COURSE DESCRIPTION CARD - SYLLABUS

Course name
Anatomy

Course

Field of study
Biomedical Engineering
Area of study (specialization)

Level of study
First-cycle studies
Form of study
full-time

Year/Semester
2/3
Profile of study
general academic
Course offered in
Polish
Requirements
compulsory

Number of hours

Lecture
30
Laboratory classes

Other (e.g. online)

Tutorials
15
Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
dr hab. inż. dr med. Ryszard Uklejewski, prof. nzw. UKW, e-mail: uklejew@ukw.edu.pl
Uniwersytet Kazimierza Wielkiego w Bydgoszczy

Responsible for the course/lecturer:

Prerequisites

Basic knowledge of secondary school.

Course objective

The student-bioengineer should acquire basic knowledge of the normal anatomy of the human body; direct contact of future medical bioengineers with the vivid anatomical vocabulary necessary for professional contacts with representatives of clinical disciplines.

Course-related learning outcomes

Knowledge

1. Student has basic knowledge of the normal anatomy of the human body regarding the anatomical structure of the osteoarticular and muscular, cardiovascular, nervous, endocrine, respiratory, digestive and genitourinary systems as well as major body organs, in particular the organs of the musculoskeletal system.

Skills

1. The student is able to characterize the anatomical structures of the systems and organs of the human body.

2. The student is able to prepare and present an oral and written presentation on the basics of human body anatomy.

Social competences

1. The student is able to work in a group.

2. The student is aware of the basic importance of human body anatomy for individual departments of biomedical engineering and the social importance of biomedical engineering.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Completion of the course: is based on the average grade from three partial tests and a test covering the entirety of the subject, carried out at the end of the semester.

Completion of tutorials: is based on positive grades from each of the three partial tests and oral responses during the exercises.

Programme content

Lectures:

1. Osteology (division of the human osteoarticular system: axial skeleton, limb skeleton, skull; construction of the axial skeleton (spine, bone chest); construction of the upper limb skeleton (KG rim, KG bones and joints of the free KG); construction of the lower limb skeleton (rim KD, bones and joints KD free); skull bones;

2. Muscular system (skeletal muscles): back muscles, chest and abdominal muscles, KG and KD muscles, head and neck muscles;
3. Vascular system: heart, arterial system, venous system, lymphatic system;

4. Nervous system and sense organs (functions and division of the nervous system (central, peripheral, autonomic system), receptors, centers and nerve paths, reflex arc; central nervous system: spinal cord (external and internal structure of the spinal cord, spinal segment; pathways ascending and descending spinal cord (including pyramidal pathways); brains (division of the brain: hemispheres of the brain

(furrows and bends; lobes of the brain; cerebral cortex: sensory, motor, visual, auditory); cerebellum; brainstem: medulla oblongata, bridge , midbrain, interbrain (thighbrain, hypothalamus and pituitary gland), ventricles; meninges of the brain and spinal cord; peripheral nervous system: cranial nerves, spinal nerves, nerve plexuses and their main branches; autonomic (vegetative) nervous system division of the autonomic system: sympathetic part of the system: sympathetic centers and trunk, parasympathetic part: head section, sacral section;

5. Endocrine gland system (endocrine system);

6. Respiratory system: upper and lower respiratory tract (nasal cavity, pharynx, larynx, trachea, bronchi, bronchial tree), lungs (lobes, bronchopulmonary segments), pleura;

7. Digestive system: oral cavity, throat, esophagus, stomach, small intestine (duodenum, jejunum, ileum), large intestine (cecum; colon: ascending, transverse, descending; sigmoid; rectum), peritoneum, mesentery;

8. Genitourinary system: male and female (in terms of the names and order of organs forming these systems).

Tutorials:

- correspond to the topics of lectures (they are conducted mainly on the basis of sets of exercises for human anatomy and anatomical atlases, and rely on interactive "processing" of anatomical engravings; the osteoarticular system - also using the model human skeleton).

Teaching methods

1. Lecture: presentation illustrated with examples given on the blackboard, solving problems.

2. Tutorials: problem solving, discussion.

Bibliography

Basic

1. Bochenek A., Reicher M.: Anatomia człowieka, T.I-V. Państwowy Zakład Wydawnictw Lekarskich /PZWL/, Warszawa 2010.

2. Sokołowska-Pituchowa J.: Anatomia człowieka. PZWL, Warszawa 2008, Wyd. VIII /lub wydania wcześniejsze – pod red. W. Sylwanowicza/.

3. Ignasiak Z.: Anatomia układu ruchu. Wyd. Elsevier Urban & Partner, Wrocław 2007.

4. Ignasiak Z., Domaradzki J.: Anatomia układu ruchu. Przewodnik do ćwiczeń. Elsevier Urban & Partner, Wrocław 2008.

5. Sobotta: Atlas anatomii człowieka, T.I, II. Wyd. Elsevier Urban & Partner, Wrocław 1998 /lub inny atlas anatomii człowieka, z wyjątkiem tzw. ‘małych atlasów’/.

6. Kretz O.: Sobotta-Ćwiczenia z anatomii. Wyd. Elsevier Urban & Partner, Wrosław 2008.

7. Ćwirko-Godycki M.: Schematy do ćwiczeń z anatomii człowieka. PZWL, Warszawa 1977.

Additional

1. Vidic B.: Atlas fotograficzny anatomii człowieka. PDW „Ławica", Poznań 1996.

2. Mc Minn.: Fotograficzny atlas anatomii człowieka. Wyd. Elsevier Urban & Partner, Wrocław 2006.

3. Yokochi Ch., Rohen J. W., Weinreb E. L.; Fotograficzny atlas anatomii człowieka. PZWL, Warszawa 2004.

4. Skawina A. (red.): Anatomia prawidłowa człowieka T.4. Czaszka. Wyd. Uniwersytetu Jagiellońskiego, Kraków 2003.

5. Woźniak W.: Anatomia człowieka. Wyd. Medyczne Urban & Partner, Wrocław 2001.6. Aleksandrowicz R., Gielecki J., Gacek W.: Słownik mian anatomicznych łacińsko-polsko-angielski. PZWL, Warszawa 1997.

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for tests, project preparation) [1]	45	1,5

[1] delete or add other activities as appropriate