



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Ergoengineering of work

### Course

Field of study

Management and Production Engineering

Area of study (specialization)

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Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

10

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

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

Responsible for the course/lecturer:

### Prerequisites

The student should have basic knowledge of mechanical engineering, basic machine construction and engineering graphics. The student should be able to analyse harmful factors generated by machines and equipment in the workplace. Students should be able to think logically, use the knowledge gained from various sources, in particular from regulations and normative acts.

### Course objective

The aim of this course is to acquaint students with the criteria of ergonomic engineering necessary to make design decisions and to search for methods and solutions to optimize workplaces with minimizing risks and threats to people and the working environment.

### Course-related learning outcomes

Knowledge

The student has knowledge of the design requirements of workplaces.



The student has knowledge of development trends and the most important new achievements specific to ergonomic engineering.

The student has knowledge in the field of computer-aided design.

#### Skills

The student is able to obtain information from literature, databases and other properly selected sources.

The student is able to make a critical analysis of functioning and evaluate existing technical solutions, in particular those relating to workplaces.

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

#### Social competences

The student understands the necessity of making changes in production systems and the company. He is aware of the effects of engineering activities when introducing these changes, environmental impact and responsibility for the decisions taken.

#### 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 and a presentation of the topic developed by students (in groups). The test consists of 3 open questions. Passing threshold: 50%.

#### Programme content

Lecture:

Ergonomics in engineering activities, ergonomic requirements, the effects of human activities and their impact on the working environment. Principles of designing and grouping work stations. Engineering design - selected aspects of interior lighting on the example of operating rooms. Ergonomics and quality of signalling and control devices at workplaces. Design and evaluation of hand tools. Principles of designing workstations for the disabled and solutions for activation of older people - examples. Mobile workers - principles of designing means of wheeled transport. Particularly hazardous work - design rules for personal protective equipment. Work in earthquake prone construction sites, examples of solutions.

#### Teaching methods

Lecture: multimedia presentation illustrated with examples.

#### Bibliography

Basic

Butlewski M., Tytyk E., Inżynieria ergonomiczna dla aktywizacji osób starszych, Praca i zabezpieczenie społeczne, 2015.

Garnik I., Metody ergonomicznego projektowania przestrzeni stanowisk pracy, W: O. Downarowicz (red.). Wybrane metody ergonomii i nauki o eksploatacji (s. 71-80), Politechnika Gdańska, 2000.



Tytyk E., Projektowanie ergonomiczne, PWN Warszawa – Poznań 2001.

Tytyk E., Inżynieria ergonomiczna, Wyd. Politechniki Poznańskiej, 2011.

Additional

Bieta B., Skreczko S., Trzesienia ziemi i zjawisko rezonansu-destrukcyjna siła natury, Wszechświat, t.118, nr 7-9/2017.

Jasiak A, Misztal A., Makroergonomia i projektowanie makroergonomiczne, Materiały pomocnicze, PP, 2004.

Wróblewska M., Ergonomia (skrypt dla studentów), [www.dbc.wroc.pl](http://www.dbc.wroc.pl), dostęp 18.02.20.

Zawieska M., Przystosowanie stanowisk pracy do potrzeb osób niepełnosprawnych, CIOP, Łódź, 2014

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	25	1,0
Classes requiring direct contact with the teacher	10	0,5
Student's own work (literature studies, preparation for tests) <sup>1</sup>	15	0,5

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