



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Organization and production control

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### Course

Field of study

Management and Production Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

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### Number of hours

Lecture

30

Tutorials

Laboratory classes

15

Projects/seminars

15

Other (e.g. online)

### Number of credit points

6

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### Lecturers

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

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Responsible for the course/lecturer:

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### Prerequisites

The student has basic knowledge in the field of production management and is able to logically



associate facts, use information obtained from available sources of knowledge. Understanding the need for learning and acquiring new knowledge

### Course objective

Knowing the theoretical and practical issues of the organization of production systems

### Course-related learning outcomes

#### Knowledge

The student knows the characteristics of the system and production process.

The student knows the elements of the production system (production structure, types of cell production)

The student knows the differences in types of production (unit, small-lot, serial, Mass)

The student knows the basic forms of organization of production

The student knows the basic parameters of the production flow.

The student knows the methods of production control in different terms, the organization of production systems

The student knows the solution for automatic data identification in the production area

#### Skills

The student knows how to design the flow of materials (production) in the production processes

The student is able to propose the form and structure of the organization of production for the various types of production

The student knows how to take into account internal and external factors affecting the adoption of specific production capacity

The student can design elements of the production structure (form type) and management of production space (system of production cells) - [K2\_U08 K2\_U09]

The student knows how to calculate the parameters of the production flow The student is able to determine the need for material production program

The student can design the production flow using kanban system and the theory of constraints

The student is able to determine the functional requirements of IT systems for material flow management in the production system

The student can design an organization associated with the acquisition and transfer of data in the production system and is able to apply the methods and tools TPM

#### Social competences

Understands the importance of organizing production for the enterprise



Can independently develop knowledge on the

Understands the importance of computerization of production for the enterprise

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Assessment based on a test consisting of 10 questions (credit for a correct answer for min. 6 questions: <6 - ndst, 6 - dst, 7 - dst + 8 - db, 9 - db +, 10 - vg) carried on the end of the semester.

Project: credit on the basis of the project made.

Laboratory: credit on the basis of the performance report.

### Programme content

Lecture:

Definitions: a production system, production process.

The production capacity; factors determining capacity planning.

The structure organizational processes (form of organization, type of production, types of production structure).

The principles of spatial organization of production systems (lay-out), infrastructure and technical equipment of production systems. Taking into account the situation of project (modernization or development of new systems).

The concept of production control. Functions of production control. The information in the control system. The information in the control system: the type of information, accuracy of information. Production plans and operational. material requirements planning and MRP, inventory model, the level of ordering).

Methods mobile within and between the material flow control.

Information support processes, production control: the characteristics of MRP, APS, MES, WMS

Automatic identification data about the product and production processes. Technical infrastructure of automatic identification data.

Project:

The project is to design a production system for certain inputs. associated with product assortment and demand for products, technological processes, production resources. The project involves the selection of productive resources, the adoption of the type and form of organization of production, project management and production space control system production flow (flow of materials and information).

Lab:



During the lab, students become familiar with virtually functionalities copyright system to support planning and control and production and solutions for automatic identification of production data. Classes are conducted in a laboratory simulation in the original mapping from the production system.

the object of which is to develop a system of information flow in the production system. The project includes the adoption of solutions for vehicular and data acquisition related flow of materials in the production system: types of information, procedures, technical solutions.

### Teaching methods

Lecture: multimedia presentation illustrated with examples given on a board, problem solving.

Laboratory exercises: performing experiments, solving tasks, discussion, teamwork.

Project: solving practical problems, searching for sources, teamwork, discussion.

### Bibliography

#### Basic

Organizacja i sterowanie, Marek Brzeziński, AW Placet, Warszawa, 2002.

Lewandowski Jerzy, Skołod Bożena, Plinta Dariusz, Organizacja systemów produkcyjnych, PWE, Warszawa 2014r.

Mazurczak Jerzy, Projektowanie struktur systemów produkcyjnych, Politechnika Poznańska, Poznań, 2002.

Edward Pająk, Zarządzanie produkcją. Produkt, technologia, organizacja, PWN, Warszawa, 2006

Waters Donald, Zarządzanie operacyjne, PWN, 2019

Banaszak Z., Kłós S., Mleczko J., Zintegrowane systemy zarządzania, PWE, Warszawa 2011r

Senger Zbigniew, Sterowanie przepływem produkcji, Wydawnictwo Politechniki Poznańskiej, 1998r.

#### Additional

Januszewski A., Funkcjonalności informatycznych systemów zarządzania, PWN, Warszawa 2008.

Inżynieria zarządzania, Ireneusz Durlík, AW Placet, Warszawa, 1993



### Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,0
Classes requiring direct contact with the teacher	90	4,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	60	2,0

<sup>1</sup> delete or add other activities as appropriate