



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Ergonomics in medicine [S1IBio1>EwM]

### Course

Field of study

Biomedical Engineering

Year/Semester

2/4

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

15

### Number of credit points

2,00

### Coordinators

dr Małgorzata Wojsznis

malgorzata.wojsznis@put.poznan.pl

### Lecturers

### Prerequisites

The student should have knowledge of the operation and organization of enterprises, production or service plants. He/she should be aware of the risks in the workplace and be able to identify them. The student should be able to use regulations and normative acts.

### Course objective

The aim of the course is to familiarize students with issues related to the ergonomic organization of workplaces, workload and loads from work environment, as well as ergonomic diagnosis of workplaces.

### Course-related learning outcomes

Knowledge:

The student knows the ergonomic requirements for machines and working environment.

The student knows the methods of ergonomic diagnosis and workplace design.

The student knows the scope of the given discipline and contemporary trends in this area.

Skills:

The student is able to identify hazards and assess occupational risks in the workplace.

The student is able to assess the influence of work and factors occurring in the work environment on the employee and to evaluate the usefulness of the methods used for the assessment.

The student knows how to use regulations and normative acts to optimize solutions improving ergonomics of the workplace.

Social competences:

The student is aware of the role of the individual in solving the issues of ergonomic shaping of the working environment and makes efforts to convey, in a commonly understood way, his knowledge and skills in order to improve the working conditions.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired as part of the lecture is verified on the basis of the final test during the last class in the semester. The test consists of 20 single-choice questions. In each question, 1 point is obtained for the correct answer. Passing threshold: 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:

Basics of ergonomics, goals and tasks, historical feature, development of ergonomics in medicine.

Directions of action and areas of specialization of ergonomics, ergonomic engineering, latest directions of development. Man in the process of work - basic ergonomic system, working environment, working station, working conditions, working room, rooms and devices of the entity performing medical activity. Ergonomic organization of the workplace, health problems related to ergonomic organization of the workplace. Human workload, methods of evaluation. Ergonomic diagnosis of the workplace (diagnostic procedures). Work environment, methods of evaluation. Occupational hazards of medical personnel. Project:

Ergonomic diagnosis of the chosen workplace related to medical activity (hazard analysis, analysis and evaluation of physical load, mental load, analysis and design of work space). Develop a plan to improve the working conditions of the chosen position according to ergonomic knowledge.

### Course topics

1. Basics of ergonomics, the development of ergonomics in medicine.
2. Directions of action and areas of specialization of ergonomics, the latest directions of development
3. Man in the process of work - the basic ergonomic system.
4. Ergonomic organization of workplace.
5. Ergonomic diagnosis of workplace.
6. Assessment of occupational risk.
7. Occupational hazards of medical personnel.

### Teaching methods

Lecture: multimedia presentation illustrated with examples.

Project: presentation of a project developed by students (in groups), solving practical problems, searching for sources, teamwork, discussion.

### Bibliography

Basic:

Górska E., Diagnoza ergonomiczna stanowisk pracy, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998 r.

Górska E., Ergonomia, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2015 r.

Tytyk E., Projektowanie ergonomiczne, PWN, Warszawa - Poznań, 2001 r.

Wojsznis M., Ergonomia - ocena stanowisk pracy, Wydawnictwo Politechniki Poznańskiej, Poznań 2018.

Additional:

Marek K., Choroby zawodowe, Wydawnictwo Lekarskie PZWL, Warszawa, 2003.

Markiewicz L., Fizjologia i higiena pracy, Instytut Wyd. CRZZ, Warszawa, 1980.

Salvendy G., Carayon P., Human Factors and Ergonomics in Medicine, Inc. 2006  
Rozporządzenie Ministra Pracy i Polityki Socjalnej z dnia 26 września 1997 r. w sprawie ogólnych przepisów bezpieczeństwa i higieny pracy, Dz.U.1997 nr 129 poz. 844,  
Norma PN-N-18002: 2000, Systemy zarządzania bezpieczeństwem i higieną pracy. Ogólne wytyczne do oceny ryzyka zawodowego  
Nowacka W., Ergonomia i ergonomiczne projektowanie stanowisk pracy, Polit. Warszawska, Warszawa 2010.

### 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