

Concurrent Engineering - opis przedmiotu

Informacje ogólne	
Nazwa przedmiotu	Concurrent Engineering
Kod przedmiotu	06.9-WM-MaPE-P-ConEng-23
Wydział	Wydział Mechaniczny
Kierunek	Management and Production Engineering
Profil	ogólnoakademicki
Rodzaj studiów	pierwszego stopnia z tyt. inżyniera
Semestr rozpoczęcia	semestr zimowy 2023/2024

Informacje o przedmiocie	
Semestr	5
Liczba punktów ECTS do zdobycia	2
Typ przedmiotu	obieralny
Język nauczania	angielski
Sylabus opracował	dr inż. Roman Kielec, prof. UZ

Formy zajęć					
Forma zajęć	Liczba godzin w semestrze (stacjonarne)	Liczba godzin w tygodniu (stacjonarne)	Liczba godzin w semestrze (niestacjonarne)	Liczba godzin w tygodniu (niestacjonarne)	Forma zaliczenia
Wykład	15	1	-	-	Zaliczenie na ocenę
Projekt	15	1	-	-	Zaliczenie na ocenę

Cel przedmiotu

Making the students familiar with the idea of concurrent solving selected matters concerning product realisation allowing for group work, internet and available computer systems. Practicing the ability of making decisions in multidisciplinary projects of complex information structure.

Wymagania wstępne

Production and service management, engineering graphics, PKM, CAD

Zakres tematyczny

Lecture

L1: The concept of concurrent engineering. The aims of concurrent engineering. Designing whole “lifespan” of the product.

L2: Comparing concurrent engineering to traditional (sequence) process of the product realisation.

L3: Main problematic areas of designing in concurrent engineering.

L4: Main differences and their influence on competitiveness of an enterprise.

L5: Outline of designing methodology. Structure of enterprises and the way of management.

L6: Principles for group work organising.

L7: Information systems: CAD/CAM/CIM systems, product data management, data bases. Planning and selected scheduling methods.

L8: CPM and PERT methods. Gantt charts. Project management. Methods and tools supporting work of multidisciplinary groups. Terms and conditions of implementing concurrent engineering in an enterprise.

Project

P 1-3: Modernisation of a selected product according to the given criterion.

P 4: Carrying out of the product decomposition.

P 5-7: Designing the technology route with selecting the machine park and in-house transport.

P 8: New technologies transfer.

P 9: Multidisciplinary working group selection.

P 10-11: Creating the schedule of the undertaking with the use of traditional planning methods and a new method of coupling matrix.

P 12: Developing of optimal production schedule with decisive system.

P 13: Identification of sequence, parallel and concurrent actions.

P14: Warehouse management. Distribution channels.

P 15: Credit for project

Metody kształcenia

Lectures with the use of audio-visual aids. During lectures a method of "brainstorming" is used. Group work takes place during project exercises according to the idea of concurrent engineering.

Efekty uczenia się i metody weryfikacji osiągnięcia efektów uczenia się

Opis efektu	Symbole efektów	Metody weryfikacji	Forma zajęć
He/she has structured knowledge in the field of industrial production management and the organization of production systems related to Management and Production Engineering.	K_W30	- kolokwium - projekt	- Wykład - Projekt
The student is able to work individually and in a team; has the ability to organize a team for a specific task; indicate expectations towards team members and manage the work of a small team.	K_U03	projekt	Projekt
He/she has structured knowledge in the field of integrated management systems and decision support systems related to Management and Production Engineering.	K_W28	- kolokwium - projekt	- Wykład - Projekt
Has the ability to interact or work in a group, taking various roles.	K_K03	projekt	Projekt
Has the ability to think and act in an entrepreneurial way.	K_K06	projekt	Projekt
He/she has structured knowledge of designing methods and optimizing production processes related to Management and Production Engineering.	K_W21	- kolokwium - projekt	- Wykład - Projekt
He/she has structured general knowledge of strategic management as well as project management and innovation related to Management and Production Engineering.	K_W17	- kolokwium - odpowiedź ustna	- Wykład - Projekt
Has the ability to use terminology related to Management and Production Engineering.	K_U10	odpowiedź ustna	Projekt

Warunki zaliczenia

Lecture

The grade is given on the basis of a written test that includes verification of knowledge of basic issues.

Project

The grade determined by the component assessing the skills associated with the implementation of project tasks and the preparation of the report, and the component for the student's "defense" of the project report.

Literatura podstawowa

1. Parsaei H.R., Sullivan W.G., Concurrent Engineering, Chapman & Hali, London, 2001.
2. Steward D., „An overview of the five pillars of the concurrent engineering body of knowledge”, Socce News, The Society of Concurrent Engineering, Los Angeles, Spring 2000.
3. Browning T.R., *Design Structure Matrix Extensions and Innovations: A Survey and New Opportunities*, IEEE Transactions on Engineering Management, 2015.
4. Kusiak A. „Concurrent Engineering”, John Wiley & Sons, New York 1993.
5. Steward D.V., *The Design Structure System: A Method for Managing the Design of Complex Systems*, IEEE Transactions on Engineering Management 1981

Literatura uzupełniająca

1. Kielec R. “Metoda planowania procesów projektowo-konstrukcyjnych z wykorzystaniem sprzężeń zwrotnych”. Rozprawa doktorska. Uniwersytet zielonogórski 2003

Uwagi

Zmodyfikowane przez dr inż. Roman Kielec, prof. UZ (ostatnia modyfikacja: 13-05-2023 15:03)

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