Organization of Production Systems - opis przedmiotu

Informacje ogólne

Nazwa przedmiotu	Organization of Production Systems
Kod przedmiotu	06.9-WM-ZiIP-ANG-D-02_20
Wydział	Wydział Mechaniczny
Kierunek	Management and Production Engineering
Profil	ogólnoakademicki
Rodzaj studiów	drugiego stopnia z tyt. magistra inżyniera
Semestr rozpoczęcia	semestr zimowy 2021/2022

Informacje o przedmiocie

Semestr	1
Liczba punktów ECTS do zdobycia	3
Typ przedmiotu	obowiązkowy
Język nauczania	angielski
Sylabus opracował	• dr hab. inż. Michał Sąsiadek, 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
Projekt	15	1	-	-	Zaliczenie na ocenę
Wykład	15	1	-	-	Zaliczenie

Cel przedmiotu

The aim of the course is to get familiar with the methods of analysis and design of production systems, to master the techniques of designing and organization of production systems, in particular to master the scope of the issues relating the description of the structure of the system and the production process, methods and management techniques, production systems, modeling and simulation of production processes, formation of logical and structural relationships in the design of a distributed organizational structure of a production systems.

Wymagania wstępne

Production management

Zakres tematyczny

Lecture: Introduction - basic concepts. Trends in development of production systems. The production process, the production system and the environment. Types of forms and varieties of organization of production - examples. Description of a product structure and production processes. Designing of production processes. Resource planning and production project management based on production facilities and technical documentation and the normative demands for consumption of labour and material. Designing of manufacturing systems. Methods and techniques for managing manufacturing systems. Modelling and simulation of production systems. Implementation of the system project. Production planning and scheduling. Planning of flow in constrained resource conditions. Methods and techniques of production planning. TOC - Theory of Constraints in operational planning. Strategies of production control - the basic principles of flow control. Logistics management in production systems. Integrated management systems.

Project: Design of an arbitrary production system including: the analysis of the distribution of posts, design of the production flow, basic calculations of norms of the production flow in the system.

Metody kształcenia

Conventional lecture in the form of a multimedia presentation accompanied by an active participation of students (problem questions - during the lecture)

Project: a project method, independent work in teams of 2-3 students - multimedia presentation of material prepared by students, discussion over the content presented.

Efekty uczenia się i metody weryfikacji osiągania efektów uczenia się

Opis efektu	Symbole efektów	Metody weryfikacji	Forma zajęć
The student is able to plan experiments in mechanical engineering and is able to work out the results of an experiment, draw conclusions, formulating opinions in the process and sufficiently justifying them.	• K_U02	• projekt	• Wykład • Projekt
The student is able to design a complex manufacturing system and to choose methods for managing work flow by using innovative methods; he/she is also able to design workplaces and critically analyse how the proposed solutions will work.	• K_U24	• projekt	• Wykład • Projekt
The student can use accepted methods and computer simulations to analyse and evaluate management systems.	• K_U16	• projekt	• Wykład • Projekt

Opis efektu	Symbole efektów	Metody weryfikacji	Forma zajęć
The student is able to plan and carry out engineering experiments, including measurement of the parameters of technological processes and computer simulations, enabling him / her to interpret the results and draw conclusions.	• K_U22	• projekt	• Wykład • Projekt
The student has orderly, theoretical knowledge for organising production systems.	• K_W12	• egzamin - ustny, opisowy, testowy i inne	• Wykład • Projekt
The student has knowledge of the life cycle of devices, objects and technical systems, related to Management and Production Engineering	• K_W17	• egzamin - ustny, opisowy, testowy i inne	• Wykład • Projekt
The student is able to think and act both creatively and entrepreneurially.	• K_K06	• projekt	• Wykład • Projekt
The student is able to design and use safe working conditions in complex production systems.	• K_U21	• projekt	• Wykład • Projekt
The student is able to formulate the requirements for a supply chain and is also able to design complex logistics system.	• K_U25	• projekt	• Wykład • Projekt

Warunki zaliczenia

Form of instruction (conventional lecture actively involving students, discussion of the subjects discussed) allows for an ongoing assessment of the acquired knowledge, especially through oral exam. Laboratory and the realization of a series of experiments complemented with the analysis of data obtained from experiments and the preparation of the report allows checking of the competences. Implementation of the project and a multimedia presentation allow the evaluation of the skills. Both the lab report, the current observation of students during the implementation of the simulation allow assessment of their social competences.

Literatura podstawowa

1. BELLGRAN, Monica; SÄFSTEN, Eva Kristina. Production development: design and operation of production systems. Springer Science & Business Media, 2009.

Literatura uzupełniająca

1. FELD, William M. Lean manufacturing: tools, techniques, and how to use them. CRC Press, 2000.
2. GUPTA, Sushil; STARR, Martin. Production and Operations Management Systems. CRC Press, 2014.

Uwagi

Zmodyfikowane przez dr hab. inż. Michał Sąsiadek, prof. UZ (ostatnia modyfikacja: 02-05-2021 12:35)