KARTA PRZEDMIOTU

Nazwa przedmiotu: Engineering workflow in industrial enterprise
Nazwa w języku polskim: Inżynieryjny przepływ pracy w przedsiębiorstwie przemysłowym
Nazwa w języku angielskim: Engineering workflow in industrial enterprise

Dane dotyczące przedmiotu:

Jednostka oferująca przedmiot:	Wydział Organizacji i Zarządzania
Przedmiot dla jednostki:	Politechnika Śląska
Poziom i forma studiów:	II st., studia stacjonarne
Cykl dydaktyczny:	semestr letni, 2023/24
Koordynator przedmiotu cyklu:	Dr inż. Patrycja Kabiesz

Domyślny typ protokołu dla przedmiotu:
ZAL
Język wykładowy:
angielski
Strona WWW:
https://platforma.polsl.pl/roz/
Punkty ECTS
2
Skrócony opis:

The aim of the subject is the acquisition of knowledge and skills by a student in the field of analysis and shaping workflow in industrial enterprise including the flow of people, technical means and information.

The student will acquire knowledge about the factors affecting the effectiveness of workflow and will be able to recognize the cause-and-effect relationships between workflow efficiency and human factors. The student will learn the methods for workflow modeling and analyzing supported by audio-video tools and embedded into IT or ICT.

The course also aims to shape the student's appropriate attitude characterized by their activity and independence in conducting research in the field of searching and applying modern solutions supporting the improvement of workflow in industrial enterprise, and also criticism, independence of thinking, decision-making, planning and organizational ability.

Opis:

Lectures:

1. Introduction to workflow. Definition, structure, workflow goals, factors influencing workflow in an industrial enterprise. A place and roles of people, technology and information in workflow.

2. Managing teamwork. Team competency matrix, team communication, the role of technical and nontechnical skills in teamwork.

3. Workflow identification and analysis methods. Observational methods, graphical representation of workflow. AV and IT tools in workflow mapping.

4. Workflow models. Modeling based on video recording, modeling based on activity analysis.

5. Ergonomics and OHS in terms of workflow analysis. Shaping the efficiency of workflow under human factor approach.

Project lessons:

The project includes a comprehensive work including development of workflow structure and its analysis based on selected process in industrial enterprise.

The project includes the following elements:

1. Recognition of elements shaping the workflow structure.

2. Identification and description of the flow of people, technical means and information on the basis of recorded videos

of sample parts of work processes.

3. Development of a competency matrix.

4. Development of a workflow model.

5. Workflow analysis based on the workflow model, including the identification of critical points affecting work efficiency. 6. Development of a set of improvement recommendations.

7. Comprehensive development of the work results.

Summary indexes:

Number of hours of classes with direct participation of academic teachers or other instructors and students

- Lecture: 15h
- -Project: 15h
- Credit for lecture: 2h
- Credit of laboratory: 3h

Number of hours for student's own work

- Preparation for the lecture exam: 15h
- Preparation for laboratory classes and preparation of lab reports: 10h

Number of ECTS credits included in the study programme to be obtained through classes conducted with the direct participation of academic teachers or other instructors and students: 2

The method and procedure for making up for arrears resulting from:

- student's absence from classes, The student is obliged to make up for any arrears through participation in classes with another group (if possible), in consultations arranged by the lecturer or individually, using methods and techniques of independent knowledge acquisition.

- differences in study programmes of students transferring from another field of study, from another university or resuming studies at the Silesian University of Technology,

It is necessary for the student to participate in classes in the nearest possible cycle.

Literatura:

Scientific manuscripts (available in e-resources of Silesian University of Technology https://www.bg.polsl.pl/ebazy/listaebaz_s3.html):

1. Chirkin A.M., Belloum A.S.Z., Kovalchuk S.V., Makkes M.X. et al.: Execution time estimation for workflow scheduling. Future Generation Computer Systems, Volume 75, October 2017, pp. 376-387.
2. Steckowych K., Smith M.: Workflow process mapping to characterize office-based primary care medication use and safety: A conceptual approach. Research in Social and Administrative Pharmacy, In press, corrected proof, Available online 12 June 2018.
3. Bartnicka J., Kściuk T.: Modelowanie procesów workflow w sali operacyjnej z zastosowaniem technologii informatycznych. W: Innowacje w zarządzaniu i inżynierii produkcji. T. 2. Pod red. Ryszarda Knosali. Opole : Oficyna Wydaw. Polskiego Towarzystwa Zarządzania Produkcją, 2016, s. 667-676.
4. Abollado J.R., Shehab E.: A Systems Approach for the Definition of Lean Workflows in Global Aerospace Manufacturing Companies, Procedia CIRP, Volume 70, 2018, pp. 446-450.
5. Bartnicka J.: Determinants of knowledge-based improving workflow and communication within surgical team. World Acad. Sci. Eng. Technol., Int. J. Med. Health Biomed. Bioeng. Pharm. Eng. [online] 2013 vol. 7 no. 11, pp. 687-692.

Monographs (available in the Library of Silesian University of Technology https://opac.bg.polsl.pl/):
1. Bartnicka J.: Doskonalenie procesów pracy w organizacji szpitalnej. Wydaw. Politechniki Śląskiej, Gliwice 2020.
2. Kabiesz P. Wpływ czynników ergonomicznych i workflow na efektywność procesów produkcyjnych, 2022. Rozprawa doktorska.
3. McCabe T.P., Hanson M.A., Robertson S.A. (eds.): Contemporary ergonomics. Boca Raton ; London ; New York : CRC Press, 2017.

Scientific papers:
1. Joanna Bartnicka: Management of surgical workflow - an observation-based assessment study. W: Business and non-profit organizations facing increased competition and growing customers' demands. Proceedings of the 17th Conference of Scientists and Business People, Tomaszowice, Poland, 18-19 June 2018. Ed. by Adam Nalepka and Anna Ujwary-Gil. Nowy Targ : Foundation for the Dissemination of Knowledge and Science "Cognitione", 2018.
2. Partrycja Kabiesz, Joanna Bartnicka: Ergonomic and workflow study of sausage production process in the context of manual transport tasks. W: MAPE 2018. XV International Conference Multidisciplinary Aspects of Production Engineering, 05-08 September 2018, Zawiercie, Poland. Conference proceedings. Vol. 1, iss. 1.
3. Joanna Bartnicka, T. Kściuk: Modelowanie procesów workflow w sali operacyjnej z zastosowaniem technologii informatycznych. W: Innowacje w zarządzaniu i inżynierii produkcji. T. 2. Pod red. Ryszarda Knosali. Opole : Oficyna Wydaw. Polskiego Towarzystwa Zarządzania Produkcją, 2016, s. 667-676.
4. Joanna Bartnicka: Determinants of knowledge-based improving workflow and communication within surgical team. World Acad. Sci. Eng. Technol., Int. J. Med. Health Biomed. Bioeng. Pharm. Eng. [online] 2013 vol. 7 no. 11, s. 687-692.

Efekty uczenia się:

Knowledge: a student knows and understands
K2A_W03 Basic processes taking place in the life cycle of technical devices, facilities and systems (Lecture).
K2A_W13 Fundamental dilemmas of the contemporary world, especially in relation to the development of technology (Lecture, Project).

Skills: a student can
K2A_U07 Formulate and test hypotheses related to simple research problems concerning the field of management and production engineering (Lecture, Project).
K2A_U012 Communicate on specialist topics with diverse audiences, act as the debate leader and adequately present and justify different opinions and positions (Lecture, Project).
K2A_U13 Use a foreign language at the B2+ level of the Common European Framework of Reference for Languages and specialist terminology related to the field of study of management and production engineering, as well as another foreign language at the level of at least A1 (Lecture, Project).

Social competences: a student in prepared to
K2A_K02 Recognition of the importance of knowledge in solving cognitive and practical problems; consulting experts in the event of difficulties in solving the problem on his/her own (Lecture, Project).

Metody i kryteria oceniania:

Lecture:
The final grade is based on quiz outcome. Positive evaluation when student obtains a minimum of 50% of the number of points possible to get.
Project lessons:
The grade is based on written team project.

Praktyki zawodowe:

Not applicable.