

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Ergonomics, safety and hygiene in work and protection of</b>		Code <b>1010341711011125152</b>
Field of study <b>Mathematics in Technology</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies (Polish Qualifications Framework level six)</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>1</b>
Status of the course in the study program (Basic, major, other) <b>other</b>		(university-wide, from another field) <b>university-wide</b>
Education areas and fields of science and art <b>Technical sciences Technical sciences</b>		ECTS distribution (number and %) <b>1 100% 1 100%</b>
<b>Responsible for subject / lecturer:</b> prof. dr hab. inż. Edwin Tytyk email: edwin.tytyk@put.poznan.pl tel. 61-665-33-77; 61-665-33-74 Faculty of Engineering Management ul. Strzelecka 11, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies (PRK/PQF 4):</b>		
1	<b>Knowledge</b>	Principal knowledge from the scope of the secondary school
2	<b>Skills</b>	Skill of analysing interdisciplinary problems and application into practice the theoretical knowledge in conditions in work and everyday life, as well as teamwork
3	<b>Social competencies</b>	Responsibility for own and subject persons activity, independence in thinking, team leadership
<b>Assumptions and objectives of the course:</b> Presenting basic issues concerning ergonomics and Occupational Health and Safety in modern companies and in everyday private life. Giving patterns for solving problems concerning the formation of conditions at work with use of, for example, diagnostics and reduction of occupational risk and designing ergonomic solutions. Presenting relations between technique, human well-being, ecology, economy and sociology. Acquainting students with principle legal regulations from the area of the copyright of the industrial property law and with procedures concerning inventions		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
<ol style="list-style-type: none"> <li>has structured and theoretical knowledge in the field of technical sciences, including electrical engineering, electronic and automation [K_W04 (P6S_WG)]</li> <li>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)]</li> <li>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)]</li> <li>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)]</li> <li>knows and understands the basic concepts and principles of intellectual property protection, including copyright and patent law [K_W15 (P6S_WK)]</li> </ol>		

<p><b>Skills:</b></p> <ol style="list-style-type: none"> <li>1. is able to perceive their non-technical aspects in formulating and solving engineering problems, including environmental, economic and legal aspects [K_U08 (P6S_UW)]</li> <li>2. 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)]</li> <li>3. is able to independently plan and implement self-education in order to raise and update his/her competences [K_U15 (P6S_UU)]</li> </ol>
<p><b>Social competencies:</b></p> <ol style="list-style-type: none"> <li>1. 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)]</li> <li>2. 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)]</li> <li>3. 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)]</li> </ol>
<p><b>Assessment methods of study outcomes</b></p>
<p>Written multi-choice test after full cycle of lectures.          Checking of the attendance in lectures.</p>
<p><b>Course description</b></p>
<p>The genesis of the OSH and ergonomics issue. Objectives and tasks of the OSH activity and the ergonomic engineering. Systems of work protection in Poland and other countries. Legal documents connected with the OSH activity and ergonomic standards. Systems man-to-technical object as an example of a workstation. Threats identification on workstations. Technical and organizational methods of reducing the excessive occupational risk. The assessment of the physical workload. The assessment of the psychical workload. Anthropometric data in designing machines and workspace. Apparatus measurements and assessment of material parameters of the work environment. Examples of technical and organizational solutions for upgrading the safety and ergonomic quality of machines and work conditions.</p> <p>The idea of copyright. Basic legal regulation of the copyright. The notion of industrial property and forms of its legal protection. The plagiarism and the piracy - legal effects. The 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, streamlining conclusion. Proceedings in the patent office the Republic of Poland. European patent.</p> <p>Update: 10.2018</p>
<p><b>Basic bibliography:</b></p> <ol style="list-style-type: none"> <li>1. Tytyk E., Bezpieczeństwo i higiena pracy, ergonomia i ochrona własności intelektualnych. Wydawnictwo Politechniki Poznańskiej, Poznań, 2017</li> <li>2. Tytyk E., Butlewski M., Ergonomia w technice; Wydawnictwo Politechniki Poznańskiej, Poznań, 2011</li> <li>3. Horst W. (red.), Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy (4 tomy); Wydawnictwo Politechniki Poznańskiej, Poznań, 2011</li> <li>4. Horst W., Ryzyko zawodowe na stanowisku pracy, Część I. Wyd. Politechniki Poznańskiej, Poznań, 2004</li> <li>5. Koradecka D. (red.), Bezpieczeństwo pracy i ergonomia (2 tomy); Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 1999</li> <li>6. Rączkowski B. BHP w praktyce. Wydanie XIV. Wyd. ODDK Gdańsk, 2014</li> <li>7. Barta J., Markiewicz R., Prawo autorskie i prawa pokrewne. Wyd. Zakamycze, 2004</li> <li>8. Szewc A., Jyz G., Prawo własności przemysłowej. Wyd. C.H. Beck, Warszawa, 2004</li> <li>9. Branowski B., Metody twórczego rozwiązywania zadań projektowych. Wyd. NOT, Poznań, 1999</li> </ol>
<p><b>Additional bibliography:</b></p> <ol style="list-style-type: none"> <li>1. Górka E., Tytyk E., Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne; Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998</li> <li>2. Górka E., Diagnoza ergonomiczna stanowisk pracy. Oficyna Wydawnicza Politechniki Warszawskiej, 1998</li> <li>3. Nowak E., Atlas antropometryczny populacji polskiej; Wyd. Instytutu Wzornictwa Przemysłowego, Warszawa, 2000</li> <li>4. Koradecka D. (red.), Nauka o pracy ? bezpieczeństwo, higiena, ergonomia. Pakiet edukacyjny dla uczelni wyższych, (8 tomów); Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 2000</li> <li>5. Własność przemysłowa w działalności gospodarczej. Przewodnik dla małych i średnich przedsiębiorstw (red. Marianna Zaręba). Wyd. Urząd Patentowy RP, Warszawa, 2003</li> <li>6. Ustawa z dn. 04 lutego 1994 r. o prawie autorskim i prawach pokrewnych.</li> <li>7. Ustawa z dn. 30 czerwca 2000 r. Prawo własności przemysłowej.</li> <li>8. Wzory przemysłowe w działalności małych i średnich przedsiębiorstw (opracowanie: Dobosz E., Gędek M., Podgórska A.), Wyd. Urząd Patentowy RP, Warszawa, 2005</li> <li>9. Kauffman A., Fustier M., Drevet A., Inwentyka. Metody poszukiwania twórczych rozwiązań. WNT, Warszawa, 1975</li> </ol>

<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Lecture	15	
2. Students individual work	10	
3. Discussion on practical solutions	2	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	27	1
Contact hours	15	1
Practical activities	10	1