



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Clinical applications of materials and ergonomics in dentistry

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### Course

Field of study

Biomedical engineering

Area of study (specialization)

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Level of study

First-cycle studies

Form of study

full-time

Year/Semester

4 / 7

Profile of study

general academic

Course offered in

Polish

Requirements

elective

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### Number of hours

Lecture

15

Tutorials

0

Laboratory classes

15

Projects/seminars

0

Other (e.g. online)

0

### Number of credit points

3

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### Lecturers

Responsible for the course/lecturer:

dr hab. n med Elżbieta Paszyńska

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tel. 618547101

Katedra Biomateriałów i Stomatologii

Doświadczalnej

Uniwersytet Medyczny w Poznaniu

ul. Bukowska 70, 61-812 Poznań

Responsible for the course/lecturer:



### Prerequisites

- Basic knowledge from biology and chemistry.
- Logical thinking, sourcing information from the library and the internet.
- Understanding the need to learn and acquire interdisciplinary knowledge.

### Course objective

Knowing selected biomaterials as implants, pre-acquainted with the circumstances of creation and practical use of biomaterials as implant in the biological life cycle.

### Course-related learning outcomes

#### Knowledge

1. Student has basic knowledge of engineering design and engineering graphics, allowing to design objects and processes, systems in terms of systems, machine elements; formulate and analyze problems; look for solution concepts.
2. Student has knowledge of dental biomaterials thanks to which he can classify and describe dental materials.
3. Student has knowledge of the technique and organ of engineering biomechanics in the field of dentistry in terms of ergonomics.

#### Skills

1. The student is able to obtain information on the area of medical knowledge.
2. The student is able to assess the medical conditions in the field of biomedical engineering.
3. The student is able to integrate the obtained information, interpret and draw conclusions.

#### Social competences

1. The student is aware of the importance and understanding of non-technical aspects of engineering activities.
2. Student is able to set priorities for the implementation of a specific project.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Lecture

Credit based on a test consisting of 50 MCQ multiple-choice questions (if the answer is correct, at least 60% of the answers at the end of the semester (grading scale: <60% -ndst, 60% -satisfactory,> 75% - enough) good, 80% -good, 85% -more good, 90% -very good)

#### Lab



Assessment of the report and written answer for each laboratory exercise according to the instructions of the laboratory teacher. Obtaining a pass on the basis of a positive mark from the answers and the report and the MCQ test assessed on the same scale as the lecture part.

### Programme content

#### Lecture

1. Ergonomic postulates and rules of work at the dental office.
2. Trends in modifying the construction of dental units - negative and positive solutions by engineers for dentists.
3. Dental equipment and the awareness of damage to the locomotor system among members of the dental team.
4. The role of fluorides taking into account the environment and human diet.
5. The most important diseases of the oral cavity - etiology, course, treatment, prognosis. The use of dental prophylaxis - analysis based on laboratory and clinical tests.

#### Lab

1. CAD-CAM technologies and their application in modern restorative dentistry.
2. Comparison of the properties of resin-modified glass ionomer cements and compomers.
3. Means for individual and professional dental prophylaxis against diseases of the oral cavity.
4. Endodontic treatment of tooth root canals and dental endodontic materials.
5. Assessment of human anthropometric parameters necessary for work at a dental office.

### Teaching methods

1. Lecture: multimedia presentation.
2. Laboratory exercises: conducting experiments, working in teams, discussion.

### Bibliography

#### Basic

1. Combe E.C.: Wstęp do materiałoznawstwa stomatologicznego. Sanmedica, Warszawa 1997 [in Polish].

#### Additional

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### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	40	1,6
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	35	1,4

<sup>1</sup> delete or add other activities as appropriate