

| <b>STUDY MODULE DESCRIPTION FORM</b>  |  |  |
|---|--|--|
| Name of the module/subject<br><b>Ergonomics</b>   |  | Code<br><b>1011101331011120136</b>   |
| Field of study<br><b>Engineering Management - Full-time studies -</b>   | Profile of study<br>(general academic, practical)<br><b>general academic</b> | Year /Semester<br><b>2 / 3</b>   |
| Elective path/specialty<br><b>-</b>   | Subject offered in:<br><b>Polish</b>   | Course (compulsory, elective)<br><b>obligatory</b>   |
| Cycle of study:<br><b>First-cycle studies</b>   | Form of study (full-time, part-time)<br><b>full-time</b>                     |  |
| No. of hours<br>Lecture: <b>30</b> Classes: <b>-</b> Laboratory: <b>30</b> Project/seminars: <b>-</b>   |  | No. of credits<br><b>5</b>   |
| Status of the course in the study program (Basic, major, other)<br><b>other</b>   |  | (university-wide, from another field)<br><b>university-wide</b>  |
| Education areas and fields of science and art<br><b>technical sciences</b>  |  | ECTS distribution (number and %)<br><b>5 100%</b>  |
| <b>Responsible for subject / lecturer:</b><br>dr hab. inż. Aleksandra Kawecka-Endler<br>email: aleksandra.kawecka-endler@put.poznan.pl<br>tel. 61- 6653370<br>Faculty of Engineering Management<br>ul. Strzelecka 11 60-965 Poznań  |  | <b>Responsible for subject / lecturer:</b><br>mgr. inż. Aleksandra Dewicka<br>email: aleksandra.dewicka@put.poznan.pl<br>tel. 61-665-33-84; 61-665-33-74<br>Faculty of Engineering Management<br>ul. Strzelecka 11 60-965 Poznań |
| <b>Prerequisites in terms of knowledge, skills and social competencies:</b>   |  |  |
| 1   | <b>Knowledge</b>   | Basic knowledge from secondary school about human being, work conditions problems and production technology area.  |
| 2   | <b>Skills</b>  | Can acquire data from literature, database or other properly matched sources, also in English  |
| 3   | <b>Social competencies</b>   | Can work in a group  |
| <b>Assumptions and objectives of the course:</b><br>Acquainting students with some fundamental concepts of humanizing working conditions, in relation to the processes of activities management which are present in corrective and conceptual ergonomics. Ergonomics of working conditions ought to be perceived by the students as a quality category, that guarantees better quality and effectiveness of work processes.  |  |  |
| <b>Study outcomes and reference to the educational results for a field of study</b>   |  |  |
| <b>Knowledge:</b>   |  |  |
| 1. has basic knowledge of equipment and machines life cycle - [K1A_W21]<br>2. has basic knowledge of products life cycle - [K1A_W22]<br>3. has basic knowledge of social-technical systems life cycle - [K1A_W23]<br>4. knows fundamental methods, techniques, tools and materials that are applied in solving simple engineering tasks relating Management Engineering - [K1A_W24]<br>5. has basic knowledge necessary to knowing non-technical knowledge... - [K1A_W25]<br>6. knows typical industrial technologies - [K1A_W27] |  |  |
| <b>Skills:</b>  |  |  |
| 1. can conduct a critical analysis of the ways in which technical solutions - [K1A_U16]<br>2. can suggest improvements (advancements) of existing technical solutions that are characteristic of Engineering - [K1A_U17]<br>3. can assess the utility of routine methods and tools for solving simple engineering tasks - [K1A_U18]   |  |  |
| <b>Social competencies:</b>   |  |  |
| 1. can come up with a suggestion how to make use of state-of-the-art technology (techniques and technology) within products design - [K1A_K02]  |  |  |

| <b>Assessment methods of study outcomes</b>  |                      |      |
|--|----------------------|------|
| - Credits (based on laboratories) will be given on the basis of reports that include conducted analyses and measurements.<br>- Written test (based on lectures).   |                      |      |
| <b>Course description</b>  |                      |      |
| Genesis of ergonomics in terms of technology and science development. Science components and characteristics of ergonomics. Ergonomics vs. health and safety- economic aspects. Human-technical object system and his environment. Interpretation of a system as a workplace. Objectives and range of ergonomic activity. Current trends on ergonomic research. Methods of ergonomic diagnosing. Analysis of physical workload and thermal management of a body. Analysis of mental loads related to work. Load optimization rules. Mechanisms of perception and information processing. Selection rules for signalling and control equipment. Developing spatial parameters of workplace, machines and tools based on anthropometric data. Assessment and development of working environment (mechanical vibrations, noise, microclimate, lighting, harmful radiation, air pollution). Rules of ergonomic design. Examples of ergonomic design regarding mounting, dispatcher, computer based positions. Ergonomics in relation to elderly and disabled people.   |                      |      |
| <b>Basic bibliography:</b>   |                      |      |
| 1. Mrugalska B., Kawecka-Endler A., Praktyczne zastosowanie zasad projektowania ergonomicznego w budowie maszyn, [w:] Inżynieria ergonomiczna (red. E. Tytyk), Wyd. Politechniki Poznańskiej, Poznań 2011, s. 7-22.<br>2. Kawecka-Endler A., Mrugalska B., Praktyczne aspekty projektowania ergonomicznego w budowie maszyn, Monografia, Wyd. Politechniki Poznańskiej, Poznań 2011 978-83-7143-993-3.<br>3. Kawecka-Endler A., Humanizacja a nowe formy pracy, Zeszyty Naukowe Organizacja i Zarządzanie nr 63, Wyd. Politechniki Poznańskiej, Poznań 2014, s.115-129.<br>4. Kawecka-Endler A., Wpływ organizacji stanowiska pracy na bezpieczeństwo pracownika, Źródło: Zastosowania Ergonomii. Wybrane kierunki badań ergonomicznych w 2013 roku / Charytonowicz Jerzy [ red. naukowa]. - Wrocław : Wydaw. Polskiego Towarzystwa Ergonomicznego PTErg. Oddział we Wrocławiu, 2013. - s. 123-132.<br>5. Projektowanie ergonomiczne (Ergonomic design), Edwin Tytyk, Wydawnictwo Naukowe PWN, Warszawa, 2001<br>6. Kawecka-Endler A., Humanizacja a nowe formy pracy, Zeszyty Naukowe Organizacja i Zarządzanie nr 63, Wyd. Politechniki Poznańskiej, Poznań 2014, s.115-129. |                      |      |
| <b>Additional bibliography:</b>  |                      |      |
| 1. Kawecka-Endler A., Ergonomia stanowiska a bezpieczeństwo pracy [w:] Problemy bezpieczeństwa i ochrony pracy. Wybrane zagadnienia. Monografia (red. W.M. Horst, J.S. Marcinkowski), Wyd. Politechniki Poznańskiej, Poznań 2014, s. 69-80.<br>2. Atlas antropometryczny populacji polskiej (Anthropomorphic atlas of Polish population), Ewa Nowak, Wydawnictwo Instytutu Wzornictwa Przemysłowego, Warszawa, 2000<br>3. Ergonomia produktu. Ergonomiczne zasady projektowania produktów (Product ergonomics. Ergonomic rules for product design), Jan Jabłoński (red.), Wydawnictwo Politechniki Poznańskiej, Poznań, 2006<br>4. PN-EN ISO 7250-1:2010 Podstawowe wymiary ciała ludzkiego do projektowania technicznego - Część 1: Określanie wymiarów ciała ludzkiego oraz punkty odniesienia (oryg.)<br>5. DzU 2009.105.869 Rozporządzenie Rady Ministrów z dnia 30 czerwca 2009 r. w sprawie chorób zawodowych  |                      |      |
| <b>Result of average student's workload</b>  |                      |      |
| Activity   | Time (working hours) |      |
| 1. Total workload  | 60                   |      |
| 2. Contact hours   | 15                   |      |
| 3. Practical activities  | 30                   |      |
| 4. Preparing to classes and lectures   | 15                   |      |
| 5. Preparing to exam   | 5                    |      |
| <b>Student's workload</b>  |                      |      |
| Source of workload   | hours                | ECTS |
| Total workload   | 125                  | 5    |
| Contact hours  | 75                   | 3    |
| Practical activities   | 50                   | 2    |