COURSE DESCRIPTION CARD - SYLLABUS

Course name
Biopolymers in medical apllications [S1IBio1>MPwZM]

Course

Field of study
Biomedical Engineering

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

2,00

Coordinators

dr inż. Monika Knitter
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Lecturers

Prerequisites

A student starting this course should have basic knowledge of biopolymers used in medicine and techniques for assessing their properties and production.

Course objective

Acquainting with biopolymers and their composites in the context of their applications for special medical devices.

Course-related learning outcomes

Knowledge:
The student has in - depth knowledge on physics and chemistry needed in biomedical engineering. The student knows the rules of measuring of selected physical and mechanical properties of biomaterials. The student has fundamental knowledge on the life-cycle of medical product.

Skills:
The student knows how to retrieve information from literature, databases and other sources (also in English) in the area of biomedical engineering.

The student knows how to identify and formulate simple engineering tasks of a practical character, typical for biomedical engineering aspecially selecting materials for particular biomedical applications.

Social competences:
The student is aware of the necessity for continuous learning and knows how to inspire and organize the process of learning of other people.
The student knows how to prioritize tasks either defined by him/herself or by others.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified by the colloquium carried out during last lecture. The test consists of 10 differently scored questions. Counting threshold: 50% . Final issues will be sent to students by email
Project: Credit on the basis of the completed and presented (defended) project. The project is performed in groups of 2 students.

Programme content

Lecture: Types of polymers in medicine. Classification of these materials according to their resorbability and origin. Examples of the use of polymers in individual branches of medicine (basic units, surgery, optics, etc.). Basic technologies of selected medical devices from the sterile production section. Description of tools for the processing of medical devices. Initial product quality assessment on the production production line.
Project of selected medical polymeric product.

Course topics

none

Teaching methods

1. Lecture: multimedia presentation, illustrated with films
2.Project: Project involving the development of a selected medical device/product made of polymer material

Bibliography

Basic:
Nałęcz M., „Biomateriały” Akademicka Oficyna Wydawnicza EXIT, 2000
Czasopismo „Polimery w medycynie” dostępne online www.polimery.am.wroc.p
Liber-Kneć A., Łagan S., "Ćwiczenia laboratoryjne z biomateriałów", Wydawca: Politechniki Krakowskiej, 2011
Marciniak J., Biomateriały, Wydawnictwo Politechniki Śląskiej, Gliwice,2013
Nowacki, J. Dobrzański L.A., Gustavo F., "Biomateriały w konstrukcji implantów", Open Access Library Volume 11 (17), 2012

Additional:
Tomasz Klepka., "Nowoczesne materiały polimerowe i ich przetwórstwo - część 3 ", Wydawca: Politechnika Lubelska, 2017

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00