COURSE DESCRIPTION CARD - SYLLABUS

Course name
Ergonomics, safety and hygiene in work and protection of intellectual properties [S1MNT1>EiBHP]

Course

Field of study
Mathematics of Modern Technologies

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
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge in the field of secondary school. Ability to analyze interdisciplinary problems, practical application of theoretical knowledge in the conditions of work and everyday life.

Course objective

Familiarizing students with the basic issues of ergonomics and occupational health and safety. Providing patterns for solving problems related to shaping working conditions through, for example, diagnostics and reducing occupational risk and designing ergonomic solutions. Showing the connections between technology, human well-being, physiology, ecology, economy and sociology. Familiarize students with the basic legal regulations in the field of copyright, industrial property law and inventive procedures in force in the Republic of Poland and the EU.

Course-related learning outcomes

Knowledge:
• knows and understands to a sufficient degree issues in the field of technical sciences, including automation, robotics, electrical engineering and electronics;
• knows and understands the social, ethical, economic, legal and other non-technical conditions of en-

gineering activity; understands the impact of social and civilization changes on the lifestyle of society;
• knows and understands the principles of ergonomics, occupational health and safety;
• knows and understands the basic legal and economic conditions related to professional activity, including the principles of creating and developing forms of individual entrepreneurship;
• knows and understands the basic concepts and principles in the field of intellectual property protection, e.g. in copyright and patent law.

Skills:
• is able to identify non-technical aspects of engineering problems when formulating and solving them, e.g. environmental, economic, ethical and legal;
• is able to operate devices, tools, etc. in accordance with the general requirements and technical documentation; knows how to apply the rules of occupational health and safety;
• can independently plan and implement self-education in order to improve and update their competences.

Social competences:
• is ready to think and act in a creative and entrepreneurial way, taking into account safety, ergonomics and economic aspects of work; is aware of the need to initiate activities for the benefit of the public interest and responsibility for the effects of the work of the team and its individual participants;
• is ready to demonstrate reliability, impartiality, professionalism and ethical attitude; understands and appreciates the importance of intellectual honesty in own and other people's actions;
• is ready to fulfill his social role as a graduate of a technical university, to transfer popular science content and to identify and solve basic problems related to the field of study.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: learning outcomes presented above are verified as follows: multiple-choice written test after completing a series of lectures on ergonomics and health and safety and a series of IPP. Passing threshold: 60% - 3.0; 70% - 3.5; 80% - 4.0; 90% - 4.5; 100% - 5.0.

Programme content

Basic definitions of ergonomics and work safety issues. Policies and procedures for protecting students' intellectual property.

Course topics

Lectures:
• the origin of the issues of ergonomics (ergonomic engineering) and the goals and tasks of occupational health and safety;
• labor protection systems in Poland and other countries;
• legal acts related to occupational health and safety and ergonomic standards;
• the man-technical object system as an illustration of the workplace;
• identification of hazards at workstations;
• technical and organizational ways to reduce excessive occupational risk;
• assessment of the physiological workload;
• assessment of mental workload;
• anthropometric data in the design of machines and workspaces;
• instrument measurements and assessment of material parameters of the working environment;
• examples of technical and organizational solutions to improve the safety and ergonomic quality of machines and working conditions;
• the concept of intellectual property;
• basic regulations of copyright law;
• the concept of industrial property and 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 application;
• proceedings before the Patent Office of the Republic of Poland;

• european patent.

Teaching methods

Lectures: lecture with multimedia presentation.

Bibliography

Basic:
• Tytyk E., Bezpieczeństwo i higiena pracy, ergonomia i ochrona własności intelektualnych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2017;
• Tytyk E., Butlewski M., Ergonomia w technice, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011;
• Horst W. (red.), Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy (4 tomy), Wydawnictwo Politechniki Poznańskiej, Poznań, 2011;
• KoradeckaD.(red.),Naukaopracy-bezpieczeństwo,higiena,ergonomia.Pakietedukacyjnydlauczelni wyższych, (8 tomów), Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 2000;
• Michniewicz G., Ochrona własności intelektualnej, Wydawnictwo C.H. BECK, 2022;
• Barta J., Markiewicz R., Prawo autorskie i prawa pokrewne, Wydawnictwo Zakamycze, 2004.

Additional:
• Górska E., Tytyk E., Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998;
• Górska E., Diagnoza ergonomiczna stanowisk pracy. Oficyna Wydawnicza Politechniki Warszawskiej, 1998;
• Nowak E., Atlas antropometryczny populacji polskiej, Wydawnictwo Instytutu Wzornictwa Przemysłowego, Warszawa, 2000;
• 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