GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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| Subject name and code | Anatomy and Physiology, PG_00047816 | | |
| Field of study | Biomedical Engineering, Biomedical Engineering, Biomedical Engineering | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | 2026/2027 |
| Education level | first-cycle studies | Subject group | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | Polish |
| Semester of study | 1 | ECTS credits | 3.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Biomedical Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Grzegorz Redlarski | |
| | Teachers | prof. dr hab. inż. Grzegorz Redlarski | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30 |

E-learning hours included: 0.0

**Learning activity and number of study hours**

| Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|
| Number of study hours | 30 | 4.0 | 41.0 | 75 |

**Subject objectives**

The aim of the course is to familiarize the student with the structure of the human body, the division into individual anatomical systems and the basics of physiological processes occurring in these systems.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_W51] Knows and understands, to an advanced extent, selected aspects of biomedical diagnostics and human anatomy and physiology, constituting general knowledge related to the field of study | He has knowledge of anatomy and physiology and understands the technical aspects of life signals measurement methods. | [SW1] Assessment of factual knowledge |
| [K6_W02] knows and understands, to an advanced extent, selected laws of physics and physical phenomena as well as methods and theories explaining the complex relationships between them, constituting the basic general knowledge in the field of technical sciences related to the field of study | Has knowledge of anatomy and physiology and understands the aspects of physical activity in maintaining health well-being. | [SW1] Assessment of factual knowledge |

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| Subject contents | Course content – lecture<br>After completing the course, the student will gain knowledge of the basics of anatomy and the physiological functioning of the human body. They will also gain knowledge in searching for reliable sources of information about body functioning disorders leading to the occurrence of specific diseases. This knowledge will help a biomedical engineering specialist understand, and then design and implement technical systems supporting the processes of monitoring the patient's health, medical diagnosis and treatment of specific diseases.<br>1. Basic concepts of human anatomy and physiology - definition of normal anatomy and body structure diagram,<br>2. Outline of human embryology: from fertilization to the moment of death,<br>3. Basic processes occurring in the cell: respiration, energy conversion (metabolism), reception and transmission of signals, cell division. Examples!<br>4. Anatomy and physiology of the skeletal and muscular systems,<br>5. Anatomy and physiology of the cardiovascular system,<br>6. Anatomy and physiology of the nervous system,<br>7. Anatomy and physiology of the digestive system,<br>8. Anatomy and physiology of the endocrine system,<br>9. Physiology of hormonal regulation, feedback and the influence of hormones on selected cellular processes,<br>10. Anatomy and physiology of the respiratory system - transport of respiratory gases,<br>11. A. Anatomy and physiology of the urinary system - kidney functions. B. Problems and challenges related to the determination and use of physiological indicators: Body Surface Area, BSA & Total Body Surface Area, TBSA,<br>12. Structure and functioning of the hematopoietic system,<br>13. Structure and functioning of the reproductive system - pregnancy and its impact on the woman's body,<br>14. Sensory organs: principles of operation, reception and analysis of information,<br>15. Physiology of the immune system, including allergies. |
| Prerequisites and co-requisites | |
| Assessment methods and criteria | |

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Activity/presence | 60.0% | 60.0% |
| Midterm colloquium | 51.0% | 40.0% |

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| Recommended reading | Basic literature | A. Bochenek: Anatomia człowieka. T 1-4. PZWL Warszawa 2004<br><br>A. Myśliwski: Podstawy cytofizjologii i histocytofizjologii. AMG, 2005, wyd. VII,<br><br>B.K. Gołąb : Anatomia i fizjologia człowieka: podręcznik dla studentów wydziałów farmacji, zdrowia publicznego, analityki medycznej, pielęgniarstwa, biologii i nauki o Ziemi, studiów kosmetycznych i innych. Łódź. Jaktorów: Wydaw. Ośrodek Doradztwa i szkolenia, 1997<br><br>Histologia, pod red. K. Ostrowskiego, PZWL Warszawa 1995<br><br>J. Sokołowska-Pituchowa: Anatomia człowieka podręcznik dla studentów medycyny. PZWL Warszawa 2006<br><br>W. Sawicki: Histologia. PZWL Warszawa 2008<br><br>W.Z. Traczyk, A. Trzebski: Fizjologia człowieka z elementami fizjologii stosowanej i klinicznej. PZWL. Warszawa. 2001 |
| | Supplementary literature | William F. Ganong: Fizologia : Podstawy fizologii lekarskiej. PZWL Warszawa 1994<br><br>W.Z. Traczyk: Fizjologia człowieka w zarysie. PZWL Warszawa 2006 |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | | |
| Practical activites within the subject | Not applicable | |