COURSE DESCRIPTION CARD - SYLLABUS

Course name
Passing project [S2IBio1-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
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
45

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge from mechanics, construction, electronics, programming, material science, physics and chemistry, material processing technology, ability of logical thinking, use of information from library and internet, awareness of necessity to learn and gain new knowledge

Course objective

Gaining ability to solve problems individually and in groups regarding tasks from biomedical constructions, manufacturing and choice of materials. Gaining abilities od solving problems aimed to a particular customer with certain disfunctions, in details applying elements of biomechanics as well as computer aided design and analysis in biomedical engineering. Gaining abilities of choosing and applying materials and methods of design and manufacturing in biomedical engineering.

Course-related learning outcomes

Knowledge:
A student widens knowledge regarding manufacturing, construction and application of biomedical devices [K_W09, K_W10, K_W19].

Skills:
A student gains ability to solve tasks that are included in project [K_U01].

Social competences:
A student gains ability to plan and realize research regarding biomedical devices [K_U14, K_U16].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

A condition to pass the classes is a positive note from project

Programme content

Written work on a selected topic relating to current (scientific or practical) biomedical issues.

Course topics

Analysis of references regarding project
Elaboration of concept.
Elaboration and analysis of results.

Teaching methods

Project: solving practical issues, presentation of results.

Bibliography

Basic:
1. Dobrzański L.A., Materiały inżynierskie i projektowanie materiałowe: podstawy nauki o materiałach i metaloznawstwo, WNT, Warszawa, 2006
2. Tadeusiewicz R., Augustyniak P. (red), Podstawy Inżynierii Biomedycznej t. 1 i 2, Wydawnictwo AGH, 2009
3. Street L.J., Introduction to Biomedical Engineering Technology, CRC Press, 2017
4. Ritter A.B., Hazelwood V., Valdevit A., Ascione A.N., Biomedical Engineering Principles, CRC Press, 2018
5. Montaigne F., Medicine by Design: The Practice and Promise of Biomedical Engineering, Johns Hopkins University Press, 2006.

Additional:
1. Dorf R.C., The Engineering Handbook, CRC Press, 2004.
2. Kędzior K., Knapczyk J., Morecki A., Teoria mechanizmów i manipulatorów: podstawy i przykłady zastosowań w praktyce, WNT, Warszawa, 2002.
3. Oczoś K.E., Kawalec A., Kształtowanie metali lekkich, WNT Warszawa, 2012.

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