



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Basics of biomedical engineering [S1IBio1>PIB]

### Course

Field of study

Biomedical Engineering

Year/Semester

1/1

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

1,00

### Coordinators

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### Lecturers

### Prerequisites

Skills: logical thinking, using information obtained from the library and the Internet. Social competences: understanding the need to learn and acquire new knowledge.

### Course objective

The objective of the course is to introduce students to the basic issues related to biomedical engineering, to show them the connections between the subjects included in the study program and what they can deal with as a biomedical engineer in the future, as well as to ensure contact with the world of medicine and industry related to the biomedical engineering.

### Course-related learning outcomes

Knowledge:

1. The student should know the basic sections of biomedical engineering.
2. The student should know the areas of activity of a biomedical engineer.

#### Skills:

1. The student is able to identify which area of biomedical engineering is dedicated to solve specific technical issues in the field of medicine and manufacturing of medical devices.
2. The student is able to name specific examples of the activity of a biomedical engineer.

#### Social competences:

1. The student is aware of the importance of non-technical aspects of engineering activities.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Completion of the lecture based on the points obtained on the test during the final classes.

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

### Programme content

Introduction to selected fields of biomedical engineering and areas of activity of the biomedical engineer.

### Course topics

1. What is biomedical engineering?
2. What basic areas can be distinguished within the biomedical engineering?
3. What can a biomedical engineer deal with?
4. Lectures by invited guests in the field of medicine and biomedical engineering.

### Teaching methods

Multimedia presentation, discussion.

### Bibliography

#### Basic

Praca zbiorowa pod red. R. Tadeusiewicza, P. Augustyniaka, Podstawy inżynierii biomedycznej, t. 1 i 2, Wydawnictwa AGH, Kraków 2009 [in Polish].

Praca zbiorowa pod red. R. Tadeusiewicza, Inżynieria biomedyczna. Księga współczesnej wiedzy tajemnej w wersji przystępnej i przyjemnej, Wydawnictwa AGH, Kraków 2008 [in Polish].

R. Tadeusiewicz, Biocybernetyka. Metodologiczne podstawy dla inżynierii biomedycznej, Wydawnictwa Naukowe PWN, Warszawa 2013 [in Polish].

#### Additional

J. Enderle, S.M. Blanchard, J.D. Bronzino, Introduction to Biomedical Engineering [in Polish].

Cykl książek z serii Biocybernetyka i inżynieria biomedyczna pod redakcją M. Nałęczą, Polska Akademia Nauk, Akademicka Oficyna Wydawnicza EXIT [in Polish].

Cykl książek z serii Inżynieria biomedyczna. Podstawy i zastosowania pod redakcją W. Torbicza, Polska Akademia Nauk, Akademicka Oficyna Wydawnicza EXIT [in Polish].

### Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50