COURSE DESCRIPTION CARD - SYLLABUS

Course name
Passing project

Course

Field of study
Biomedical engineering
Year/Semester
1/2
Area of study (specialization)
Bionics and virtual engineering
Profile of study
general academic
Level of study
Second-cycle studies
Course offered in
Polish
Form of study
full-time
Requirements
elective

Number of hours

Lecture
0
Laboratory classes
0
Other (e.g. online)
0
Tutorials
0
Projects/seminars
45

Number of credit points

4

Lecturers

Responsible for the course/lecturer:
dr hab. inż. Michał Rychlik
email: michal.rychlik@put.poznan.pl
tel. 61 665 2167
Institute of Applied Mechanics
Faculty of Mechanical Engineering
ul Jana Pawła II 24, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge: Has general knowledge covering key topics in biomedical engineering.

Skills: It has the ability to solve basic problems concerning the selection of a method for solving tasks and planning an experiment.

Social competences: Understand the need to expand one's knowledge and skills and to transfer the acquired knowledge of bioengineering to society..

Course objective

1. To broaden and structure the knowledge of biomedical engineering.

2. To develop problem-solving skills and to acquire knowledge of problem-solving methods independently

3. To improve the ability to present the progress of their own work while maintaining factual and linguistic correctness.

Course-related learning outcomes

Knowledge

The student has knowledge about development trends and the most significant new achievements in the field of science and scientific disciplines, appropriate for the studied major and related scientific disciplines.

Knows and understands basic concepts in modelling biological structures and processes and biomaterials.

Has knowledge of information systems in medicine, in particular the types and applications of medical imaging.

Skills

Can acquire information from a variety of sources and integrate and critically evaluate it.

Can prepare and deliver oral and written presentations on specific topics in biomedical engineering.

Students will be able to assess the usefulness and possibility of application of new developments (techniques and technologies) in the field of study.

Can use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems in biomedical engineering.

Social competences

Can define priorities for the realization of a task.

He understands the need for lifelong learning; he is able to inspire and organise the learning process of others.

Is ready to critically evaluate his/her knowledge and perceived contents.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

1. Assessment of individual work related to the implementation of the assigned topic of the transitional work.

2. Assessment of the written work containing a description of the project in terms of: literature review, assumptions and objectives of the work, description of methods to solve the problem, final conclusions.

3. Presentation of issues related to the received project.

Programme content

1. To get acquainted with the subject of the thesis.

2. To become familiar with the requirements for transitional theses and the process of completing the thesis. Review and discussion of the topics of the proposed transitional theses.

3. Determination of individual topics for the thesis.

4. Progress report on assigned projects.

5. Presentation and discussion of the obtained results.

Teaching methods

1. Project: individual project tasks, presentation of research results, discussion.

Bibliography

Basic

1. Tadeusiewicz R., Augustyniak P., Podstawy inżynierii biomedycznej, Wydawnictwo AGH, Kraków 2009.

2. Pawlicki G., Podstawy inżynierii medycznej, OWPW, Warszawa 1997.

3. Nałęcz M., Biocybernetyka i inżynieria biomedyczna 2000, EXIT, 2000

Additional

1. Tadeusiewicz R., Inżynieria biomedyczna. Księga współczesnej wiedzy tajemnej w wersji przystępnej i przyjemnej. Wydawnictwo AGH Kraków, 2008.

2. E. Piętka (ed.), Innovations in Biomedical Engineering, Advances in Intelligent Systems and Computing, 623, Springer, 2017.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for design classes, preparation of interim work, performance of student assignments, preparation of presentations, consultations) [1]	55	2,0

[1] delete or add other activities as appropriate