COURSE DESCRIPTION CARD - SYLLABUS

Course name
Passing project [S2IBio1E-UMiR>PP]

Course

Field of study
Biomedical Engineering

Year/Semester
1/2

Area of study (specialization)
Medical and Rehabilitation Devices

Profile of study
general academic

Level of study
second-cycle

Course offered in
english

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
0

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
45

Number of credit points

4,00

Coordinators

Lecturers

Prerequisites

Basic knowledge about key issues of biomedical engineering

Course objective

Bioengineering knowledge expanding. Developing problem-solving skills and self-learning about the methods of solving them. Improving the ability to present the progress of own work while maintaining substantive and linguistic correctness

Course-related learning outcomes

Knowledge:
A student has a basic knowledge of: engineer designing, human anatomy, physiology, electrotechnics and electronics. A student has a knowledge thanks to which He can describe the basics of electrostatics and electromagnetism, electric circuits of AC and DC. A student has a structured, theoretically improved, general knowledge covering key issues in the field of materials science, allowing to understand the structure of matter, interatomic and intermolecular interactions, structure, crystal lattice, etc. A student has detailed knowledge of biochemistry and biophysics [K_W13, K_W14].

Skills:
A student:

Is able to obtain information from various sources, integrate them and make a critical assessment;
Is able to plan and carry out experiments, including computer measurements and simulations, interpret the obtained results and draw conclusions;
Can prepare and present an oral and written presentation on specific issues in biomedical engineering;
Can make a critical analysis of the functioning and assess existing technical solutions in the field of biomedical engineering, in particular materials, biomechanical systems, implants and artificial organs, medical apparatus;
Is able to design a simple device in accordance with the given specification.

Social competences:
A student understands the whole life learning necessity; can inspire and organize a learning process of others. A student can define priorities for a specific task solving. A student realizes an important of non-technic aspects and results of engineering activities.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Summative assessment:
Written thesis about project, together with: bibliography overview, the aim of work, method of a specific problem.
A presentation about the project.

Programme content

1. Overview of diploma theses.
2. Getting to know the requirements for transitional work and the course of the work process.
3. Overview and discussion of the subject of proposed transitional work. Designation of individualized topics of transitional work.
4. Report about progress in projects.
5. Presentation and results discussions.

Teaching methods

Project: individualized project task, results presentation, 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. 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	4,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,00