



Course title: Industrial ergonomics

ECTS credit allocation (and other scores): 2

Semester: spring

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 15+15

Course coordinator/ Department and e-mail: Maciej Neugebauer, Department of Electrical, Power, Electronic and Control Engineering, mak@uwm.edu.pl

Type of classes: classes and lectures

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#### Substantive content

**CLASSES:** Basics of health and safety at the workplace. Determination of energy expenditure for various activities of an employee and with various calculation methods. Determination of the amount of ventilation air. Determination of basic microclimate indicators (humidity, temperature, pressure, etc.). Measurements and evaluation of the quality of lighting in rooms. Measurements and assessment of noise levels at workplaces. Measurements of local vibrations affecting humans. Measurements of the strength of electromagnetic fields.

**LECTURES:** Man in the work process. Human - machine - environment system. Physiology - the nervous, circulatory, digestive and respiratory systems. The body's energy expenditure. Measurements of physical quantities characteristic for the microclimate of the work environment. Ventilation of rooms - requirements and effectiveness measurements. Lighting of work stations. Noise in the human environment. General and local vibrations affecting the organism. Vibration measurements. Electromagnetic fields. Assessment of compliance of technical devices with safety requirements.

**Learning purpose:** Acquainting with the basic phenomena occurring in the human work environment and methods of risk assessment at the workplace.

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On completion of the study programme the graduate will gain:

**Knowledge:** Know the social, economic, legal and other non-technical determinants of engineering activities.

**Skills:** Ability to work in an industrial environment and knows the safety rules related to this job.

**Social Competencies:** Understands the aspects of engineering activities and its impact on the work environment.

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**Basic literature:** R. Bridger, Introduction to Human Factors and Ergonomics, CRC Press, 2017; T. Stack and others, Occupational Ergonomics: A Practical Approach, Wiley 2016

**Supplementary literature:**

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The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 32

Student's independent work: 19