



Pomeranian Medical University in Szczecin

DESCRIPTION OF THE MAJOR: Faculty of Medicine

1. General characteristics of medical studies
2. Admission procedures on the Faculty
3. Educational programme:
 - I. description of the learning outcomes

1. GENERAL CHARACTERISTICS OF MEDICAL STUDIES:

Faculty	Medicine / English Program / Medicine /Asklepios Program/
Educational Level / Level of Studies	long-cycle Master's degree studies
Educational profile	Practical
Mode of Studies	full-time studies provided in English Language
Educational Field	field of medical sciences; field of health sciences; field of physical education sciences.
Professional title /given to the alumni/received by the graduate	<i>LEKARZ</i> Physician / M.D.

2. ADMISSION PROCEDURES ON THE FACULTY

/CONDITIONS FOR UNIVERSITY ACCEPTANCE:

Admission requirements	https://www.pum.edu.pl/english/admissions-office/application-requirements
Admission process	According to the current PMU Senate Ordinance No 17/2015 date from 24.02.2016
Limited amount of places for the first year	120 – English Program 30 – Asklepios Program

3. EDUCATIONAL PROGRAMME

EDUCATIONAL AIMS	<ol style="list-style-type: none">1. To equip students with an in-depth and reliable knowledge necessary to work in the profession: phisision, dentist; master in nursing; degree in biotechnology, paramedic, medical analyst, dietician, physiotherapist, cosmetologist.2. To provide postgraduate education of physicians and other professionals in the field of health care and medical service.3. To conduct scientific research.4. To prepare candidates for independent scientific research and teaching.5. To participate in health care process, which is not affecting the basic tasks of the University.6. To carry out activities aimed at raising health culture of a society.7. To care about the health as well as physical and mental development of the students.8. To educate students in the spirit of respect for human rights, patriotism, democracy and responsibility for the fate of society and the State, especially in the spirit of respect for binding ethical principles.
Places of employment	1. hospitals

	<ul style="list-style-type: none"> 2. out-patient clinics 3. laboratories 4. transfusion stations 5. epidemiological stations 6. nursing homes; health resorts 7. rehabilitation centres 8. medical centers
Possibilities for the further studies	Postgraduate studies; PhD studies
Minimum of ECTS required	360
Amount of the semesters	12

I. LIST OF ASSUMED EDUCATIONAL LEARNING OUTCOMES:

EKK CODE	KIERUNKOWE EFEKTY KSZTAŁCENIA (EKK) EDUCATIONAL LEARNING OUTCOMES																					
	WIEDZA [W] KNOWLEDGE																					
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">nauki morfologiczne</td> <td style="width: 5%; text-align: center;">(A)</td> <td style="width: 45%; text-align: center;">morphological sciences</td> </tr> <tr> <td style="text-align: center;">naukowe podstawy medycyny</td> <td style="text-align: center;">(B)</td> <td style="text-align: center;">scientific basis of medicine</td> </tr> <tr> <td style="text-align: center;">nauki przedkliniczne</td> <td style="text-align: center;">(C)</td> <td style="text-align: center;">preclinical sciences</td> </tr> <tr> <td style="text-align: center;">nauki behawioralne i społeczne z elementami profesjonalizmu</td> <td style="text-align: center;">(D)</td> <td style="text-align: center;">behavioral sciences with elements of professionalism</td> </tr> <tr> <td style="text-align: center;">nauki kliniczne niezabiegowe</td> <td style="text-align: center;">(E)</td> <td style="text-align: center;">clinical sciences</td> </tr> <tr> <td style="text-align: center;">nauki kliniczne zabiegowe</td> <td style="text-align: center;">(F)</td> <td style="text-align: center;">practical clinical sciences (with treatment)</td> </tr> <tr> <td style="text-align: center;">nauki prawne i organizacyjne aspekty medycyny</td> <td style="text-align: center;">(G)</td> <td style="text-align: center;">legal and organizational aspects of medical practice</td> </tr> </table>	nauki morfologiczne	(A)	morphological sciences	naukowe podstawy medycyny	(B)	scientific basis of medicine	nauki przedkliniczne	(C)	preclinical sciences	nauki behawioralne i społeczne z elementami profesjonalizmu	(D)	behavioral sciences with elements of professionalism	nauki kliniczne niezabiegowe	(E)	clinical sciences	nauki kliniczne zabiegowe	(F)	practical clinical sciences (with treatment)	nauki prawne i organizacyjne aspekty medycyny	(G)	legal and organizational aspects of medical practice
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nauki prawne i organizacyjne aspekty medycyny	(G)	legal and organizational aspects of medical practice																				
K_A.W1	knows Polish and English anatomical, histological and embryological terminology																					
K_A.W2	knows body structure in terms of topography (lower and upper extremities, chest, abdomen, pelvis, back, neck, head) and in terms of functions (osteoarticular system, muscular system, circulatory system, respiratory system, alimentary system, urinary system, reproductive system, nervous system and sense organs, common integument)																					
K_A.W3	describes topographic relationship between particular organs																					
K_A.W4	knows basic cell structures and their functions																					
K_A.W5	knows micro-architecture of tissues, extracellular matrix and organs																					
K_A.W6	knows embryo development phases, structure and function of fetal membranes and placenta, knows development phases of organs																					
K_B.W.1	describes water-electrolyte equilibrium in biological systems																					
K_B.W2	describes acid-base equilibrium and buffer mechanisms and their role in systemic homeostasis																					
K_B.W3	knows and understands the following concepts: solubility, osmotic pressure, isotonia, colloidal solutions and Gibbs-Donnan equilibrium																					
K_B.W4	knows basic reactions of organic and inorganic compounds in water solutions																					
K_B.W5	knows physical rules regulating liquid flow and agents affecting blood flow and vascular resistance																					
K_B.W6	knows natural and artificial sources of ionizing radiation and its effect on matter																					
K_B.W7	knows physicochemical and molecular basis for sensory organs function																					
K_B.W8	knows physical principles behind non-invasive imaging techniques																					
K_B.W9	knows physical principles behind for selected therapeutic techniques incl. ultrasounds and radiation																					
K_B.W10	knows the structure of simple organic compounds included in macro particles of cells, extracellular matrix and somatic liquids																					
K_B.W11	describes structure of lipids and polysaccharides and their function in cellular and extracellular structures																					
K_B.W12	recognizes four protein structure levels (primary, secondary, tertiary and quaternary); knows the significance of protein post-translation and functional modifications																					
K_B.W13	knows functions of nucleotides, structures of DNA and RNA (primary and secondary) and chromatin structure																					
K_B.W14	knows functions of genome, transcriptome and proteome as well as basic methods applied to investigate these; describes processes of DNA replication, repair and recombination, processes of transcription and translation also the processes of DNA, RNA and protein degradation; knows the concepts of gene expression regulation																					
K_B.W15	describes basic anabolic and catabolic pathways, their regulation mechanisms and influence of genetic and environmental factors on these																					
K_B.W16	knows metabolic profiles of major organs and systems																					
K_B.W17	knows the concepts of oxidative potential and oxidative stress																					
K_B.W18	knows digestive enzymes, mechanism of hydrochloric acid production in stomach, role of bile, process of digestion product absorption and connected disorders/associated abnormalities/																					
K_B.W19	knows consequences of malnutrition, incl. permanent starving, excessive alimentation and non-balanced diet																					

K_B.W20	knows consequences of hypovitaminosis and minerals deficiency as well as vitamin and mineral excess in human organism
K_B.W21	knows the ways of cell-to-cell and cell-extracellular matrix communication, intracellular transductions signal pathways and examples of these processes responsible for carcinogenesis and other pathologies
K_B.W22	knows such processes as: cell, proliferation, differentiation and aging, cell cycle, apoptosis and necrosis and their significance with regard to body functions
K_B.W23	has the basic knowledge of stem cells and their application in medicine
K_B.W24	knows the bases for excitation and conduction in nervous system and higher nervous activities as well as the physiology of striated and non-striated muscles and blood functions
K_B.W25	knows modes of action and regulatory mechanisms of all human organs and systems, incl. circulatory system, respiratory system, alimentary system, urinary system and dermal integument and understands relationships between these
K_B.W26	knows mechanism of hormonal activities and consequences of their deregulation
K_B.W27	knows process and regulation of reproductive functions in men and women
K_B.W28	knows aging mechanisms of human body
K_B.W29	knows basic quantitative parameters of efficiency of particular systems and organs, incl. scope, standard and demographic factors affecting values of such parameters
K_B.W30	knows relationship between factors disturbing equilibrium of biological processes and physiological and pathophysiological changes
K_B.W31	knows the principles of IT and bio-statistical methods used in medicine, incl. medical databases, spreadsheets and elements of computer graphics
K_B.W32	knows principles methods of statistical analysis used in population and diagnostic research
K_B.W33	knows potential of the use of contemporary telemedicine as a tool supporting medical practice
K_B.W34	knows principles of research, observations and experiments and <i>in vitro</i> tests supporting the development of medicine
K_C.W1	knows the basic concepts of genetics
K_C.W2	describes phenomena of coupling and cooperation of genes
K_C.W3	correctly describes human karyotype and different stages of sex determination
K_C.W4	describes structure of chromosomes and molecular base of mutagenesis
K_C.W5	knows the principles of inheritance of a variety of traits, inheritance of quantitative traits, independent inheritance of traits and inheritance of extra-nuclear genetic information
K_C.W6	knows genetic conditions of human blood groups and Rh complex serological incompatibility
K_C.W7	describes aberration of autosomes and heterosomes causing diseases, incl. oncogenesis
K_C.W8	knows factors affecting primary and secondary genetic equilibrium of population
K_C.W9	knows principles for diagnostics of gene and chromosome mutations responsible for hereditary diseases, incl. neoplasms
K_C.W10	defines advantages and threats related to GMO's found in ecosystem
K_C.W11	knows genetic mechanism for contracting drug-resistance by micro-organisms and malignant cells
K_C.W12	classifies micro-organisms taking into consideration both pathogenic ones and those present in physiological flora
K_C.W13	knows the epidemiology of transmission of diseases by viruses, bacteria, fungi and parasites and geographic areas of their occurrence
K_C.W14	knows influence of abiotic and biotic environmental factors (viruses, bacteria) on human body and population and how they penetrate into human organism; is able to describe consequences of exposure to different chemical and biological agents and the rules of prophylaxis
K_C.W15	knows invasive forms or phases of development of selected parasitic fungi, protozoans, helminthes and arthropods and geographic areas of their occurrence
K_C.W16	describes principles of parasite-host interactions and knows basic symptoms caused by parasites
K_C.W17	knows the symptoms of iatrogenic infections, their manner of spread and pathogens causing changes of certain organs
K_C.W18	knows and understands principles of microbiological and parasitological diagnostics
K_C.W19	knows bases for disinfection, sterilization and aseptic procedures
K_C.W20	knows principles for development and mechanisms of functions of immune system including specific and non-specific mechanisms of humoral and cellular immunity
K_C.W21	describes major histocompatibility complex
K_C.W22	knows types of hypersensitivity reactions, types of immune deficiencies and principles for immunomodulation

K_C.W23	knows issues regarding neoplasm immunity
K_C.W24	defines genetic principles for donor-recipient matching and basics of transplantation immunology
K_C.W25	knows pathomorphological terminology
K_C.W26	knows the basic mechanisms of cells and tissue injury
K_C.W27	defines clinical course of specific and non-specific inflammation and describes the processes of regeneration of tissues and organs
K_C.W28	knows definition and pathophysiology of shock with special regard to differentiation of its causes and multi-organ failure
K_C.W29	knows etiology of hemodynamic disturbances, progressive and retrogressive changes
K_C.W30	knows issues regarding special pathology, macro- and micro-images and clinical course of pathomorphological changes of particular organs
K_C.W31	describes the consequences of the development of pathological changes for adjacent organs
K_C.W32	lists external and internal pathogens, both modifiable and non-modifiable
K_C.W33	lists clinical forms of most frequent diseases of selected organs and systems, metabolic diseases and disturbances of water-electrolyte and acid-base equilibriums
K_C.W34	describes selected groups of drugs
K_C.W35	knows main mechanisms of action of drugs and their metabolism with regard to age
K_C.W36	describes influence of different pathological processes on metabolism and elimination of drugs
K_C.W37	knows basic principles of pharmacotherapy
K_C.W38	knows most important undesirable actions of drugs, incl. ones resulting from drug-drug interaction
K_C.W39	understands problem of drug-resistance, incl. multi-drug resistance
K_C.W40	knows indications for genetic examination in order to individualize pharmacotherapy
K_C.W41	knows key directions of therapy development, in particular the potential of cellular therapy, gene therapy and target therapy in certain diseases
K_C.W42	knows the basic concepts of general toxicology
K_C.W43	knows groups of drugs where overdosing may lead to intoxication
K_C.W44	knows symptoms of most frequent types of poisoning, incl. alcohol intoxication, narcotic intoxication, intoxication by psychoactive substances, heavy metals and selected groups of drugs
K_C.W45	knows basic rules of diagnostic procedures in the case of poisoning
K_D.W1	knows state-of-the-art approaches regarding social dimensions of health and disease, influence of family social environment, social relationships networks and social inequalities on health state and socio-cultural differences and role of social stress in health-related and self-destructive behavior
K_D.W2	knows forms of violence, models explaining domestic and non-domestic violence, social conditions of different forms of violence and doctor's role in diagnosing such conditions
K_D.W3	understands importance of health, disease, disability and senility in terms of social attitudes, social consequences of disease and disability and socio-cultural barriers; knows current concept of life quality affected by health state
K_D.W4	understands importance of verbal and non-verbal communication in process of communicating with patients and concept of trust in interactions with patients
K_D.W5	understands psychosocial consequences of hospitalization and chronic disease
K_D.W6	understands the operation of medical institutions and doctor's social role
K_D.W7	knows basic psychological mechanisms of healthy and sick human beings
K_D.W8	understands the role of a family in the process of therapy
K_D.W9	knows problems concerning adaptation to illness as a difficult situation, phases of adaptation to threatening events, passing away and mourning
K_D.W10	knows the role of stress in etiopathogenesis and course of disease, recognizes the mechanisms and ways to cope with these
K_D.W11	knows mechanisms, objectives and ways to deal with addiction to psychoactive substances
K_D.W12	knows rules for motivating patients toward health-oriented behavior and reporting on unfavorable prognoses
K_D.W13	knows and understands main ethical concepts, theories, rules and principles serving as framework for proper interpretation and analysis of moral/medical issues
K_D.W14	knows principles of altruism and clinical responsibility and is aware of rules of therapeutic team cooperation

K_D.W15	knows rules of teamwork
K_D.W16	understands cultural, ethnic and national conditions for human behavior
K_D.W17	knows history of medicine, medicine of primitive tribes and ancient civilizations as well as main features of medieval medicine
K_D.W18	knows features of modern medicine and its most important inventions
K_D.W19	knows process of developing new fields of medicine and achievements of leading Polish and international representatives in medicine
K_D.W20	knows principles of evidence-based medicine
K_E.W1	knows environmental and epidemiological conditions of most frequent diseases
K_E.W2	knows principles for the nutrition of healthy and sick children, principles of vaccination and health balance in children
K_E.W3	<p>knows and understands causes, symptoms, rules of diagnosis and therapeutic procedures in terms of the most frequent pediatric diseases:</p> <p>a) rickets, tetany, convulsions</p> <p>b) congenital heart diseases, inflammation of myocarditis, pericarditis and endocarditis, cardiomyopathy, cardiac arrhythmia, arterial hypertension, syncope</p> <p>c) acute and chronic diseases of upper and lower airways, congenital defects/malformations/ of respiratory tract, tuberculosis, mucoviscidosis, asthma, allergic rhinitis, urticaria, anaphylactic shock, angioneurotic edema</p> <p>d) ischemia, hemorrhagic diathesis, marrow failure, childhood cancer incl. solid tumours</p> <p>e) acute and chronic abdominal pain, vomiting, diarrhea, constipation, gastrointestinal bleeding, chronic peptic ulcer disease, non-specific enteropathy, hepatopathy, cholestasis and other acquired and congenital diseases of alimentary tract</p> <p>f) urinary tract infections, congenital malformation of urinary tract, nephrotic syndrome, nephrolithiasis, acute and chronic renal failure, acute and chronic renal inflammation, renal tract diseases, dysuria, vesicoureteral reflux</p> <p>g) abnormal growth, diseases of thyroid and parathyroid, adrenopathy, diabetes, obesity and disturbances of maturation and functions of gonads,</p> <p>h) infantile cerebral palsy, meningoencephalitis, epilepsy</p> <p>i) most frequent infantile infectious diseases</p> <p>j) genetic syndrome</p> <p>k) diseases of connecting tissue, rheumatic fever, adolescence arthritis, systemic lupus, dermal-muscular inflammation</p>
K_E.W4	knows issues regarding the following: maltreated and abused children, mental impairment and behavioral disorders: psychosis, dependence, alimentation and defecation disturbances in children
K_E.W5	knows basic means diagnosis and therapy of a fetus
K_E.W6	knows most frequent life-threatening states in children and current procedures applied in such situations
K_E.W7	<p>knows and recognizes causes, symptoms, diagnoses and therapeutic procedures with regard to the most frequent internal diseases in adults and related complications:</p> <p>a) circulatory system diseases incl.: ischemic heart disease, organic heart diseases, endocardium, myocardium and pericardium diseases, heart failure (acute and chronic), angiopathy, primary and secondary hypertension and pulmonary hypertension,</p> <p>b) respiratory tract diseases incl.: airway diseases, chronic obstructive pulmonary diseases, bronchial asthma, bronchiectasis, mucoviscidosis, respiratory tract infection, interstitial disease of lungs, pleura and mediastinum, obstructive and sleep apnea, acute and chronic respiratory failure, respiratory system neoplasm</p> <p>c) alimentary system diseases, incl.: stomatopathy, esophagus diseases, gastrosis, diseases of duodenum, enteropathy, diseases of hepatopathy, pancrearopathy, choleopathy, cholecystopathy</p> <p>d) endocrine system diseases, incl.: disorders of hypothalamus, hypophysis, thyroid, parathyroid, adrenal cortex, adrenal medulla, ovaripathy, orchipathy, neuroendocrine tumour disease, endocrine polyglandular syndrome, different types of diabetes and metabolic syndrome, hypoglycemia, obesity and dyslipidemia</p> <p>e) nephropathy and diseases of urinary tract incl. : acute and chronic renal failure, diseases of renal glomerules and interstitial diseases of kidneys, renal cyst, nephrolithiasis, urinary tract infections, urinary tract neoplasm, in particular bladder cancer and renal cancer</p> <p>f) diseases of hematopoietic system, incl.: pannyelophthisis, anemia, granulocytopenia and granulocytosis, trombocytopenia, acute leukemia, myeloproliferative and myelodysplastic-myeloproliferative diseases, myelodysplasia syndrome, B and T cell lymphoma, hemorrhagic diathesis, thrombophilia, life-threatening states in hematology, dyshematopoiesis in the failure of other organs</p> <p>g) rheumatic diseases, incl.: systemic connective tissue disease, systemic vasculitis arthritis of the spine, metabolic diseases of bones, in particular osteoporosis and arthrosis, uratic gout</p>

	h) allergic diseases, incl.: anaphylaxis and anaphylactic shock, angioneurotic edema i) water-electrolyte and base-acid disorders: dehydration, over hydration, electrolytic equilibrium disorder, acidosis and alkalosis
K_E.W8	knows and understands the course and symptoms of senescence as well as complex geriatric evaluation and interdisciplinary care with regard to elderly people
K_E.W9	understands causes and knows basic peculiarities in most frequent diseases in elderly persons and procedures in basic geriatric syndromes
K_E.W10	knows and understands the basic rules of pharmacotherapy of diseases in elderly people
K_E.W11	knows and understands threats connected with hospitalization of the elderly people
K_E.W12	knows and understands basic rules of management of the care of elderly people burden on care of elderly person
K_E.W13	knows and distinguishes basic signs of neurological syndromes
K_E.W14	knows and recognizes causes, symptoms, diagnoses and therapeutic procedures with regard to most frequent nervous system diseases, incl.: headaches: migraine, tension headache and V-nerve neuralgia b) cerebrovascular diseases, in particular cerebral stroke c) epilepsy nervous system inflammation, in particular meningitis, Lyme disease, herpetic brain fever, neurotransmission diseases dementia, in particular Alzheimer's disease, frontal dementia, angiogenic dementia and other dementia-related syndromes f) Parkinson's disease g) demyelination diseases, in particular multiple sclerosis h) neuro-muscular system diseases, in particular amyotrophic lateral sclerosis and sciatic neuralgia i) cranio-cerebral trauma
K_E.W15	knows basic concepts of the pathogenesis of psychic disturbances
K_E.W16	knows general symptomatology of psychic disturbances and rules of their classification, according to current classification systems
K_E.W17	knows causes, diagnostics and therapeutic procedures with regard to most frequent nervous system diseases, incl.: a) schizophrenia b) affective and adaptive disorder c) malnutrition d) disturbances connected with taking psychoactive substances
K_E.W18	knows diagnostics and therapeutic procedures with regard to psychiatric emergency states
K_E.W19	knows the nature of psychological disturbances and their treatment in children, the youth and elderly people
K_E.W20	knows symptoms of psychological disturbances during the course of somatic diseases, their influence on basic disease prognoses and principles of their treatment
K_E.W21	possesses the knowledge on human sexuality and basic related abnormalities
K_E.W22	knows the legal regulations regarding protection of mental health, in particular rules of admission to psychiatric hospitals
K_E.W23	knows environmental and epidemiological conditions for most frequent human neoplasms
K_E.W24	knows bases of early detection of neoplasms and rules of oncological screening
K_E.W25	knows potential of modern neoplasm therapy (incl. multimodal therapy), perspectives for gene and cellular therapy and their undesirable consequences
K_E.W26	knows the rules of combined therapy in oncology, algorithms of diagnosis and treatment procedures with regard to most frequent human neoplasms
K_E.W27	knows causes, diagnostics and therapeutic procedures with regard to most frequent problems in palliative medicine, incl.: a) symptomatic treatment of most frequent somatic signs b) procedure with regard to cancerous cachexia and prophyllaxis and treatment of decubitus ulcer c) most frequent urgent states in palliative medicine
K_E.W28	knows rules of palliative procedure with regard to patients in terminal state
K_E.W29	knows rules of treatment of pain, incl. chronic and cancer-related pain
K_E.W30	knows and understands the concepts of physical disability and handicap
K_E.W31	knows importance and methods used in medical rehabilitation
K_E.W32	knows and understands causes, symptoms, diagnosis and therapeutic and prophylactic procedures with regard to most frequent bacterial, viral, parasitic diseases and mycosis, incl. pneumococcal infection, viral hepatitis, AIDS, sepsis and hospital infection

K_E.W33	knows major features, environmental and epidemiologic conditions of most frequent human skin diseases
K_E.W34	knows and understands causes, symptoms, diagnosis and therapeutic procedures with regard to most frequent sexually transmitted diseases
K_E.W35	knows and understands causes, symptoms, diagnosis and therapeutic procedures with regard to most frequent hereditary diseases
K_E.W36	knows and understands causes, symptoms, diagnosis and therapeutic procedures with regard to most frequent diseases and specific problems encountered by family doctors in their practice
K_E.W37	knows types of biological materials used in laboratory diagnostics and rules governing sampling
K_E.W38	knows theoretical and practical bases of laboratory diagnostics
K_E.W39	knows and understands possibilities and limitations of laboratory examinations in emergency situations
K_E.W40	lists indications for implementation of monitored therapy
K_E.W41	defines basic pharmacological and economic concepts
K_F.W1	knows and understands causes, symptoms, diagnosis and therapeutic procedures with regard to most frequent surgical diseases that require surgical intervention, taking into consideration differences of childhood, in particular: a) acute and chronic diseases of the abdominal cavity b) diseases of the chest c) diseases of the limbs and head d) bone fractures and injuries to organs
K_F.W2	knows selected issues of pediatric surgery, incl. traumatology and otorhinolaryngology, acquired defects and diseases indicated to surgical treatment in children
K_F.W3	knows rules of qualification for performance of and the most frequent complications after basic operative procedures and invasive diagnostic/treatment procedures
K_F.W4	knows rules of operation-related safety, preparation of patients for operation, performance of general and local anesthesia
K_F.W5	knows the principles of post-operative treatment with analgesic therapy and post-operative monitoring
K_F.W6	knows the indications and the rules of intensive therapy
K_F.W7	knows current guidelines for circulation-respiration restitution in infants, adults and children
K_F.W8	knows rules of national integrated life-saving system
K_F.W9	possesses knowledge of female reproduction role and related disturbances, diagnostics and therapeutic procedures regarding, in particular: a) menstrual cycle and disturbances thereof b) pregnancy c) physiological and pathologic delivery and puerperium d) inflammations and neoplasms related to sexual organs e) birth control f) menopause g) basic diagnostics methods and gynecological procedures
K_F.W10	knows issues of modern imaging methods, in particular: a) radiological symptomatology of main diseases b) instrumental methods and imaging techniques used for performance of therapeutic procedures c) indications, contra-indications and preparation of patients for certain kinds of imaging examination and contra-indications to the application of contrast media
K_F.W11	knows diseases of the eye, in particular: a) knows and explains causes, symptoms, diagnosis and therapeutic procedures with regard to most frequent eye diseases b) knows ophthalmological complications of systemic diseases and their ophthalmological symptomatology thereof and correct procedures applied to such cases c) surgical procedures in certain eye diseases d) knows basic groups of drugs used in ophthalmology, undesirable actions and their interactions e) knows groups of generally administered drugs that are related to ophthalmological complications and contra-indications and explains their mechanisms
K_F.W12	knows issues regarding laryngology, phoniatrics and audiology, incl.: a) causes, clinical course, therapeutic procedures, complications and prognosis of otopathy, rhinopathy, nasal sinus diseases, stomatopathy, pharynx and larynx diseases in adults b) diseases of facial nerve and selected neck structures, c) diagnosis and therapeutic procedures with regard to mechanical injuries to the ear, nose,

	<p>pharynx and larynx</p> <p>d) procedures regarding emergency states of otorhinolaryngology, in particular larynx dyspnea</p> <p>e) diagnosis and therapeutic procedures with regard to disturbance of hearing, voice and speech</p> <p>f) diagnosis and therapeutic procedures with regard to head and neck neoplasms</p>															
K_F.W13	<p>knows and explain causes, symptoms, diagnosis and therapeutic procedures to most frequent diseases of central nervous system, incl.:</p> <p>a) cerebral edema and its consequences, in particular emergency states</p> <p>b) other forms of intracranial stenosis and its consequences</p> <p>c) craniocerebral trauma</p> <p>d) vascular defects of central nervous system</p> <p>e) neoplastic tumors of central nervous system</p> <p>f) spondylopathy and myelopathy</p>															
K_F.W14	knows basics of clinical transplantology, indications to transplantation of irreversibly injured organs and tissues and connected procedures															
K_F.W15	knows rules regarding assumptions and diagnosis of brain death															
K_G.W1	knows methodology of evaluating health state of individuals and populations, and also different classification systems for diseases and medical procedures															
K_G.W2	knows methods for identification and examination of risk factors, advantages and disadvantages of different types of epidemiologic investigation and measures confirming cause-and-effect relationship,															
K_G.W3	knows the epidemiology of contagious and chronic diseases, prevention of their occurrence in different phases of the natural history of disease and importance of epidemiological supervision															
K_G.W4	knows concept of public health and its objectives, structure and organization of health care system on national and global levels and influence of economic conditions on health care system capacity															
K_G.W5	knows rules of promotion of health, its objectives and modes of action, in particular, knowledge of importance of elements of wholesome lifestyle															
K_G.W6	knows legislation regarding health care services, patients' rights, bases of medical practice and regulation of medical practice															
K_G.W7	knows basic laws governing organization and financing of health service, general health insurance and organizational principles of health service entities															
K_G.W8	knows doctor's legal obligations with regard to certifying death															
K_G.W9	knows legislation regarding medical experimentation and research															
K_G.W10	knows legislation regarding transplantation, artificial procreation, abortion, esthetic surgery, palliative treatment and mental diseases															
K_G.W11	knows rules of pharmaceutical law															
K_G.W12	knows principles of professional confidentiality															
K_G.W13	interprets parameters of disease and disability occurrence frequency, estimates epidemiologic situation in terms of most common diseases occurring nationwide															
K_G.W14	knows and understands concept of violent death and sudden death and difference between trauma and injury															
K_G.W15	knows legal bases and procedures with regard to on-scene postmortems and medico-legal examinations															
K_G.W16	knows rules of forensic diagnostics and passing judgment on cases of infanticide and reenactment of traffic accident circumstances															
K_G.W17	knows rules of passing judgment on one's capacity to be party to court cases; biological effect and bodily harm															
K_G.W18	knows the concept of malpractice, most frequent causes of malpractice and rules of passing judgment in such cases															
K_G.W19	knows rules of sampling with regard to toxicological and hemogenetic examination															
	<p>UMIĘTNOŚCI [U] SKILLS</p> <table style="width: 100%; border: none;"> <tr> <td style="background-color: #90EE90;">nauki morfologiczne</td> <td style="width: 20px;">(A)</td> <td>morphological sciences</td> </tr> <tr> <td style="background-color: #00CED1;">naukowe podstawy medycyny</td> <td>(B)</td> <td>scientific basis of medicine</td> </tr> <tr> <td style="background-color: #FF69B4;">nauki przedkliniczne</td> <td>(C)</td> <td>preclinical sciences</td> </tr> <tr> <td style="background-color: #4169E1;">nauki behawioralne i społeczne z elementami profesjonalizmu</td> <td>(D)</td> <td>behavioral sciences with elements of professionalism</td> </tr> <tr> <td style="background-color: #FF4500;">nauki kliniczne niezabiegowe</td> <td>(E)</td> <td>clinical sciences</td> </tr> </table>	nauki morfologiczne	(A)	morphological sciences	naukowe podstawy medycyny	(B)	scientific basis of medicine	nauki przedkliniczne	(C)	preclinical sciences	nauki behawioralne i społeczne z elementami profesjonalizmu	(D)	behavioral sciences with elements of professionalism	nauki kliniczne niezabiegowe	(E)	clinical sciences
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	nauki kliniczne zabiegowe (F) practical clinical sciences (with treatment)
	nauki prawne i organizacyjne aspekty medycyny (G) legal and organizational aspects of medical practice
K_A.U1	operates optical microscope and is able to exploit immersion
K_A.U2	recognizes histological structures corresponding to organs, tissues, cells and cell structures on the basis of optical or electronic microscope images and describes and interprets their structures and the relationships between structure and function
K_A.U3	explains anatomic bases of objective examination
K_A.U4	draws conclusions on relationships between anatomic structures from <i>in vivo</i> diagnostic investigation, in particular regarding radiology (plain films, contrast examination, computer tomography and nuclear magnetic resonance)
K_A.U5	speaks and writes using anatomical, histological and embryological terminology
K_B.U1	uses principles of physics to explain influence of external factors, such as temperature, acceleration, pressure, electromagnetic field and ionizing radiation on the human organism and its components
K_B.U2	evaluates the harmfulness of ionizing radiation dose and complies with radiation protection rules
K_B.U3	calculates molar and percentage concentrations of compounds and concentrations of substances in multi-component and unary isotonic solutions
K_B.U4	calculates solubility of organic compounds, determines chemical basis for solubility of organic compounds or lack of solubility and practical importance for nutrition and therapy
K_B.U5	finds pH of solution and influence of changes to pH on organic and inorganic compounds
K_B.U6	predicts course of biochemical processes with regard to energetic status of cells
K_B.U7	describes changes to organism functions in the case of homeostasis disturbance, in particular, determines organism response to exercise, exposure to high and low temperature, blood or water loss, sudden erect position, transition from sleep to waking state
K_B.U8	conducts simple tests in order to evaluate the human organism as a system of stable regulation (load test, exercise test); interprets numerical data on basic physiological variables
K_B.U9	uses basic laboratory techniques, such as qualitative analysis, titration, colorimetry, pH-metry, chromatography, electrophoresis of proteins and nucleic acids
K_B.U10	uses simple measuring instruments and evaluates the accuracy of measurements taken
K_B.U11	uses databases, incl. on-line bases and searches for information required by means of available tools
K_B.U12	selects appropriate statistical tests, conducts basic statistical analyses and uses selected methods to present results, interprets results of meta-analysis, and performs analyses of survival probability
K_B.U13	explains differences between prospective and retrospective, randomized and clinical-follow up study, case studies and experimental investigation and prioritizes them according to the credibility and quality of research evidence
K_B.U14	designs and conducts simple research projects and interprets their outputs and draws conclusions
K_C.U.1	analyses genetic crosses and genealogy of human traits and diseases and evaluates risk of the birth of chromosome aberration affected children
K_C.U2	identifies indications during prenatal examination
K_C.U3	makes decision on cytological and molecular examination
K_C.U4	performs morphometric measurements, analyzes morphograms and notes karyotypes of diseases
K_C.U5	assesses risk of the occurrence of disease in progeny on the basis of family predispositions and influence of environmental factors
K_C.U6	evaluates environmental threats and applies basic methods for detecting presence of noxious (biological and chemical) factors in biosphere
K_C.U7	identifies most frequent parasites in humans on the basis of their structure, life-cycles and disease symptoms
K_C.U8	uses antigen – antibody reactions in current modifications and techniques for the diagnosis of contagious, allergic, autoimmunization, hematological and neoplastic diseases
K_C.U9	can prepare and identify pathogens under a microscope
K_C.U10	interprets the results of microbiological examination
K_C.U11	associates images of damage to tissues and organs with clinical symptoms, history interviews and results of laboratory determination
K_C.U12	analyzes reaction, defense and adaptation phenomena and regulatory disturbances caused by etiological factors
K_C.U13	makes simple pharmacokinetic calculations

K_C.U14	selects drugs in proper dosages to correct pathological phenomena in organisms and particular organs
K_C.U15	develops a schedule of infection chemotherapy, empirical and guided chemotherapy
K_C.U16	writes out prescriptions for all therapeutic agents
K_C.U17	uses pharmaceutical directories and databases of therapeutic products
K_C.U18	evaluates toxicological threats in different age groups and in states of renal and hepatic failure and prevents drug poisoning
K_C.U19	interprets the results of toxicological examination
K_D.U1	takes subjective needs and expectations of patients resulting from social and cultural conditions into consideration in therapeutic procedure
K_D.U2	recognizes symptoms of anti-health and self-destructive behavior and responds in an appropriate manner
K_D.U3	chooses treatment to minimize social consequences for patients
K_D.U4	develops trust during entire therapy
K_D.U5	interviews adult patients, children and family applying techniques of active listening and expressing empathy and talks with patients about their living standards and situation
K_D.U6	informs patients about objectives, course and possible risks with regard to proposed diagnosis or therapeutic procedure and secures their informed consent
K_D.U7	gives patients and their family information on unfavorable prognosis
K_D.U8	gives advice on following therapeutic recommendations and health-oriented life style
K_D.U9	identifies violation risk factors, recognizes violence and responds appropriately
K_D.U10	applies basic psychological motivation and support strategies
K_D.U11	communicates with colleagues giving constructive feedback and support
K_D.U12	complies with professional role models
K_D.U13	has ability to recognize ethical dimensions of medical decisions and distinguish factual aspects from normative ones
K_D.U14	complies with patients' rights, incl. right to protect personal data, right to privacy, right of information on health state, right to express informed consent to treatment or relinquishment the same right to dignified death
K_D.U15	shows responsibility for improvement of his/her qualifications and transfer of his/her knowledge
K_D.U16	recognizes his/her personal constraints, self-evaluates deficits and education requirements, plans his/her own educational activity
K_D.U17	reviews medical literature, incl. English literature and draws conclusions on the basis of available literature
K_D.U18	communicates with patients in a foreign language
K_E.U1	takes history interview of adult patient
K_E.U2	takes history interview of child and its family
K_E.U3	carries out complete and guided physical examination of adult patient
K_E.U4	carries out physical examination of child of any age
K_E.U5	carries out psychiatric examination
K_E.U6	carries out preliminary examination of hearing and field of vision and otoscopic examination
K_E.U7	evaluates general state, state of patient's consciousness and awareness
K_E.U8	evaluates newborn according to Apgar scale and its maturity, can examine newborn reflex
K_E.U9	compares anthropometric measurements and blood pressure measurements with data in centile grid
K_E.U10	evaluates sexual maturation status
K_E.U11	carries out balance examination
K_E.U12	carries out differentiation diagnostics of most frequent diseases in adults and children
K_E.U13	evaluates and describes somatic and mental state of patients
K_E.U14	recognizes states representing direct threat to life
K_E.U15	recognizes states following consumption of alcohol, narcotics and other stimulants
K_E.U16	plans diagnostics, therapeutic and preventive procedures
K_E.U17	analyzes possible adverse effects of certain drugs and interactions between them
K_E.U18	suggests individualization of applicable therapeutic guidelines and other treatment methods because of ineffectiveness or contra-indications with regard to standard treatment
K_E.U19	recognizes symptoms of drug-addiction and suggests therapeutic management
K_E.U20	qualifies patients for home and hospital treatment
K_E.U21	defines states in which treatment according to guidelines for a particular disease is limited by patients' life expectancy, functional state or preferences
K_E.U22	evaluates functionality of disabled patients
K_E.U23	can suggest rehabilitation scheme for most frequent diseases
K_E.U24	interprets laboratory investigations and identifies reasons for deviations

K_E.U25	applies nutrition treatment (taking into consideration parenteral and enteric nutrition)
K_E.U26	plans treatment in case of exposure to hematogenous infection
K_E.U27	qualifies patients for vaccination
K_E.U28	obtains matter to be used in laboratory diagnostics
K_E.U29	performs basic procedures and operations, incl.: a) body temperature measurement, heart rate measurement, blood pressure measurement b) monitoring life parameters using of cardiac monitor, pulse oximetry c) spirometry, oxygen therapy, forced and replacement ventilation d) introduction of mouth-throat tube e) intravenous, intramuscular and subcutaneous injections, cannulation of peripheral veins, drawing peripheral venous blood, sampling urine culture, drawing arterial blood, drawing arterialized capillary blood f) nose, throat and skin swabs, pleural cavity puncture g) urinary bladder catheterization in women and men, passage of gastric tube into stomach, gastric lavage, enema h) standard resting electrocardiogram c/w interpretation, electrical cardioversion and defibrillation i) simple strip tests and glucose concentration measurement
K_E.U30	assists with performing and interprets the result of the following procedures and operations: a) transfusion of blood and blood-derivatives b) pleural cavity drainage c) heart sac puncture d) peritoneal cavity puncture e) lumbar puncture f) thin-needle biopsy g) epidermal tests h) intradermal and scarification tests
K_E.U31	interprets pharmaceutical specifications of medicinal products and reviews adverts regarding drugs
K_E.U32	plans specialist consultations
K_E.U33	implements basic treatment in acute poisoning
K_E.U34	monitors state of patients poisoned with chemicals or drugs
K_E.U35	evaluates decubitus ulcer and applies proper dressing
K_E.U36	proceeds correctly in case of injury (puts on dressing or immobilization, dresses and stitches wound)
K_E.U37	recognizes agony and states death
K_E.U38	keeps medical documentation
K_F.U1	assists with performing typical operation, prepares operation area and administers local anesthetic
K_F.U2	uses basic surgical instruments
K_F.U3	adheres to rules of asepsis and antisepsis
K_F.U4	dresses simple wound, puts on and changes sterile surgical dressing
K_F.U5	makes circumferential insertion
K_F.U6	examines breasts, lymph nodes, thyroid gland and abdominal cavity with regard to acute abdomen, and performs per rectum examination
K_F.U7	evaluates result of radiography with regard to most frequent types of fracture, in particular fractures of long bones
K_F.U8	performs emergency immobilization of limb, chooses type of immobilization to be applied to typical clinical cases and checks correctness of limb blood supply after putting on an immobilizing dressing
K_F.U9	stems external bleeding
K_F.U10	performs basic resuscitation procedures with the help of automatic defibrillator and other rescue operations and provides first aid
K_F.U11	acts according to current procedures of advanced resuscitation actions
K_F.U12	monitors post-operation period according to basic life parameters
K_F.U13	identifies subjective and objective symptoms of abnormal pregnancy (abnormal bleeding, uterus contraction activity)
K_F.U14	interprets the results of physical examination of pregnant (arterial blood pressure, heart action of mother and fetus) and the results of laboratory tests proving pregnancy pathology
K_F.U15	interprets cardiotocography (CTG)
K_F.U16	recognizes initiation of delivery and its incorrect duration
K_F.U17	interprets subjective and objective symptoms during puerperium
K_F.U18	suggests recommendations, indications and contra-indications regarding contraception
K_F.U19	performs ophthalmological screening

K_F.U20	recognizes ophthalmological states that require immediate specialist's assistance and preliminary qualified aid in case of physical and chemical injury to the eye
K_F.U21	evaluates condition of unconscious patient and classifies according to the international grading systems
K_F.U22	recognizes symptoms of increasing intracranial pressure
K_F.U23	evaluates indications for suprapubic puncture and takes part in its performance
K_F.U24	assists in typical urologic procedures (diagnostic and therapeutic endoscopy of urinary system, lithotripsy, prostate puncture)
K_F.U25	performs basic laryngological examinations with regard to ear, nose, throat and larynx
K_F.U26	performs preliminary examinations of hearing
K_G.U1	describes demographic structure of population and evaluates health issues on such a basis
K_G.U2	collects information on the occurrence of risk factors for contagious and chronic diseases and plans preventive actions to be carried out at different levels
K_G.U3	explains basic rights of persons provided with health care and legal bases for medical services
K_G.U4	applies regulations regarding issue of medical certificates for patients, their families and third parties
K_G.U5	recognizes, while examining children, behavior and symptoms indicating possible violence towards children
K_G.U6	attempts to avoid malpractice
K_G.U7	samples blood for toxicological tests according to applicable procedures and secures matter for hemogenetic examination
	KOMPETENCJE SPOLECZNE [K] SOCIAL COMPETENCE
K_K01	accepts the need for ethical standards
K_K02	recognizes concept and need for responsibility for property he/she has been entrusted with
K_K03	demonstrates the awareness for self-education, understands the need for continuing professional education, can inspire and organize learning processes in others
K_K04	co-operates with team members; can co-operate within a group and take different roles
K_K05	adheres to proper examiner/examinee relationship while performing functional tests and observations
K_K06	can form opinions on different aspects of professional activity
K_K07	takes a health and physical activity oriented attitude
K_K08	is aware of cultural and social differences affecting individual interpretations of living standards
K_K09	accepts personal autonomy
K_K10	accepts the need to speak foreign language
K_K11	is aware of patients' rights
K_K12	can solve most frequent problems concerning medical practice
K_K13	seeks to maintain the standing of the medical profession
K_K14	maintains professional confidentiality
K_K15	cares for safety of colleagues, the environment and himself/herself
K_K16	can establish prioritize objectives
K_K17	is aware of his/her own limitations and knows when to refer to experts
K_K18	shows leadership and enterprise, can organize team work
K_K19	recognizes religious beliefs and feelings of other persons regarding human life
K_K20	respects patients/customers/social groups and makes decisions in their best interest