

## 6-Year MD Program

### Course Description

#### Anesthesiology & Intensive Care

Anesthesia is given for surgery and painful diagnostic procedures. Anesthesiology also deals with pain management. Intensive care or intensive therapy covers all aspects of treatment of a patient in serious condition with life threatening illness. While studying the subject students learn about general and regional anesthesia for different types of procedures, preparing patient for anesthesia, post-operative care, and rudiments of intensive therapy. Problems of acute and chronic pain management are presented as well. Resuscitation is taught especially during Advanced Life Support in-hospital settings. The subject includes 20 hrs of seminars and 60 hrs of classes in operating theatres, intensive care unit and post-operative care unit, pain management.

#### Biochemistry

Nucleic acids - structure, functions and biosynthesis. Replication and transcription. Proteins - structure, biosynthesis and their biological role. Structures and function of enzymes. Kinetics of enzymatic reactions. Molecular basis of cell pathology. Senescence, apoptosis and carcinogenesis. Molecular aspects of gene therapy. Bioenergetics. Oxidative and substrate phosphorylation. Krebs cycle. Metabolism of carbohydrates - glycolysis, gluconeogenesis, Cori cycle, pentose phosphate pathway. Synthesis and degradation of glycogen. Metabolism of lipids. Catabolism of fatty acids -  $\beta$ -oxidation, fatty acid synthesis. Biosynthesis of triacylglycerols, phospholipids and sphingolipids. Synthesis of cholesterol. Metabolism of amino acids. Nitrogen balance. Urea cycle. Hormones - classification, receptors, mechanisms of action. Tissue biochemistry. Integration of cellular metabolism - a comprehensive review of cell biology, the cell structure, membranes and signal transduction.

#### Bioethics

Comprehensive teaching program comprises 20 hours of seminars and 10 hours of lectures. It is focused on the main ethical problems of modern medicine and provides a basic moral knowledge (concepts, theories, principles, rules and arguments) as a general framework for interpreting and analyzing ethical issues arising in medical setting as well as teaches the methods of case analysis. The course aims at making students aware of the normative aspects of medical decisions, clarifying the most important normative positions in bioethics, developing the students' skills in identifying the moral dimensions of clinical decision making and their ability to analyze critically moral arguments.

#### Biophysics

The course introduced elements of molecular biophysics, thermodynamics of biological systems, information theory elements and basics of biocybernetic, elements of cell biophysics, physical methods of cell examination, biological membranes - structure models, transport processes, active transport, biophysics of tissues, biophysics of the circulatory system, circulatory system energetics, work and capacity of the heart, biophysics of the respiratory system, heat transport problems, biophysics of the sense of sight, biophysics of the sense of hearing, influence of physical factors on the living organism. The students are introduced to diagnostic and therapeutic methods (ultrasonography, computer

tomography).

## **Biostatistics**

Course will cover the fundamentals of biostatistics - the most basic concepts and methods of estimation and statistical reasoning used in biomedical sciences. The exercises provide many illustrative examples and exercises relating statistical principles to medical research. The course will be presented in lectures and exercises format. Final examination in form of test will be given.

## **Clinical Genetics**

The course introduces genetic aspects of medical practice. Lectures and seminars outline genetic basis of diseases and congenital structural defects, issues of genetic screening, prenatal and postnatal genetic diagnosis, prevention and treatment of genetic diseases. During the practical classes the students have the opportunity to become familiar with the basic methods of genetic diagnosis: taking a genetic history, constructing family pedigree, basics of dysmorphology assessment and fundamental cytogenetic, molecular and biochemical techniques of genetic diagnosis. The challenges posed by the ethical problems associated with genetic diagnosis are briefly explained.

## **Dermatology & Venerology**

The teaching program comprises two main sections, i.e. skin diseases and sexually transmitted diseases. The section of cutaneous diseases includes clinical pictures, diagnosis and treatment of the following dermatoses: infectious skin diseases (bacterial, viral, fungal and parasitic), psoriasis and lichen ruber, allergic skin diseases, dermatoses of pregnancy, autoimmune conditions, including blistering dermatoses and connective tissue diseases, skin malignancies and paraneoplastic syndromes, acne and seborrhoeic dermatitis. Current trends in esthetic dermatology, dermatological surgery and psychodermatology are presented. The section syphilis, gonorrhoea and non-gonococcal urethritis, as well as acquired immunodeficiency syndrome (AIDS).

## **Emergency and Disaster Medicine, Traumatology**

Basic terms and definitions concerning Emergency and Disaster Medicine. Modern concepts of the prehospital care. First aid. Basic Life Support. General rules of behavior in case of chemical catastrophe and an acute radiation accident. Advanced Life Support. Airway and ventilation instrumental methods. Emergency help in case of shock and intoxications. Direct help in multilocal and multiorgan injuries. Pharmacotherapy and electrotherapy in emergency states. Fluids resuscitation. Rules of conduct in selected, emergency internal cases. Differences in the management of injuries of pregnant women. A child as a victim of injury. Preparing for transport and transport in prehospital care. Organization of rescue actions during disasters. Triage and medical evacuation.

Traumatology deals with management of trauma patient in serious condition especially multi organ injury: early diagnostic and stabilization of patients state, rules of early management of trauma, vital function monitoring and early treatment of life-threatening multi organ injuries, resuscitation in trauma patient, in-hospital early stabilization and treatment of trauma patient. Also topics include management of: injuries of bones and joints, injuries of lower and upper extremity, chest injury, abdomen injury and central nervous system injury. Students are learning during course the evaluation of trauma patient state: "triage" - patient evaluation at the place of accident, in emergency room, primary evaluation of vital function (GCS: Glasgow Coma Scale, AVPU, Revised Trauma Score), secondary advanced evaluation, laboratory tests, advanced diagnostic in trauma patient, monitoring in trauma patient. Detailed aspects discussed are: transfusion strategy in traumatology, fluid therapy and drug management in

traumatology, airway management in trauma patient, ventilation strategy in trauma patient, analgesia and sedation in trauma patients, intensive therapy in multi organ injury, trauma life support.

### **Family Medicine**

The purpose of this rotation is to familiarize medical students with the aims of the primary care, its structure and personnel involved. The epidemiological background for the family medicine will be particularly stressed. During the seminars, special aspects of outpatient care such as prevention, doctor-patient communication and patient compliance will be discussed in details. Students will take part in routine patients consultations, during which the most common problems encountered in GP office will be presented. As a result of this rotation, students are expected to obtain basic skills necessary in outpatient examination and treatment.

### **First Aid & Elements of Nursing**

Medical First Aid is the most important subject because it covers all emergency situations in which students of medicine are obliged to help. The subject is dealing with cardiopulmonary resuscitation, first aid in fractures, bleedings, poisoning, burns, shock, and other life and health threatening situations. During course students learn behavior on the place of accident including proper calling for help, how to deal with trauma patients and sudden internal illnesses. All lectures are based on European Resuscitation Council Guidelines 2000 and are presented by lecturers having clinical experience and passed Advanced Life Support Provider exam. Teaching subject includes 8 hrs of lectures and 22 hrs of classes, including training on phantoms.

### **Forensic Medicine**

Medicolegal investigative systems, timing of death, deaths due to natural causes, blunt trauma wounds, blunt trauma injuries of the trunk and extremities, trauma to the skull and brain - craniocerebral injuries, wounds caused by pointed and sharp-edged weapons, gunshot wounds, asphyxia deaths caused by motor vehicle accidents, airplane crashes, fire deaths, deaths by drowning, the effects of heat and cold, rape, emboli, ethyl alcohol toxicology, carbon monoxide poisoning, DNA technology in forensic sciences.

### **Gross Anatomy & Neuroscience**

The subject of the course is normal human anatomy. The general educational aim of the course is to provide understanding of the structure of the normal living body. The main emphasis throughout the course is placed on the functional and clinical aspects of anatomy, based on the knowledge of the structure. The course consists of lectures and classes. The classes are performed in dissection rooms, anatomical museum, computer and radiology rooms. The main method for student learning is supervised self directed examination of dissected specimen. As the result of the course the wide knowledge of the human body, concentrated on the details of how the structures enable their functions is expected.

### **Histology, Cell Biology & Embryology**

The aim of this course is to familiarize the student with the normal microscopic form and related function of human cells and tissues through lectures and laboratories. The subject of the course was assumed to be the first step on the way of further medical studies of physiology, immunology, cytogenetics, pathomorphology and pathophysiology. Therefore this course is perceived as a part of the syllabus leading to an integrated knowledge of structures and functions of the human organism, both in the state of health and illness. Embryology labs and lectures introduce basic and clinical aspects of normal and abnormal human

development. Organogenesis, the origin and formation of all organs and systems of the human body, constitutes the major part of the course. The various congenital abnormalities are explained as deviations of normal development. Embryological aspects of the development are also considered during the histology labs in connection with structure and function of particular organs and systems. The lab and lecture portions of the course are strongly integrated; the lab requires extensive microscope work and viewing video-projected slides. The course of Histology, Embryology and Cell Biology belongs to the group of Basic Medical Sciences, essential for the development of practical medical skills, which makes it indispensable for future medical doctors, irrespective of specialisation.

### **History of Medicine**

The course comprises a wide range of topics from ancient times until the end of the 20th century. Each class covers a different field of medicine development, like clinical medicine, surgery and obstetrics, etc. evolution as well as theoretical disciplines (e.g. anatomy, physiology, pathology, etc.).

### **Hygiene & Epidemiology**

The course will start with the review of current risk factors approach to healthy life style. The major emphasis will be on role of diet in prevention of chronic diseases. The second part of the course will focus on epidemiologic concepts and methods including design of descriptive and analytic studies, application of epidemiology to public health practice, communication and dissemination of epidemiologic findings. The course will be presented in lectures and exercises format. Credit in form of test will be given.

### **Immunology**

Immunology course consists of 30 hours of lectures and 30 hours of seminars and practical classes. The main goal of this curriculum is to introduce students into mechanisms of immune response and deliver some information about the role of immunity in health and disease states. This course will help students to understand underlying mechanisms of allergy, graft rejection, cancer, atherosclerosis, etc. Moreover, some aspects of clinical immunology such as inherited and acquired immunodeficiencies, autoimmune diseases, and allergic diseases are also discussed during interactive seminars. The course is focused on understanding the mechanisms and pathogenesis, although some clinical data and case-studies are also presented. Final credits are awarded after passing a computerized test based on the USMLE-type questions.

### **Infectious Diseases**

During this clinical rotation the student will learn the basic principles of infectious diseases (the etiology, pathogenesis and epidemiology) with emphasis on anatomic as well as microbiologic diagnosis and judicious use of antimicrobial therapy applicable to any field of clinical practice. Lectures are followed by practical classes in which the laboratory diagnosis of all the major infectious diseases is taught. Clinical activities include diagnosing and treating common infectious diseases in both out-patient and hospital setting, small group discussions, and presentations of cases derived from recent cases seen at the hospital. The final evaluation will be based on the student's daily participation, assessment of attendance, punctuality and the correct patient- student relationship and multiple choice questions' exam.

### **Internal Medicine**

The primary goal of the clinical rotation is to expose students to critical thinking and ensure their ability to generate a thorough differential diagnosis with every patient no matter the presenting complaint or

problem in the area of internal medicine. This course consists of rotations between the various sub-specialties of internal medicine. During all clinical rotations instructors will intend to train complete physicians who can provide up-to-date care in a compassionate and professional manner. Objectives: gain experience and confidence in history taking and general physical examination; refine and condense write-ups and oral presentations to be as precise and efficient as possible in communication about patients; enhance understanding of clinical features, pathophysiologic mechanisms, evaluation, differential diagnosis and management of common medical illnesses requiring hospitalization; know the indications for additional laboratory testing, imaging procedures; ability of interpretation of lab tests results and other additional tests; appreciate the basic principles of clinical ethics including medical professionalism and issues at the end of life.

I. Cardiology - over classes we home in on most up-to-date topics of contemporary cardiology, especially coronary artery disease, acute coronary syndrome, cardiac failure, disturbances of cardiac rhythm and conduction. It is our task to deliver our students not only impressive lectures on cardiology but improving seminars and word activities, as well. We hope the students after our course of cardiology should be able to recognize and to deal with the cardiologic states of emergency.

II. Endocrinology – the course is designed to provide essential knowledge of most common aspects of clinical endocrinology (with elements of pediatric endocrinology), as well as indications for endocrine surgery. Students should also be familiar with perioperative management of patients undergoing endocrine surgery (pituitary, thyroid, parathyroid, adrenal). They should be also able to recognize and manage endocrine emergencies (like adrenal crisis, severe hypo- and hypercalcaemia etc.).

III. Hematology – the course includes problems of etiopathogenesis, clinical symptoms, laboratory findings, differential diagnosis and treatment of the most common hematological disorders: anemias, acute leukemias, lymphomas, chronic myeloproliferative syndromes as well as diseases of coagulation system. The course consists of lectures, seminars and practical activities. The teaching team is composed of professors, associate professors and assistants highly experienced in hematology, involved in both undergraduate and postgraduate education.

IV. Nephrology – the course focuses mainly on improvement of clinical skills (history taking, careful physical examination in nephrology patient, diagnostics and management). The students are introduced to major manifestations of kidney diseases, specific problems of patients in nephrology department and dialysis unit. The course also provides opportunity to understand renal replacement therapy options (hemodialysis, peritoneal dialysis). The up-to date lectures highlight the important aspects of renal disorders. The combination of classes, seminars and lectures enables students to properly diagnose and treat kidney diseases.

## Laboratory Diagnostics

Aim of teaching - introduction to the laboratory diagnostics of basic systemic and organ disorders. Lectures include principles of aetiology, pathogenesis and basic clinical symptoms of diseases; also other basic diagnostic procedures are presented. The principle aim of classes is the interpretation of the laboratory test results, i.e. their usefulness in clinical practice.

## Latin

The objective of Latin Language course is to teach students the basic medical, anatomical vocabulary and set of grammatical rules in order to reach the level of competence enabling the translation of necessary Latin texts and documents. Latin for Medicine prepares students to use Latin in medical practice by writing and interpreting medical forms and documents and by putting diagnoses. Latin is taught in modules organized according to grammatical criteria. Medical register required in doctors of medicine practice is provided.

## Medical Biology

Introduces the basic principles of medical ecology with consideration of environmental factors of the biosphere, technosphere and sociosphere, which may produce illness-inducing effects on the human organism. Genetics plays an increasingly important role in practice of clinical medicine is concerned among others with mendelian genetics, autosomal and sex-linked dominant and recessive traits, cytogenetics and multifactorial inheritance. The laboratory part of the course includes model experiments, demonstration of microscopic slides and relevant macroscopic objects.

## Medical Informatics

Examining the health situation of large populations. Building research instruments in order to process data by computers. Designing patterns of the results tables. The methods of calculating and analysing statistical indexes and coefficients used in assessing the health situation of the population. The methods of examining biological variation. The basic methods of examining statistical interdependencies. Testing statistical hypotheses. The representative study of health situation - variability and confidence intervals. The dynamics of health phenomena. The trends in mortality and morbidity of selected diseases. The sources of information about the health condition of the population. The early detection of diseases - the screening study.

The methods of analytical studies in medicine. The epidemiological situation in the field of the most important health problems in Poland: circulatory diseases, neoplasms, selected infectious diseases. Estimating the health condition of the oral cavity in large populations.

## Medical Psychology

The overall purposes of the psychology course will be: understanding the range of theories and research methods in core areas of psychology such as Abnormal Psychology, Cognitive Neuropsychology, Health Psychology and Life Span Development; methods of psychological assessment; understanding the relationships between brain function and cognition, emotions, motivation, and stress and also empirical knowledge about the role of these psychological factors in etiopathogenesis and clinical picture of the psychiatric and somatic diseases; psychological training of verbal and nonverbal communication useful in the relationships between patient and doctor in different areas of medicine.

## Medicinal Chemistry

The objectives of the course are: to provide the necessary background for understanding of chemical basis of constitutive and steric structure and interactions of molecules, macromolecules and ions with the special reference to the constituents of the living cell, to provide basic knowledge about properties of common chemical reagents (acids, bases, salts) and knowledge concerning techniques of work in chemical and biochemical laboratories, to provide the necessary background to study biochemistry and molecular biology.

## Microbiology

I. General Microbiology - morphology, physiology, metabolism, culture of bacteria, bacterial preparations and their dyeing, influence of physical and chemical factors on microorganisms, antibiotics and chemotherapeutics, mechanisms of drug resistance, sampling for bacteriological investigations and the basis of bacteriological diagnostics.

II. Bacteriology - issues concerning bacterial human pathogens: morphology of Gram- positive and Gram-

negative, aerobic and anaerobic bacteria, metabolism of these bacteria and culture conditions, pathogenic factors, pathogenicity, diagnostics and prevention of infection with a given pathogen.

III. Virology - taxonomy of viruses, morphology and stages of their replication, sampling and processing of the medical samples for investigations, culture methods, viral antigens discovering, pathogenic factors, course of infection in a macroorganism, defensive mechanisms against viral infection, diseases caused by viruses and prions, drugs used in viral infections treatment, diagnostics and prophylaxis of viral infections.

IV. Parasitology & Mycology - taxonomy, morphology, physiology, the host-parasite/fungus relationship and epidemiological concepts. The epidemiology, symptomatology, pathogenesis, laboratory diagnosis and therapy of the major parasitic (Protozoa, Platyhelminthes, Nematoda, Arthropoda) and fungal important pathogens of human diseases are covered. Laboratory methods in mycology and parasitology are also included.

## **Neurology**

The clinical rotation in neurology consists of lectures and ward teaching, which provide close contact with patients and various disorders of the nervous system. The course will cover most of the neurological problems, with a special emphasis on cerebro-vascular diseases, demyelinating diseases, dementias and neurodegenerative diseases, movement disorders, epilepsy, headaches and other pain symptoms. Both lectures and practical classes will extensively apply to a state of the art neuro-imaging technique and other important diagnostic methods. In order to benefit most of the course the students are expected to be well familiar with neuroanatomy, neurophysiology and neuroscience.

## **Neurosurgery**

Students are given an introduction into research, basic clinical skills, and opportunities for careers in neurosurgery. The course provides basic information concerning discipline focused on operative treatment of the conditions of the central and peripheral nervous systems. Neurosurgical conditions include primarily brain, spinal cord and peripheral nerves disorders. The goal of the rotation is to develop a basic ability to diagnose, and to understand the technical expertise necessary for the effective surgical treatment of lumbar and cervical discs herniations, hydrocephalus, head trauma, brain tumors and cerebral aneurysms. All such clinical conditions are also available in a virtual form with computer and movie presentations and with observation of surgical procedures in the operating room. Various clinical cases are shown from initial examination via radiological assessment to surgical procedure.

## **Nuclear Medicine**

Course includes mentioned below problems:

- Principles of Nuclear Medicine,
- Nuclear Medicine Instrumentation,
- Radiopharmaceuticals,
- Ionizing Radiation Protection,
- Positron Emission Tomography (PET),
- Clinical Applications of Radionuclide Diagnostics,
- Nuclear Medicine Therapy,
- Modern Imaging Techniques in Nuclear Medicine.

## **Obstetrics & Gynecology**

The OB/GYN course is designed to help student: gain an understanding of OB/GYN as a specialty to aid in career planning; increase skill in performing complete breast and pelvic exams, and recognizing the

significance of abnormal findings; deepen understanding of common issues in women's health care, enabling students to appropriately manage, triage, and refer, regardless of future practice choice; grasp medical knowledge related to women's health care at least at the level required to pass licensing exams. In order to achieve these goals, specific key women's health topics will be presented in lecture format. The lectures will provide an overview that "hits the highlights" of the topic and provides an opportunity for interact with the lecturer. The detailed subjects of the course are determined by the objectives delineated by the Association of Professors of Obstetrics and Gynecology.

### **Oncology & Palliative Care**

The main goal of the course is to summarize the wide knowledge about human malignancies. During clinical rotations the students have an opportunity to participate in operative and radiation therapy procedures. The attendance at daily rounds and examinations, both on the wards and in the outpatients' clinics, allows to introduce them into the symptomatology of malignant diseases. The purpose of rotations is also to acquaint students with the crucial role of clinical multidisciplinary team in combined treatment. Although a series of lectures are designed to give a wide view on most common tumors, the emphasis is placed on the prophylaxis and early diagnosis of human malignancies. Several aspects of treatment and care of terminally ill patients are also considered during the course.

### **Ophthalmology**

Basic knowledge and understanding of the visual system is essential to any practicing physician. Ophthalmic signs and symptoms are present in many systemic diseases. We aim at providing students with good understanding of the basic anatomy and physiology of the visual system as well as with good history-taking and examining skills including recognition of important clinical signs and common diseases. Having mastered the basics, you will be introduced to many interesting areas of medical and surgical ophthalmology, remaining a subject of post-graduate teaching.

### **Orthopedic Surgery**

The faculty and staff of the Clinic of Orthopedics and Pediatric Orthopedics at the Medical University of Lodz offer its students a program of orthopedics and trauma surgery with the broadest experience possible. Students rotate at two-days intervals on adult, pediatric and out-patient clinics as small practice groups under the leadership of an English speaking assistant, with close supervision of attending staff. The department's educational philosophy is to give the student first priority in the diagnostic/therapeutic decision-making process. During classes the students will participate in the clinic, in the OR, and at conferences. They will attend a case conference with whole staff. The students are expected to attend the daily ward rounds, to review with assistant the current status of inpatients, overnight admissions and try to arrange appropriate investigations and radiographs. Students are expected to attend outpatient clinic and work with the plaster technician.

### **Otolaryngology**

Examination of the ENT patient - basic examination techniques and diagnosis of the most common otolaryngological diseases. Review of anatomy, physiology and pathophysiology of the nose, paranasal sinuses, pharynx, larynx, external, middle and inner ear. Head and neck tumors with the special emphasis on: oral cavity and pharynx. Nasal cavity and paranasal sinuses. Larynx. External and middle ear. Principles of the audiometric examination and vestibular test. Inner ear disease: hearing loss, vertigo. Basic ENT producers and surgical techniques - indications and complications. Introduction to the out-patient ENT practice. Otolaryngologic emergencies.

### **Pathology (PM - Pathomorphology)**

Pathomorphology is a bridging discipline involving both basic science and clinical practice and is devoted to the study of the structural and functional changes in cells, tissues, and organs that underlie disease. By the use of morphologic, molecular and immunologic techniques, pathomorphology explains the four aspects of a disease process: the structural alterations induced in the cells and organs of the body (morphologic changes), the cause (etiology), the mechanisms of its development (pathogenesis), and the functional consequences of the morphologic changes (clinical significance) providing a sound foundation for rational clinical care and therapy. The study of pathomorphology is divided into general and systemic pathomorphology. These courses including lectures, microscopy classes, autopsy and laboratory classes and seminars are conducted in the Pathomorphology Department.

### **Pathology (PPh - Pathophysiology)**

Pathophysiology is aimed at description of mechanisms of diseases and symptoms and is devoted to unify the knowledge on molecular, cellular and systemic levels. The understanding of the disease is important for the correct diagnosis and rational treatment of the patient. Therefore pathophysiology is bridging discipline between clinical and basic science. Moreover, pathophysiology organizes the knowledge of students and shows application of science acquired by the student on physiology, biochemistry, histology in practice. The course of pathophysiology is composed of 72 hrs of labs and 3 hrs of lectures. The didactic process is focused on understanding of the main pathological processes such as inflammation, repair, neoplasm, endocrine regulation disorders and other.

### **Pediatrics**

This clinical course will be conducted in cardiology, gastroenterology, laryngology, oncology, ophthalmology, hematology and surgery clinics at the Pediatric University Hospital. The course will cover knowledge from these areas, each dealing with a different spectrum of disease and therapy-related issues. Students will have an opportunity to participate in the diagnostic and therapeutic processes of the most severe clinical conditions in childhood. The course will also cover the issues of genetic and molecular background of the presented diseases, so that the students will be familiarized with the current and future possibilities of incorporating medical genetics into clinical pediatrics. Theoretical course will encompass lectures and seminars outlining the diagnosis and treatment, thus providing a solid knowledge-base for further activities. Whereas the practical part will allow the students to train in the efficient use of the acquired skills in clinical conditions. Final evaluation will be performed in the form of a practical exam followed by a theoretical test.

### **Pharmacology & Toxicology**

A series of lectures and seminars designed to familiarize students with pharmacology - a science which binds basic medical science with clinical subjects. Pharmacology, which is a study of what drugs do, and how they do it, deals with mechanism of actions, uses, adverse effects, and fate of drugs in humans. Knowledge of pharmacology is essential for using drugs effectively in therapy. During this course students are required to attend lectures and seminars.

### **Physical Diagnosis I**

Students will have an opportunity to acquaint themselves with basic issues associated with widely understood medical diagnostics. The spectrum of classes encloses the training of skills that will be

required for further education in clinics, however, at this initial period of clinical training, in our center students perfect their skills on phantoms or colleagues under experienced clinicians' eye. List of subjects of individual classes is provided below: bases of rational clinical reasoning, communication skills, physical examination of chest, abdomen and breasts; bases of clinical investigations - ENT, gynecological management in states of emergency (resuscitation); basic actions in small surgery - wound suture, venepuncture; practical training and interpretation of results of simple additional investigations - ECG, blood pressure measurement implementation of present teaching methods (CAT - Computer Assisted Training); simulations of treatment of difficult clinical cases.

## **Physical Diagnosis II**

Physical Diagnosis II a multi-departmental course for, that provides a practical approach to the science of clinical medicine. Students will learn the knowledge and skills essential for completing a medical history and physical examination. The course emphasizes patient interviewing, acquiring a medical data base and performing a comprehensive physical examination.

Objectives: develop skills in medical interview that allows to establish rapport and to gather accurate and complete information while maintaining patient comfort and dignity; acquire and hone the knowledge and skills to perform a complete physical examination of the various body systems; gain insight into recognition of pathological physical signs in patients with common medical problems requiring treatment; learn to present an organized, thorough case history in both written and verbal form; understand the differences in approach to patients, in the various areas of medicine and surgery (internal medicine, general surgery, ENT, ophthalmology, neurology); practice the use of various equipment and learn how to perform routine procedures.

## **Physiology**

In your time during physiology course you will be given insight into how human body functions. This physiological knowledge will help you to understand pathologic events that you will learn about in your future clinical courses. Similarly, physiology provides you with information that will make your future learning of pharmacology easier. Thus, thorough knowledge of physiology is necessary for you to be successful at clinical sciences. There are four modules of tutorials where you will learn physiology of respiration, cardiovascular system, nervous system, and blood, and their mutual relationships. During first part of the tutorial (seminar) some physiological terms are discussed with the tutor. The second part (laboratory) shows in practice some aspects of human physiology.

## **Polish**

Consists of 2 major components: general Polish and medical Polish. The objective of general Polish course is to reach the level of competence in every day language enabling the communication with native speakers. Medical Polish prepares students to use Polish with patients as well as medical personnel, both in oral and written form. The course is taught in modules organized according to semantic criteria accompanied by selected grammatical items. Spiral method used in teaching enables the topics to reappear on various levels of language competence.

## **Propedeutics of Dentistry**

The purpose of the course is to provide medical students with some basic information about dental problems. The course is in four parts: preventive dentistry, orthodontics, periodontal diseases and oral surgery. Special attention is paid to caries prevention and fluoride therapy. During the part on orthodontics, students will learn about developments in dentition and occlusion with a stress on etiology and treatment of

malocclusion. The course also deals with pathogenesis and symptoms of periodontal and oral mucosal diseases and provides practical tips on how to recognize signs of systemic diseases in oral cavity. The fourth part of the course is devoted to etiology, manifestation and treatment of orofacial infections, tumors of head and neck, craniofacial fractures and face injuries. To obtain credits the students must show basic knowledge of dentistry acquired from the lectures.

## Psychiatry

Within the course of clinical psychiatry principal knowledge should be gained in areas such as: schizophrenia, mood disorders, anxiety disorders, personality disorders, eating disorders, substance abuse, disorders of old age and chosen problems in child and adolescent psychiatry. Each participant is obliged to be able to elicit symptoms of psychiatric disorders and perform psychiatric evaluation. Students are expected to be able to perform Mental State Examination, to establish diagnosis and treatment. The course consists of lectures, seminars and classes.

## Public Health

Course will provide an overview of major areas of modern public health activities. It will start with the historical background and outline of major public health's achievements, following by systematic review of tools and source of information describing population's health status (mortality, life expectancy, morbidity). Key determinants of health (socio-economic factors, health behaviors and physical environment) will be presented and their link to major health outcomes will be indicated. Implications for health promotion and health education will be presented as well as the examples of public policies incorporating novel approach to public health issues. The course will be presented in form of lectures and seminars. Credit in form of test will be given.

## Radiology

The course will introduce the main principles of diagnostic imaging. Seminars will be conducted on the following topics: physical and technical principles of X-ray imaging, sonography, CT and MRI, radiographic anatomy in diagnostic imaging, basics of recognition and differentiation of pathologic processes in neuroradiology, skeletal system radiology, thorax and abdominal radiology. The special attention will be paid for diagnostic imaging in emergency medicine. They also review current trends in pediatric radiology, oncological and interventional radiology.

## Rehabilitation

Rehabilitation (Latin: re - again, from beginning, against; habilis - efficient, appropriate, suitable) becomes an indispensable component of social development of every modern country, first introduced in 1918 by Douglas McMurtie. Rehabilitation determines the set of activities, which aim is to restore or shape the lost, optimum, biological, family and social functions for the handicapped. During the course student will learn the basics of neurological rehabilitation, cardiovascular rehabilitation, pulmonary rehabilitation and balneotherapy.

## Sociology in Medicine

The first objective of the course is to give theoretical frames to enable interpretation of human behavior in health and disease. Lectures are focused on cultural and social determinants that influence human behavior in health and illness with the use of the latest research data in that field. The second objective is to develop practical skills of social communication, especially in creating interpersonal doctor-patient relations,

interpretation of human behavior, influencing and motivating others. Seminars are aimed at developing prosocial and humanistic attitudes required in the practice of medicine.

## Surgery

I. General Surgery – the clinical course is intended to provide students with theoretical and practical knowledge required for successful diagnosis and treatment of a surgical patient. Seminars cover various issues regarding most common surgical diseases. First of all, such surgical basics as pathology and treatment of shock and sepsis are introduced. Moreover, the principles of diagnosis and treatment of surgical emergencies, such as: acute appendicitis, acute pancreatitis, acute cholecystitis, perforation of the gastrointestinal tract, ileus, gastrointestinal bleeding, acute intestinal vascular disorders and traumatology are presented. Students receive detailed information about the basics of transplantology and deep vein thrombosis. All course participants have a chance to gain their own practical experience during bedside training and operating theatre activities.

II. Colorectal Surgery - the course held in the Department of General and Colorectal Surgery covers general surgical topics related to the diseases and treatment of the Gastrointestinal Tract pathologies. Some emphasis will be put on the diseases of colon and rectum according to the Clinic specialization. Seminars and classes meticulously introduce in the pathogenesis, clinical picture, diagnosis and treatment of the diseases of stomach, biliary system small and large bowel as well as abdominal hernias and role of endoscopy in surgery. Modern surgical approach to presented topics is given with introduction of some of the up-to-date techniques.

III. Endocrine Surgery - the course is designed to provide essential knowledge of most common aspects of endocrine surgery. Students should also be familiar with pre-, peri-operative and post-operative management of patients undergoing endocrine surgery (thyroid, parathyroid, adrenal and breast surgery). They should be also able to recognize and manage endocrine emergencies (adrenal crisis, severe hypo- and hypercalcaemia, thyroid storm, myxoedema).

IV. Thoracic Surgery - the clinical course in thoracic surgery takes its range the following main issues: the lung carcinoma, non-neoplastic lung disorders, mediastinal masses, inflammation disorders of the pleura, the chest wall and mediastinum, esophageal neoplasia, benign esophageal disorders, trachea pathologies, injuries of the chest wall, lung, oesophagus et diaphragm. Our intention will be to teach our students both theoretical and practical knowledge required for giving successful diagnosis and the treatment of patients. The students will get some knowledge of ethiology and symptomatology of different disorders, grading and staging cancers of the lung and oesophagus (TNM classification), diagnostic methods in thoracic surgery and the way of treatment of various thoracic surgery diseases. Apart from these main topics our students will receive information about the history of thoracic surgery, anatomy and the chest examination, the rules and clinical application of the chest tube drainage, the type of thoracic exposures, the main thoracosurgery procedures, videoscopic techniques and the types of lung resection. The students should also be familiar with the pre-, peri-operative and post-operative management of patients undergoing thoracic surgery.

The students are expected to recognize and handle thoracic emergencies such as: pneumothorax, pneumomediastinum, the flail chest and the pulmonary contusion, hemothorax, airway injuries, chest wall injuries, pericardial tamponade and the blunt cardiac trauma. The students will have classes at the bedside and will observe or take part in chosen operations in the operating theatre. In our department it is possible to observe operations performed by surgeons by means of TV transmission in real time in the lecture room. At the end of all the classes the students will have an obligatory written exam in the form of a multiple choice test. To pass the exam the students will have to score over 60%.

V. Urology - the course provides an excellent opportunity for a student to become independent and proficient at clinical skills. The student will be actively involved with responsibilities in the operating room, the outpatient clinic and the inpatient ward. The clerkship emphasizes common benign and malignant diseases of the genitourinary tract in adults. All students will receive instruction in bladder catheterization. In addition to broad exposure to the field of urology, special emphasis is placed on

causes and treatment of urinary tract obstruction in the adult, urinary stone disease and genitourinary oncology. General aspects of preoperative evaluation, operative and postoperative care of the surgical patient are also emphasized. Students are expected to take part in patient ward care and to attend at surgery on those patients observed on the ward.

VI. Vascular Surgery - the aim of course of vascular surgery is to introduce the problems of arteries and veins diseases. Lectures and seminars outline theoretical basis of various vascular problems. During the practical classes students have opportunity to become familiar with methods of diagnostic and methods of treatment vascular diseases. Students can practice examining patients and take part in surgical operations.