COURSE DESCRIPTION CARD - SYLLABUS

Course name
Anatomy and propedeutics of medical sciences [S1IBio1E>AiPNM]

Course

Field of study
Biomedical Engineering

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
45

Laboratory classes
0

Other
0

Tutorials
30

Projects/seminars
0

Number of credit points

5,00

Coordinators

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Lecturers

Prerequisites

- Basic knowledge from biology from secondary school - Logical thinking, using information obtained from the library and the internet. - Understanding the need to learn and acquire new knowledge.

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. Learning about selected medical sciences; preliminary familiarization with conditions of health and illness proceedings with the health care system; with medicine as a science and practical activity.

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.

2. Student should describe the goals and the division of medicine according to clinical criteria.
3. Student should describe the organization of health protection, definitions of health and illness.
4. Student should describe the causes of diseases, principles of diagnosis, treatment and rehabilitation.

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.
3. Student can acquire information on the use of medical knowledge.
4. Student is able to assess the medical conditions in the field of biomedical engineering.
5. Student is able to integrate the information obtained, interpret it and draw conclusions.

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.
3. Student is aware of the importance of non-technical aspects of engineering activities.
4. Student is able to set priorities for the implementation of a specific task.

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.Passing requires more than 50% of points:> 50% - satisfactory,> 60% - satisfactory plus,> 70% - good,> 80% - good plus,> 90% of points - very good.

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).
9. Objectives of medicine. Division of medicine according to clinical criteria, medical specialties.
10. Health and disease issues. Individual and population health. Basic terms in the field organization of medical activities.

11. Factors affecting health. Health indicators. Responsibility for health.
12. Causes of diseases. Prevention of diseases and health promotion. Basic principles of diagnostics medical attention.
13. Principles of therapeutic treatment. Division of therapy according to clinical criteria.
14. Methods and techniques for counteracting pain, bleeding and infections.
15. The rules of general and local anesthesia. Principles of asepsis and antisepsis, supply wounds, transplantation of cells, tissues and organs, along with selected legal aspects.
16. Organization of health protection in Poland and in the world.
17. Main and auxiliary functions of health protection.
18. Barriers of access to medical activities. State tasks in medicine.
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).

Course topics

none

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.
8. Gut R.W., Propedeutyka medycyny, PZWL, Warszawa 1982.

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.
6. Waszyński E. (red.) Medycyna. Wprowadzenie do studiów lekarskich. Atla 2, Wrocław 2003.

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	75	3,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	50	2,00