



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Equipment for operating theatres and medical practices

### Course

Field of study

Biomedical engineering

Area of study (specialization)

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Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr Małgorzata Wojsznis

email: Malgorzata.Wojsznis@put.poznan.pl

Faculty of Mechanical Engineering

ul. Jana Pawła II 24 (CMBiN), 60-965 Poznań

Responsible for the course/lecturer:

### Prerequisites

The student should have knowledge of ergonomics in medicine and basic knowledge of the operation and organization of medical facilities in Poland. Students should be able to use regulations and normative acts and have a basic knowledge of English.

### Course objective

The aim of this course is to familiarize students with basic and specialist equipment used in medicine, as well as with the issues concerning general spatial and construction requirements to be met by the premises and equipment of the entity performing the therapeutic activity.

### Course-related learning outcomes

Knowledge

The student has knowledge about devices and equipment used in medicine, medical robots and laser devices.

The student has knowledge of development trends and the most important new achievements specific



to biomedical engineering.

The student has knowledge of information systems in medicine, including in particular medical electro-diagnostic and diagnostic imaging systems.

#### Skills

The student is able to obtain information from literature, databases and other properly selected sources (also in English).

The student is able to make a critical analysis of the functioning and evaluate existing technical solutions, in particular regarding medical devices.

The student is able to propose improvements to existing technical solutions in medicine.

#### Social competences

The student is aware of the importance and understands non-technical aspects and effects of engineering activities, including their impact on the environment and the related responsibility for decisions taken.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lecture is verified during the exam. The exam consists of 10 open questions with different scores, of which the student chooses three. The pass threshold is 50%.

The knowledge and skills acquired during the project classes are verified by the presentation of the project developed by the students (in groups) and a discussion about the work.

#### Programme content

##### Lecture:

Basic functions of operating rooms and surgeries. Optimization of the organization of the operating theatre premises. Architectural requirements of operating rooms and medical practices. Necessary installations of operating theatres and medical practices. Basic equipment of operating rooms, current trends. Basic equipment of medical practices. Integrated operating theatres, control and recording systems, hybrid rooms, mobile operating theatres.

##### Project:

Description of the device or system of equipment: principle of operation, significance in the equipment of operating theatres or medical practices, description of correct operation and control, conditions for maintaining efficiency, most frequent malfunctions, servicing, disposal.

#### Teaching methods

Lecture: multimedia presentation illustrated with examples and workshops in cooperation with companies producing equipment for medical facilities.

Project: presentation of the project developed by students (in groups), searching for sources, teamwork, discussion.



## Bibliography

### Basic

Tomanek M., Infrastruktura bloku operacyjnego – panele, okładziny, szkło czy stal nierdzewna?, *Ogólnopolski Przegląd Medyczny* 6/2018.

Woszczyna Z., Sopel A., Blok operacyjny – optymalizacja organizacji pomieszczeń i wyposażenia, *Ogólnopolski Przegląd Medyczny* 5/2014.

Mach T., Gil A., Ergonomia na bloku operacyjnym z punktu widzenia architekta, *Ogólnopolski Przegląd Medyczny* 6/2015.

Sobierajska A., Lenarski R., Wentylacja i klimatyzacja w szpitalu – wytyczne do projektowania, wykonania, odbioru i eksploatacji, *Ogólnopolski Przegląd Medyczny* 6/2018

### Additional

Skalski J, Początki chirurgii w najdawniejszych czasach, *CX News* nr 3/37/2011.

Rozporządzenie Ministra Zdrowia z dnia 26 czerwca 2012 r. w sprawie szczegółowych wymagań, jakim powinny odpowiadać pomieszczenia i urządzenia podmiotu wykonującego działalność leczniczą, *Dz.U.* z dnia 29 czerwca 2012 r., poz. 739.

Ustawa z dnia 15 kwietnia 2011 r. o działalności leczniczej, *Dz.U.* 2011 nr 112 poz. 654.

Landau M., Historia medycyny: chirurdzy w czarnych fartuchach [www.focus.pl](http://www.focus.pl), [dostęp 13.06.18].

Kaiser K., Sale operacyjne i zabiegowo-operacyjne Cz. 7. Sale zabiegowo-operacyjne kardiologii inwazyjnej, sale hybrydowe oraz sale wysokoaseptyczne, <http://www.chlodnictwoiklimatyzacja.pl> [dostęp 21.06.18]

## Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	38	1,5
Student's own work (literature studies, preparation for exam, project preparation) <sup>1</sup>	37	1,5

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