SCHEDULE OF CLASSES
General informations

Subject: Anatomy	
Type of classes	*Compulsory*
Faculty	*English programme*
Field	*Medicine*
Speciality	*Not applicable*
Level	*uniform master's studies* ***X*** *** *I degree* □ *II degree* □
Form	*e-leraning*
Year of study	*IV year, winter and summer semester*
Number of points assigned to ECTS	*1*
Forms of conducting classes (number of hours)	*e-learning - 20 hours /10 hours winter semester and 10 hours summer semester/ student's own work 20 hours*
The method of verification and assessment of learning outcomes	***X*** *graded credit* □ *description* □ *test* □ *practical* □ *oral*
The head of Department of Functional and Clinical Anatomy	*Prof. dr hab. n. med. Zbigniew Ziętek*
Didactic adjunct or person responsible for the subject	*Prof. dr hab. n. med. Zbigniew Ziętek* *anfun@pum.edu.pl*
Name and contact details of the Department and Website	Department of Functional and Clinical Anatomy 70-073 Szczecin, ul. Ku Słońcu 12, parter (wejście od ul. Sikorskiego) tel. 91 466 1481 https://www.pum.edu.pl/wydzialy/wydzial-lekarsko-biotechnologiczny/zaklad-anatomii-funkcjonalnej-i-klinicznej
Language of conducting classes	*english*

***zaznaczyć odpowiednio, zmieniając □ na X**

Detailed informations

Objectives of the classes		Presentation of the anatomy of human body systems and organs in the clinical and radiological aspect. Application of knowledge in the field of anatomy in clinical practice, in particular in the field of radiological diagnostics and physical examination of the patient as well as some surgical procedures.
Prerequisites for	Knowledge	Knowledge of the structure and topography of organs, taking into account the general outline of human anatomy and clinical sciences (in the field of clinical education).
	Skills	She/He knows the human anatomy thoroughly and is fluent in anatomical terms. He knows the topographic relationships of the organs of the human body (in the field of clinical education).
	Competencies	Systematic learning, the habit of self-education, the ability to work in a group, setting the direction of one's own development, understands the need for vocational education.

LEARNING OUTCOMES			
no. learning effect	**A student who passed the CLASSES know / can / be able to:**	**SYMBOL (reference to) learning outcomes for the field of study**	**The way of verifying the learning outcomes ***
K01	Describes the anatomical structure in terms of functions, i.e. systems and organs of the human body. He knows the basic relationships between their structure and function.	A. K1	E, AA
K02	He knows the structure of the human body in terms of topography..	A. K2	E, AA
S01	Uses the anatomical denominations in an appropriate manner.	A. S1	E, AA
S02	It determines individual areas of the body and the organs located in them.	A. S2	E, AA
C01	Is aware of the level of his knowledge and skills, understands the need for continuous professional training and personal development, and justifies the need to act in accordance with the principles of ethics during the examination of the subject.	A.C01 A.C02	E, AA
C02	He is determined, self-assesses his own competences, improves his skills, sets the directions of his own development and education, strives for professionalism, and works in a team.	A.C01 A.C02 A.C03 A.C04 A.C05	E, AA

Table of learning outcomes in relation to the form of activity									
no. learning effect	**Learning outcomes**	**Form of classes**							
		Lecture	**Seminar**	**Exercises**	**Clinical classes**	**Simulations**	**E-learning**	**Student's own work**	**Consultation**
K01	A. K1						X	X	X
K02	A. K1						X	X	X
S01	A. S1						X	X	X
S02	A. S1						X	X	X
C01	A.C01						X	X	X
C02	A.C02						X	X	X

TABLE OF PROGRAM CONTENTS

No. of program content	**Program content**	**number of hours**	**Relation to learning outcomes for CLASSES**
Winter emester			
	E-learning	**10**	
TK01	**Lecture 1**. **Musculoskeletal system.** **The sceletal system** Division of the skeletal system. Overview of bone division. Types of connections. Discussion of the components of the skeleton in the structural aspect. Overview of the most important ponds with their importance and structure. Radiological examples of selected structures of the skeletal system.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK02	**Lecture 2.** **The human muscular system**. Division of muscles from / in the morphology. Breakdown of muscles in terms of their functions. Topographic overview of muscle groups. Muscle innervation and vascularization. The importance of the fascia in the clinical aspect. Myofascial areas and structures. Selected anatomical and clinical aspects of myofascial structures, e.g. inguinal, femoral canals, etc.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK03	**Lecture 3.** **Cardiovascular system** **a) vascular system - arteries.** Aorta - division, branches. Branches of the thoracic and abdominal aorta. Circulation large. Circulation small. Vascularization of the upper and lower limbs. Common subclavian and common iliac artery. Common carotid external and internal carotid artery. Vascularization of the brain. Examples of imaging the human arterial system. Selected examples of clinical anatomy concerning human arterial vessels.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5

TK04	**Lecture 4** **Cardiovascular system** **b) structure of the heart**. Heart - location, structure, vascularization. The cardiac conduction system. Coronary circulation. Heart innervation. The importance of pericardium. Examples of heart structure imaging. Selected clinical examples of heart diseases, e.g. myocardial infarction	1	A.W1, 2 A. U1, 2 A. K1, 2, 3, 4, 5
TK05	**Lecture 5** **Cardiovascular system** **c) lymphatic system**. The role of the lymphatic system. The main components of the lymphatic system. Topography of essential lymphatic trunks. Human lymphatic system. The importance of the lymphatic system. Structure and topography of the thoracic duct. The role of lymph vessels in oncology. Selected examples of lymphatic system pathology.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK06	**Lecture 6** **Cardiovascular system** **d) vascular system - veins**. Division of the venous system. Main veins, upper and lower part of the human body. Portal vein. The superficial veins of the upper and lower limbs. Fetal circulation - its uniqueness. Portal circulation. Examples of human venous system imaging. The specificity of the cerebral venous system. The veins of the cephalocervical region. Selected anatomical and clinical examples of the venous system, e.g. varicose of the lower extremities or of the esophagus	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK07	**Lecture 7** **Digestive system** **a) digestive glands** Liver position, structure, ligaments of the liver. Liver circulation. Bile roads - structure and division. Pancreas - structure, location and function. Spleen - structure, location and function. Selected clinical examples concerning the glands of the digestive system	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK08	**Lecture 8** **Digestive system** **b) Alimentary tract** Vestibule and proper oral cavity. Teeth - structure, types of teeth. Oral part of the throat. Esophagus - structure, division. Peritoneum - division, peritoneal cavity. Stomach structure, vascularization, innervation. Division of the small intestine. Division of the large intestine. Intestinal imaging methods. Selected examples clinical anatomy for the gastrointestinal tract.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5

TK09	**Lecture 9** **Genitourinary system** **a) urinary system** Kidney location, structure. Pathways that drain urine. Kidney calyces smaller and larger, renal pelvis, ureter, pulmonary. urinary condition and structure. Male and female urethra - structure, division. Examples of imaging of the urinary system. Clinical cases of the urinary system.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK10	**Lecture 10** **Genitourinary system** **b) female reproductive system.** Ovary - location, structure, ligaments. Ovum - location, structure. Uterus - location, ligaments, structure and arteries. Scabbard construction. Female external genitalia (vulva). Division, construction. Methods of imaging the structures of the female sexual system. Selected clinical cases of the structures of the female system.	2	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
Summer semester			
TK.01	**E-learning**	**10**	
TK.01	**Lecture 11** **Genitourinary system** **c) male reproductive system** Testicle location, structure, testicular sheaths, scrotum. Epididymis, vas deferens, prostate gland - location, structure. Penis - structure. Methods of imaging system structures male sex. Selected clinical cases of male sex.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK.02	**Lecture 12** **The nervous system** **a) peripheral nervous system** Cranial nerves - division, range of innervation. Spinal nerves. Cervical, brachial, lumbosacral plexus, formation, cutaneous branches, short and long, range of innervation, paralysis. Intercostal nerves. Peripheral system imaging methods. Selected clinical cases - with their discussion.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK.03	**Lecture 13** **The nervous system** **b) central nervous system (CNS)** General structure and division of the central nervous system. Structure and its division. Reticular formation. The limbic system. Pyramidal and extrapyramidal paths. The ventricular system of the brain. The brain's meninges. Cerebrospinal fluid, its circulation. Structure of the spinal cord. Image methods CNS changes. Discussion of selected clinical cases of the CNS.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5

TK.04	**Lecture 14** **The nervous system** **c) autonomic nervous system** Parasympathetic system - cranial and spinal part. Sympathetic trunk, formation, division, ganglia, range of innervation. The principle of operation of the autonomous system. The role of the autonomic system for the physiology of internal organs. The role of sympathetic and arasympathogenic bodies. Methods of its imaging. Selected clinical cases with their discussion.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK.05	**Lecture 15** **Endocrine system** **a) endocrine system part 1** Structure of the thyroid gland. Structure of the parathyroid glands. The structure of the ovaries. Structure of the testicles. The role of the hypothalamus for the endocrine system. Methods of imaging selected glands. Discussion of selected cases.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK06	**Lecture 16** **Endocrine system** **b) endocrine system part 2** Structure and importance of the pituitary gland. Structure of the adrenal gland. The endocrine system of the pancreas. GEP-NEP system. The importance of the pineal gland. Methods of imaging the endocrine glands. Discussion of selected clinical cases.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK07	**Lecture 17** **Sensory organs** **a) structure of the static-auditory organ** Overview of the structure of the outer, middle and inner ear. Discussion of the auditory and static parts of the ear. The auditory pathway. Vestibular organ Static part. The main components of the static part. Methods of imaging and examining the ear. Selected anatomical and clinical cases with their discussion.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK08	**Lecture 18** **Sensory organs** **b) structure of the organ of vision** The organ of vision - division, structure. Detailed structure of the eyeball. The nucleus of the eyeball. Methods of examining the organ of sight. Secretory pathway for the lacrimal gland. Overview of the eyeball muscles and their innervation. Optic nerve. Symptomatology of selected disease syndromes with an overview of clinical anatomy.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5

TK09	**Lecture 19.** **Respiratory system** **a) structure of the components of the respiratory tract** External nose. Nasal cavity. Posterior nostrils. Nasal and laryngeal parts of the pharynx. The larynx - location, structure, division of the laryngeal cavity. Trachea - location, structure, division. Bronchial tree. Airway imaging methods. Discussion of selected cases anatomico-clinical..	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
TK10	**Lecture 20.** **Respiratory system** **b) structure of the lung** Lungs - structure, vascularization and innervation. The importance of the lung stool. Bronchopulmonary segments, their importance in thoracic surgery. Pleura - structure and division. The role of the pleura for the breathing mechanism. Lung imaging methods. Discussion of selected anatomical and clinical cases, including topographic relations.	1	A.K1, 2 A. S1, 2 A. C1, 2, 3, 4, 5
	Student's own work	**20**	

Recommended literature:
Basic literature
1. RL Drake, AW Vogl, AWM Mitchell. Gray's Anatomy for students. Churchill Livingstone Second edition
2. AM Gilroy, BR MacPherson, LM Ross. Atlas of anatomy. Second edition. Thieme 2012.
Supplementary literature
1. KL Moore, AF Dalley, AMR Agur. Clinical oriented anatomy. Part I and II. The 7-th edition
2. Netter Frank H. Netter Atlas of human anatomy 2020 r.

Student workload	
Form of student workload (participation in classes, activity, preparation of reports, etc.)	Student workload [h]
	In the teacher's opinion
Contact hours with the teacher	x
Preparation for exercises	x
Reading the recommended literature	15
Preparation for passing topics within hours without a teacher	15
Preparation for the exam	x
Total student workload	30
ECTS points for a module / course	1

Comments

* Examples of methods of verifying the learning outcomes:
TE – test exam
T – test
E - evaluation of the student's activity and attitude
AA - assessment of the ability to work independently
CG – card game before the start of classes