Individual X-ray evaluation (the chest, the stomach, native abdomen radiography, intravenous pyelography, cholecystography, irrigography). Individual ECGs evaluation. Urinalysis and analysis of urinary sediment. Urinary bladder catheterisation. Biologic specimen collections. Venepuncture, injection and infusion (adminstration). Abdominal tap. Abdominal fluid examination (Rivalt's test, cytology). Assistance in various diagnostic and therapetic procedures.

SEMINARS:
Severe side effects of drugs. Topical problems in oncology. Principles of haemotherapy. The patient before and after transplantation. Acute conditions in gastroenterology. Differential diagnosis of hypertension. Cardiac arrythmias. Shock. Heart failure. Therapeutic rehabilitation in internal medicine. Respiratory insufficiency. Fluid and electrolyte abnormalities. Haemostasis disorders. Acute coronary syndrome. Progress in rheumatology. Hepatic insufficiency. Altered states of consciousness and intoxication. Peripheral vessel diseases. Intoxication by the poison of unknown origin.

Evaluation of subject

State examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: SURGERY

Class	semester	hours of lectures/practical lessons	examination/es	credits
6th	state examination block	48/264	es	15

Syllabus: SURGERY

House officer's in general and paediatric surgery, urology, neurosurgery, ortho-paedics and plastic surgery.

SEMINARS:
Differential diagnosis of abdominal pain. Hypovolemic and septic shock. Organ transplantations. Bandages and bandage technique, diagnosis and treatment in gastrointestinal bleeding. Consultations in cardiosurgery, orthopaedics, neurosurgery, plastic surgery and urology. Surgical diseases of the oesophagus. Diagnosis and therapy of acute and chronic vascular occlusions. Acute stomach in children. Felon, phlegmon, abscess, furuncle, carbuncle, hydrosadenitis. Diabetes and surgical diseases. Injuries of the spine and spinal cord. Conservative and surgical treatment of fractures. Surgical diseases and injuries of the thorax and intrathoracic organs. Resuscitation of circulation and respiration. Principles of treatment in water-electrolyte imbalance and ABR in surgery. Congenital malformations of the spine and spinal cord. Intensive care in paediatric surgery. Injuries in children. Anorectal malformations. Congenital megacolon. Thoracic surgery in children. Acute abdominal episodes in children. Loss injuries and their definite treatment and therapy.
Evaluation of subject

State examination - practical part
- oral part

Study branch: GENERAL MEDICINE

Course: PAEDIATRICS

Class	semester	hours of lectures/practical lessons	examination/es	credits
6th	state examination block	72/324	es	16

Syllabus: PAEDIATRICS

CLINICAL TRAINING:

Newborn at risk. Birth injury. Infections of the foetus and newborn. Asphyxia and hyaline membrane disease. Congenital diseases of the newborn. Morbus haemolyticus and morbus haemorhagicus neonatorum. Convulsions of the newborn. Premature child. Disorders of adaptation. Acute respiratory diseases. Chronic respiratory diseases of non-allergic origin. Respiratory allergoses. Infections of the urinary tract. Glomerulonephritis. Nephrotic syndrome. Renal insufficiency. Tubulopathy. Enuresis nocturna. Disorders of growth. Diseases of the thyroid. Diseases of the adrenal glands. Disorders of sexual differentiation. Disorders of puberty. Obesity. Anorexia nervosa. Diabetes mellitus. Hypoglycaemic states. Hypocalcaemia. Polyuria and poiydypsia. Anaemias. Diseases of the white blood cells. Lymphadenopathies. Malignant diseases of the lymphatic system. Haemorrhagic diseases. Congenital diseases of the heart and great arteries. Acquired valve defects. Cardiomyopathy. Systemic hypertension. Rheumatic fever. Rheumatic carditis. Infectious endocarditis. Pericarditis. Myocarditis. Juvenile chronic arthritis. Congenital disorders of the gastrointestinal tract. Vomiting. Abdominal pain. Diarrhoea. Chronic disorders of nutrition. Diseases of the liver. Metabolic diseases. Congenital disorders of the CNS. Cerebral palsy in infancy. Disorders of muscles. Convulsions. Headache.

SEMINARS:

Disorders of electrolyte balance, principles of treatment. Differential diagnosis of chronic pulmonary diseases. Current problems in paediatric endocrinology. Ethics in paediatrics and contemporary problems of social medicine. Differential diagnosis of arthritis. Chronic intestinal inflammatory diseases. Newborn - differential diagnosis of cardiorespiratory distress, development of ECG changes in childhood, critical heart defects in the neonate. Differential diagnosis of jaundice and anaemias in the neonatal period. Inborn errors of metabolism. Current topics in paediatric nephrology. Differential diagnosis of obstructive uropathies. Intensified treatment of diabetes mellitus.

Evaluation of subject

State examination - practical part
- oral exam

COMPULSORY OPTIONAL SUBJECTS

Study branch: GENERAL MEDICINE

Course: CHILD AND ADOLESCENT PSYCHIATRY

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th/5th	**winter**	**24/0**	**E**	**2**

Syllabus: CHILD AND ADOLESCENT PSYCHIATRY

Global disorders of development - quantitatively.
Global disorders - qualitatively (developmental crisis, development modified by illness, sign of illness in developmental stages).
Syndromology in child and adolescent psychiatry.
Partial developmental disorders with the beginning usually in childhood and adolescence (hypercinetic syndromes, conduct disorders, emotional disorders, disorders of isolation, disorders in social relationships, tics and others).
Partial developmental disorders such as behavioural syndromes associated with physiological disorders and somatic factors in childhood and adolescence (disorders of eating, disorders of sleeping, sexual dysfunction).
Specific developmental disorders (reading disorder, speech disorder, language motorial function, pervasive disorders).
Mental retardation.
Abnormal psychical reactions and neurosis in childhood and adolescence.
Psychosis and organic mental disorders in childhood and adolescence.
Dependence on psychoactive substances at children and adolescents.
Treatment in paediatric psychiatry.
Ethics and paediatric psychiatry.
Ethics, law and abuse of psychiatry.

Examination

Study branch: GENERAL MEDICINE

Course: DRUGS AND DRUG ABUSE

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	winter	24/0	E	2

Syllabus: DRUGS AND DRUG ABUSE

Drug addiction, basic terms, contemporary drug scene, dictionary of the contemporary generation of the addicted.

Alcoholism, its detection and diagnostics. - Somatic complication of alcoholism, alcoholic psychoses. - Treatment of the alcoholism and its complications. - Opiates, addiction to opiates, complication of the addiction to opiates, treatment of the addiction to opiates.

Cannabinoids, dangers and complications and their use. - Psychostimulation, dependence on psychostimulus, complication, diagnostics and treatment.

Hallucinogens, dangers and complications of their taking. Addiction to drugs, complications, diagnostics and treatment.

Examination

Study branch: GENERAL MEDICINE

Course GYNAECOLOGICAL ONCOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	summer	24/0	E	2

Syllabus: GYNAECOLOGICAL ONCOLOGY

PRACTICAL EDUCATION:
Introduction to the subject (oncologic programme, fight against cancer, dispensarization, reporting of malignant tumours in oncogynaecology).
Non-invasive pre-bioptic investigation methods - morphologic, endoscopic and imaging parts.
Invasive pre-bioptic investigation methods.

LECTURES:
Tumours of the cervix of the uterus.
Tumours of the body of the uterus.
Tumours of ovaries.
1st RTG (neuroradiology).
Tumours of the breast.
Other tumours.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL BIOCHEMISTRY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	winter	24/0	E	2

Sylabus: CLINICAL BIOCHEMISTRY

General clinical biochemistry. Indication of laboratory examinations. Preanalitical and analytical part of examination. Validity of biochem. examination - specificity, sensitivity, predictive value. Checking program. Interpretation of the results and reference values. - plasma proteins and their use in diagnostics. Hyper- and hypoproeinemia, disproteinemia. Electrophoretic examination of plasma proteins and its interpretation. Paraproteinemia. - Lipoproteins and their use in diagnostics. Basic factors of the lipid metabolism. Dangerous factors of cardiovascular diseases. Hyperlipo-proteinemia - primary and secondary, their classification. Differentiation of hyperlipoproteinemia.

Use of plasmatic enzymes in diagnostics. Examination of basic plasmatic enzymes and interpretation of changes in their activities.

Laboratory examination of gastrointestinal tract diseases. Examination of the function of the stomach, intestine and pacreas. Biochemical tests of malabsorption. Examination of pancreatic juice. Nonprimary tests of the pancreas function. Laboratory diagnostics and following the course of the acute pancreatitis.

Laboratory examination of hepatology. Tests for integration of membral hepatocyte, excretory function, proteosyntetic and detoxic function of the liver. Differential diagnostics problems of hepatopathy. Cholestatic syndrome. Tumors affection of the liver.

Laboratory examination of kidney diseases. Chemical examination of the urine. Basic biochemical examination of the patients with suspicion of kidney disease.. Functional examination of the kidney: glomerular filtration and tubular function. Differential diagnosis problems at nephrologic diseases.

Laboratory examination of diabetology. Disorders of metabolism of sacharids. Setting tests of glycemia and glucose tolerance . Stressing tests for the evaluation of the metabolism of sacharides. Biochemical examination of the diabetic. Criterion to judge the preparation of diabetes mellitus. Monitory of the diabetic. Early diagnosis of diabetes complication.

Laboratory examination of heart diseases. Biochemical tests for examination the state of myocardium. Laboratory value development of different cardiac diseases - acute infarction of myocardium, dangerous factors of ICHS, damage of myocardial at operation of the heart or at invasive examination.

Clinical biochemistry inflammation processes. Examination of recreants' spectrum of the acute phase. Tests to examine rheumatic diseases (activity of the process, antibacterial antibodies, auto-immune anti-bodies, rheumatoid factors). Complement. Immunoglobulines. Tests for showing the presence of the antibodies of HIV.

Disorders of acidobasic balance and their examination. Metabolic and respiratory disorders. Mixed disorders of ABR.

Laboratory examinations in oncology. The functions of laboratory examination of the oncological patients. Tumour markers, characteristics, the most commonly used extracellular tumor markers. Set of tests to distinguish the tumorous invasion of the liver and skeleton . Set of tests to follow the unwanted effects of therapy.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL EPIDEMIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th/5th	**summer**	**24/0**	**E**	**2**

Syllabus: CLINICAL EPIDEMIOLOGY

Clinical epidemiology characteristics, meaning, aims.
Health and illness. Causes and reactions. Definition of normality and abnormality.
Diagnostic tests. Screening in clinical practice.
Natural history and prognosis of the disease.
Clinical decision: effective treatment.
Description and recognition of the aetiology of the disease.
Randomised clinical studies. Metaanalysis.
Bias and confounding factors.
Study and interpretation of data from literature.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL PHARMACOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
5th	summer	24/0	E	2

Sylabus: CLINICAL PHARMACOLOGY

Clinical pharmacology - function, aims, medical, social and economical aspects, methods of evaluation of drugs, SLP, SKP, SVP, national drug policy, categorisation of drugs.
Drug therapeutic plan (setting aims, choosing drugs, administering of drugs, directions for use, duration of treatment, combination with other drugs, giving information to the patients, monitory of therapy).
Pharmacocinetical principles of dosing of drugs.
Determination of drugs' concentration (demonstration of HPLC' establishment).
Drug therapy during pregnancy and at children.
Drug therapy of pain.
Case: Analgetical nephropatia.
Drug therapy of hypertension.
Drug therapy of bronchial asthma.
Case: Chronical obstructive disease of lungs.
Bronchial asthma.
Damage of liver by drugs.
New trends in anti-microbial therapy.
Case: Infection of urinary tracts.
Drug therapy of myocardial infarction.
Case: Ischemic disease of heart.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL GENETICS AND MOLECULAR BIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	summer	24/0	E	2

Sylabus: CLINICAL GENETICS AND MOLECULAR BIOLOGY

Basics of DNA analysis. Delimitation of the subject of clinical genetics.
Organization of the network of Departments of clinical genetics, principles of their work, survey of examination methods.
Summing up of methods in cytogenetics. Algorithm of cytogenetic analysis of chromosomal aberrations. Mosaicism. The most common single-genetic, autosomal dominant, recessive and with X chromosome linked diseases.
Algorithm in laboratory diagnostics of inherited metabolic diseases.
Molecular biology of tumors. Most common types of tumors caused by specific reorganization of chromosomes and their base on DNA level.
Multifactorially conditioned diseases and traits.
Indications, possibilities and importance of prenatal diagnostics of certain traits.
Methods used in prenatal diagnostics. Prenatal genetic diagnostics. Algorithm of examination of the spontaneous miscarriage and used methods.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL IMMUNOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	winter	24/0	E	2

Syllabus: CLINICAL IMMUNOLOGY

Hypersensitive reactions. Classification according to Coombsa and Gella. Mechanics of damages of cellural tissue mediated by antibodies. Diseases caused by imunocomplexis. Diseases caused by T-lymphocysts. Stimulating and inhibitory antibodies. Anaphylaxis and atopy. Participants of hypersensitive reactions of the I.IgE Class - mechanics of mastocvtes and basophils degranulation. Mediators of allergy. Consequences of hypersensitive reactions of the 1st class. Treatment. Autoimmunity. Mechanics of genesis of autoimmunity: general characteristics. Autoantigens.
Abnormality in the function of T-lymphocytes. Genetic and hormonal factors at the development of autoimmunity. Organically specific and organically non-specific diseases. Immunotherapy. Immunodeficiency. Molecular and cellular basics of immunodeficient states. General expression of immunodeficiency, appearance, separation. Immunodeficiency of antibody types. Immuno-deficiency of cellular immunity. Combined immunodeficiency. Gained immunodeficiency states. AIDS. Structure of HIV. Cellular consequences of the attacked immune system. Reflection of the infection in the antibody profile of the diseased. Immunologic diagnostics of AIDS. Contemporary approach to therapy. Antiinfectious immunity. Bacterial, viral and parasitic infections and protection against them. Prevention of infectious diseases with active and passive immunisation. Tumors and immunity system. Malignant transformation of the cells. Oncogenes. Tumorous antigens. Immune answer to the tumors. Mechanism of the escape of the tumorous cells from the reach of immune system. Immunodiagnostics and immunotherapy. Transplantation immunology. Transplantation of the cells and organs - their molecular basics. Nomenclature of transplantation., transplantation reactions. Treatment. Clinical Transplantation
(predominatingly transplantation of the kidneys and bone marrow. Reproductive immunology. Foetus as an allograft, mechanism and its tolerance by the mother. Immune system and spontaneous abortion. Reproductive immunology of the woman and the man. Immune system of the foetus, the new-born child and the child. Immunotherapy. Immunoprevency, immunoprophylaxy. Immunostimulation and immunosupresy. Treatment by monoclonal antibodies and peptides.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL MICROBIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	summer	24/0	E	2

Sylabus: CLINICAL MICROBIOLOGY

LECTURES:
New aspects of pathogenesis microbial diseases.
Current problems in antimicrobial chemotherapy from the point of view of a clinical micro-biologist.
Special aspects of the ethiology of microbial infectious diseases and diagnostics at children.
Infectious diseases in immunodeficiented patient - ethiology and diagnostics.
Seminars:
New possibilities of the rapid diagnosis of microbial diseases at outpatients departments and in hospitals.
Monitoring and evaluation of the resistance development to antimicrobial drugs. Antibiotic resistance surveys and antibiotic policy.
Sampling of materials and interpretation of the laboratory microbiological examinations at system infectious diseases.

Examination

Study branch: GENERAL MEDICINE

Course: CLINICAL PATHOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
4th/5th	**summer**	**24/0**	**E**	**2**

Syllabus: CLINICAL PATHOLOGY

Introduction to clinical pathology - problems of technics and methods.
The use of immunohistochemistry in diagnostics of tumors.
Orthology of the female prostate - functional and structural aspects.
Clinical and pathological aspects of the female prostate.
Contemporary possibilities of the diagnostics of neuromuscular diseases .
Osteopathology - contemporary possibilities in clinical pathological diagnostics.
Vasculitis - contemporary possibilities in clinical pathological diagnostics.
Congenital heart diseases.
Gestational trophoblastic disease - immunohistochemical possibilities in diagnostics.

Examination

Study branch: GENERAL MEDICINE

Course: PREVENTIVE AND CLINICAL GENERAL ANGIOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	winter	24/0	E	2

Sylabus: PREVENTIVE AND CLINICAL GENERAL ANGIOLOGY

Angiology as the most important and needed specialized branch in the third millennium. Epidemilogy of vascular diseases.
Propedeutics of general angiology. Anamnesis. Basic and functional physical angiologic examination and tests. Non-invasive and invasive subsidiary angiologic diagnostic methods.
Preventive and clinical aspects of angio-organical ischemic syndromes (angio-cardial ischemic syndrome, angio-cerebral ischemic syndrome, angio-extremital ischemic syndrome, angio-renal ischemic syndrome, angio-gastrointestinal ischemic syndrome, angio-ocular ischemic syndrome etc.).
Risk factors of vascular diseases.
Atherosclerosis as the most frequent, but not the only obliterative artery disease, differential diagnosis of stenostional and non-stenostional artery diseases.
Artherosclerosis and diabetic angiopathy - preventive and clinical aspects.
Primary and secondary vasculitides, compressive syndromes and other obliterative organic diseases of arteries. Microcirculatology.
Thromboembolic disease. Preventive flebology.
Chronic vein disease of the lower limbs - Hawaii CEAP classification.
Preventive lymphology. Differential diagnosis of edemic status and lymphedem.

Examination

Study branch: GENERAL MEDICINE

Course: PRINCIPLES OF IMAGING METHODS IN MEDICINE

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	summer	24/0	E	2

Sylabus: PRINCIPLES OF IMAGING METHODS IN MEDICINE

Thermometry and thermography - infrared radiation, liquid crystals, microwaves, image creation and their use.
Optical imaging methods - microscopy, endoscopy - principles of image creation, kinds of equipment.
X-ray imaging methods - sources, interactions with medium, detection, image creation and imaging systems, computed tomography, therapeutic use, protection agains radiation.
Imaging methods using radionuclides - sources, interactions with medium, detection, image eation and imaging systems, PET, SPECT, preparation of radionuclides, tracing, therapeutic use, protection agains radiation.
Ultrasound imaging methods - sources, interactions with medium detection, image creation and imaging systems, Doppler systems, therapeutics use.
Magnetic resonance imaging - principle, image creation and imaging systems, use.

Examination

Study branch: GENERAL MEDICINE

Course: PSYCHOTHERAPY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	**summer**	**24/0**	**E**	**2**

Syllabus: PSYCHOTHERAPY

General problems of psychotherapy, mechanics of psychotherapy, indications, contraindications, collateral effects of psychotherapy, conditions of psychotherapy.

Psychotherapeuitc methods and schools. Rational psychotherapy, principles, possibilities and its putting into practice .

Psychoanalytic and dynamic psychotherapy, principles, possbilities of putting into practice. Relaxation technics, principles, methods, possibilities of putting into practice.

Suggestive psychotherapy, principles, methods and possibilities of putting into practice.

Behaviour psychotherapy, methods, principles, possibilities of putting into practice. Psychotherapy of personality disorders and psychoreactiv states, principles, methods, possibilities of putting into practice.

Psychotherapy of drug addiction, principles, methods, possibilities of putting into practice.

Psychotherapy of psychosis, principles, methods, possibilities of putting into practice.

Examination

Study branch: GENERAL MEDICINE

Course: TROPICAL PARASITOLOGY

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	summer	24/0	E	2

Sylabus: TROPICAL PARASITOLOGY

Introduction to Medical Parasitology. Parasite. Classification of medically important parasites (Animal Kingdom). Parasitic elements, parasitic worms - helmints. Hosts. Definitive host. Intermediate host (1st, 2nd). Host - parasite relations.Biological cycles of the parasite and its morphology as a basic to infer and meditate about pathogenicity, clinical symptoms, laboratory diagnostics, direct evidence of parasite determining for the diagnosis of the parasitism, epidemiology, treatment, prevention and elimination of parasitism. Tropical prarasitical diseases.

Sarcomastigophora - Sarcodina - Amoeba - Entamoeba histolytica - amoebic dysentery, Naegleria fowleri - Primary amoebic meningoencephalitis, Acanthamoeba castellanii - granulomatous amoebic encephalitis.

Sarcomastigophora - Mastigophora - Flagellate. Leishmania donovani - visceral leishmaniasis, L.tropica L. Major, L. Aethiopica - cutaneous leishmaniasis, L. Braziliensis - mucocutaneous leishmaniasis.

Sarcomastigophora - Mastigophora - Flagellata. Trypanosoma brucei gambiense, T. Brhodesiense sleeping sickness, Trypanosoma cruzi - Chagas' disease. Microscophipcal demonstration of Trypanosoma.

Apicomplexa - Sporozoa - Coccidia. Sarcocystis suihominis, S.bovihominis - sarcocystosis, Isospora belli - isosporiasis.

Plasmodium vivax, P.ovale - benign tertian malaria, Plasmodium malaria , benign four-days' malaria, Plasmodium falciparum - malignant tertian malaria.

Nematodes. Filariae. Wuchereria bancrofti - wuchereriasis, Brugia malayi - brugiasis, Loa Loa - loaosis, Onchocera volvulus - onchocercosis, Dracunculus medinensis - dracunculosis.

Trematodes. Schistosoma haematobium, S.mansoni, S. japonicum - schistosomis, Fasciolopsis buski - fasciolopsiasis, Clonorchis sinensis - clonorchiosis, Fasciola hepatica - fascioliasis, Paragonimus westermani - paragonimiasis.

Opportunistic parasitic diseases. Toxoplasma gondii - toxoplasmosis, Cryptosporidium species - cryptosporidiosis, Pneumocystis carinii (buttons) - pneumocystosis, Strongyloides stercoralis - strongyloidosis etc.

Examination

Study branch: GENERAL MEDICINE

COURSE: PRINCIPLES OF HEALTH

Class	semester	hours of lectures/practical lessons	examination/es	credits
$4^{th}/5^{th}$	winter	24/0	E	2

Syllabus: PRINCIPLES OF HEALTH

OBJECTIVE:
Teach students to be well informed about problems and solutions of eHealth (electronization and information of healthcare).

TOPICS:
1. a 2. week
Lecture: Current and final state of eHealth
Sem.: Overview of current eHealth in EU
3. a 4. week
Lecture: Health documentation in electronic form, electronic health records
Sem.: Analysis of using documentation in electronic form, electronic health records proposals
5. a 6. week
Lecture: ICT standards in healthcare and health terminology standards
Sem.: Models of application of ICT standards in healthcare
7. a 8. week
Lecture: Interoperability of health information systems (communication, common repository)
Sem.: Examples of transmission of data among various information systems
9. a 10. week
Lecture: Legislation, safety and confidence in eHealth
Sem.: Usecases of healthcare situations from point of view safety and confidence
11. a 12. week
Lecture: Electronic health education (eLearning in healthcare)
Sem.: Examples of application of eLearning in healthcare

Examination