COURSE DESCRIPTION CARD - SYLLABUS

Course name
Ergonomics, safety and hygiene in work and protection of intellectual properties [S1MwT1>EiBHP]

Course

Field of study
Mathematics in Technology

Year/Semester
1/1

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
0

Number of credit points

1,00

Coordinators

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Lecturers

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Prerequisites

Basic knowledge of high school. Ability to analyze interdisciplinary problems, practical application of theoretical knowledge in work and everyday life.

Course objective

To acquaint students with the basic issues of ergonomics and occupational health and safety. Providing models for solving problems related to shaping working conditions by, for example, diagnostics and limiting occupational risk and designing ergonomic solutions. Showing the relationship between technology, human well-being, physiology, ecology, economy and sociology.

Course-related learning outcomes

Knowledge:
1. Student has structured and theoretical knowledge in the field of technical sciences, including electrical engineering, electronic and automation [K_W04 (P6S_WG)].
2. Student has the basic knowledge necessary to understand social, ethical, economic or legal issues, and other non-technical conditions of engineering activity; he/she understands the impact of social and civilization changes on lifestyle of the society [K_W12 (P6S_WK)].

3. Student has a basic knowledge of the principles of ergonomics, occupational health and safety, and hazards occurring in industry and beyond it. [K_W13 (P6S_WK)].
4. Student knows and understands the basic legal and economic conditions related with professional activity, including the principles of creating and developing forms of individual entrepreneurship [K_W14 (P6S_WK)].
5. Student knows and understands the basic concepts and principles of intellectual property protection, including copyright and patent law [K_W15 (P6S_WK)].

Skills:
Student:
- is able to perceive their non-technical aspects in formulating and solving engineering problems, including environmental, economic and legal aspects [K_U08 (P6S_UW)];
- can operate on equipment, tools, etc. in accordance with general requirements and technical documentation; knows how to apply the principles of health and safety at work [K_U09 (P6S_UW)];
- is able to independently plan and implement self-education in order to raise and update his/her competences [K_U15 (P6S_UU)].

Social competences:
Student:
- is able to think and act in a creative and entrepreneurial way, taking into account the safety, ergonomics of work and its economic aspects, is aware of the need to initiate activities for the public interest and responsibility for the effects of the team and individual participants [K_K03 (P6S_KO)];
- understands and appreciates the importance of intellectual honesty in its own and other people"s activities; is ready to demonstrate reliability, impartiality, professionalism and ethical attitude [K_K04 (P6S_KR)];
- is aware of its social role as a graduate of a technical university, is ready to communicate popular scientific content to the society and to identify and resolve basic problems related to the field of study [K_K05 (P6S_KR)].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Multiple-choice written test after completing the series of lectures on ergonomics and occupational health and safety as well as the cycle of intellectual property protection.

Programme content

The genesis of ergonomics (ergonomic engineering) as well as health and safety goals and tasks. Labor protection systems in Poland and other countries. Legal acts related to occupational health and safety and ergonomic standards. The human-technical system as an illustration of the workplace. Identification of threats at workplaces. Technical and organizational methods of limiting excessive occupational risk. Assessment of the physiological workload. Assessment of mental workload. Anthropometric data in the design of machines and work spaces. Apparatus measurements and evaluation of material parameters of the working environment. Examples of technical and organizational solutions improving the safety and ergonomic quality of machines and working conditions.
The concept of intellectual property. Basic regulations of copyright. The concept of industrial property and the forms of its legal protection. Plagiarism and Piracy - Legal Consequences. Patent law, protection law and registration law. Types of creative works and forms of their protection: invention, utility model, industrial design, trademark, geographical indications, topography of integrated circuits, rationalization conclusion. Proceedings before the Patent Office of the Republic of Poland. European patent.

Teaching methods

Lecture with multimedia presentation.

Bibliography

Basic
1. Tytyk E., Bezpieczeństwo i higiena pracy, ergonomia i ochrona własności intelektualnych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2017.

2. Tytyk E., Butlewski M., Ergonomia w technice, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
3. Horst W. (red.), Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy (4 tomy), Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
4. Koradecka D. (red.), Nauka o pracy - bezpieczeństwo, higiena, ergonomia. Pakiet edukacyjny dla uczelni wyższych, (8 tomów), Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 2000.
5. Michniewicz G., Ochrona własności intelektualnej, Wydawnictwo C.H. BECK, 2022.
6. Barta J., Markiewicz R., Prawo autorskie i prawa pokrewne, Wydawnictwo Zakamycze, 2004.
Additional
1. Górska E., Tytyk E., Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998.
2. Górska E., Diagnoza ergonomiczna stanowisk pracy. Oficyna Wydawnicza Politechniki Warszawskiej, 1998.
3. Nowak E., Atlas antropometryczny populacji polskiej, Wydawnictwo Instytutu Wzornictwa Przemysłowego, Warszawa, 2000.
4. Własność przemysłowa w działalności gospodarczej. Przewodnik dla małych i średnich przedsiębiorstw (red. Marianna Zaręba), Wydawnictwo Urzęd Patentowy RP, Warszawa, 2003.

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50