COURSE DESCRIPTION CARD - SYLLABUS

Course name

Macroergonomics

Course

Field of study

Safety Engineering

Area of study (specialization)

Ergonomics and work safety

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

10

Projects/seminars

10

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Faculty of Engineering Management

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Responsible for the course/lecturer:

Prerequisites

Student has a basic knowledge within ergonomic issues and management. Student is able to properly

analyze the causes and course of ergonomic phenomena as well as to interpret the results of these observations.

Course objective

Basic knowledge within ergonomic issues of the third-generation and management.

Course-related learning outcomes

Knowledge

- knows issues in fiels of ergonomics, macroergonomics, safety of work, and design methodology with considering safety requirements [P7S_WG_02]

- knows issues related with ergonomics and safety of work [P7S_WG_03]

- knows issues related with risk analysis, risks and their consequences in work environment [P7S_WG_05]

- knows issues related to design of products and processes [P7S_WG_07]

- knows the issues of leadership and management, particularly concerning quality areas [P7S_WG_08]

- knows basic methods, techniques, devices and materials used to solve simple ingeneering tasks in ergonomics and safety of work field with application of information technology, protection of information and computer assisting [P7S_WK_03]

Skills

- is able to recognize and form in engineering tasks system aspects and non-technical skills, as well as social and technical, organizational, and economic [P7S_UW_03]

- is able to use testing, analytical, simulation and experimental methods for solving engineering tasks, also with use of methods and information and communication devices [P7S_UW_04]

- is able to analyse manner of functioning and evaluate - in the context od Safety Ingeneering - existing technical solutions, in particular machines, devices, objects, systems, processes and services [P7S_UW_06]

- is able to present by means properly select measures problem within safety engeneering frame [P7S_UK_01]

Social competences

- is able to recognize correlations and cause-and-effect dependencies during realization of implementation the objective and rank significance alternative or competitive tasks [P7S_KK_01]

- is aware of the understanding of non-technical aspects and results of ingeneering activities including environmental impact and associated with it decisions-making [P7S_KK_03]

- is able to plan and manage business activity [P7S_KO_01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

evaluation

- classes: evaluation of the reports from completed classes and evaluation of self-study task

- project courses: evaluation of progress in poject task realization (compliance with agreed schedule of poject task realization schedule) and activity during classes

summative evaluation

- classes: the everage marks from report preparation

- in terms of project courses: project appraisal with taking into account asses the progress in realization of project task and activity during project realization

Programme content

Three stages of the evolution of ergonomics-macroergonomics. Macroergonomic paradigm regarding the development of an area describing the human factor in technology. Macroergonomic information system (valuing and decomposition of the criteria. Formal synthesis of evaluations . The credibility of the macroergonomic information. A criteria problem in a macroergonomic design (the complexity of relationships in macroergonomic systems. Basic methodological assumptions of non-traditional design information). Macroergonomic diagnostics (Model. Concept. The issue of the diagnostic conditions.Focus list). Intelligent macroergonomic system. The development of macroergonomic zones of business cooperation.

Teaching methods

- exercise classes: expert tables method interchangeably with cases method

- project: multileg cognitive task

Bibliography

Basic

1. Pacholski L., Jasiak A., (2011), Makroergonomia, Wyd. Politechniki Poznańskiej, Poznań.

2. Jasiak A., Misztal A., (2004), Makroergonomia i projektowanie makroergonomiczne. Materiały pomocnicze., Wyd. Politechniki Poznańskiej, Poznań.

3. Jasiak, A. (2020). The fourth face of macroergonomics. Zeszyty Naukowe Politechniki Poznańskiej seria Organizacja i Zarządzanie, 71, 137-150.

4. Vargas, A. R., Maldonado-Macías, A. A., & García-Alcaraz, J. L. (2017). Macroergonomics for Manufacturing Systems: An Evaluation Approach. Springer.

Additional

1. Sławińska M., (2019), Ergonomic engineering of technological devices, Wyd. Politechniki Poznańskiej, Poznań.

2. Jasiak A., Makroergonomia w projektowaniu systemów pracy i jakości życia., (2015), Wyd. Politechniki Poznańskiej, Poznań.

3. Drzewiecka, M., Mrugalska, B., & Pacholski, L. (2012). Ergonomic intervention plan for machinery operators. Advances in ergonomics in manufacturing, 49.

4. Pacholski L., Cempel W., Pawlewski P., (2009), Reengineering. Reformowanie procesów biznesowych w przedsiębiorstwie, Wyd. PP, Poznań.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	20	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate