



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Production management

### Course

Field of study

Engineering Management

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

English

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

Tutorials

Projects/seminars

15

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Agnieszka Grzelczak

Responsible for the course/lecturer:

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Faculty of Engineering Management

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### Prerequisites

The student starting this subject should have a basic knowledge of machine technology and the basics of management and organization of work stations. He should also have the skills to understand and apply the parametric description of the production process and system as well as the design of workstation organization, as well as understand and be prepared for production management, especially in the area of production organization design, and in the field of social competence should have the ability to work in a group.

### Course objective

To familiarize students with the basics of production management.

### Course-related learning outcomes

Knowledge



The student explains the significance and impact of the life cycle of socio-technical systems on production management [P6S\_WG\_13].

The student identifies and describes the basic methods, techniques, tools, and materials used in the management of machine production [P6S\_WG\_16].

The student classifies typical industrial technologies, analyzing their application in the construction and operation of machinery [P6S\_WG\_17].

The student characterizes non-technical conditions of engineering activities, including principles of safety and hygiene at work [P6S\_WG\_18].

The student describes the fundamentals of quality management and business activities in the context of production [P6S\_WK\_02].

#### Skills

The student analyzes technological processes of machine production, using acquired knowledge to assess the efficiency of production systems [P6S\_UW\_13].

The student demonstrates the application of typical methods for solving technical problems in machine production [P6S\_UW\_15].

The student designs structures and technologies for simple machine parts, considering the organizational aspects of production units [P6S\_UW\_16].

#### Social competences

The student develops an awareness of the importance of non-technical aspects of engineering activities, including the impact on the environment and responsibility for decisions [P6S\_KR\_01].

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified by the exam and by tests (quizzes) at individual classes (via the Moodle platform). Passing threshold: 50% of points.

The skills acquired during the laboratory classes are verified on the basis of laboratory tasks (carried out with the use of specialized software) and activity during the classes. Passing threshold: 50% of points.

The skills acquired during design classes are verified on the basis of the progress in the implementation of project tasks (implemented as a team) and the defense of the project. Passing threshold: 50% of points.

#### Programme content

Lecture: The essence of production management. Classification of processes in an enterprise, an organized process. Parameters and norms of production management, space modeling the manufacturing process, control planes. Product (product or service), basics of technical preparation of production, range of production, program, pace and cycle of production. Product production cycle.



Production stocks and their functions. Production capacity, load balancing with production capacity. Production capacity management, scheduling, production flow analysis. Basics of production control.

Laboratory: Product (product), production range, program, production pace and cycle. Product production cycle. Production inventory. Production capacity, load balancing with production capacity. Production capacity management, scheduling, production flow analysis. Fundamentals of production planning and control.

Project: Product (product), production range, program, production pace and cycle. Product production cycle. Production inventory. Production capacity, load balancing with production capacity. Fundamentals of production planning and control.

### Teaching methods

Lecture: informative lecture (conventional) - information transfer in a systematic way, supported by multimedia presentation, illustrated with examples and tasks, and case method (case study) - analysis of specific cases of illustrative (illustrative) or problem (identifying problems) character.

Laboratory: laboratory method (experiment) - independent conducting of experiments by students using specialized software.

Project: project method - individual or team implementation of a large, multi-stage cognitive or practical task, which results in the creation of a work.

### Bibliography

Basic

1. S.N. Chapman, The fundamentals of production planning and control; Prentice Hall 2006
2. K.N. McKay, V.C.S. Wiers, Practical production control. A survival guide for planners and schedulers, APICS, J.Ross Publishing 2004
3. Kumar, Rajesh. Operations management. Jyothis Publishers, 2022.
4. Pająk E., Zarządzanie produkcją, Wydawnictwo Naukowe PWN, Warszawa, 2021.
5. Pająk E., Klimkiewicz M., Kosieradzka A., Zarządzanie produkcją i usługami, PWE, Warszawa 2014.
6. Brzeziński M. (red.), Organizacja i sterowanie produkcją, AW Placet, Warszawa, 2002.
7. Kulińska E., Busławski A., Zarządzanie procesem produkcji, Difin, Warszawa, 2019.
8. Jardzioch A., Kalinowski K., Kłos S., Organizacja i planowanie produkcji, PWE, Warszawa, 2023.
9. Wróblewski K., Podstawy sterowania przepływem produkcji, WNT, Warszawa 1993.
10. Senger Z., Sterowanie przepływem produkcji, WPP, Poznań, 1998.



Additional

1. T. Hill, Production/Operations Management, Prentice Hall 1991
2. Heizer, J. Render, B. Operations Management, Prentice Hall 2005
3. Muhlemann A., Oakland J., Lockyer K., Zarządzanie. Produkcja i usługi, PWN , Warszawa, 2001.
4. Mazurczak J., Projektowanie struktur systemów produkcyjnych, WPP, Poznań, 2001.
5. Boszko J., Struktura organizacyjna przedsiębiorstwa i drogi jej optymalizacji, WNT, Warszawa 1973.
6. Grzelczak A., Werner-Lewandowska K., Importance of Lean Management in a contemporary enterprise - research results, Research in Logistics & Production, vol. 6, no. 3, 2016. 5. Grzelczak A., Werner-Lewandowska K., Eliminating Muda (Waste) in Lean Management by Working Time Standardization, Arabian Journal for Science and Engineering, vol. 6, iss. 3, 2016.
7. Ragin-Skorecka K., Grzelczak A., Motała D., Podstawy zarządzania nie tylko dla logistyków, Wydawnictwo WSB, Poznań 2017.

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for class and design classes, preparation for colloquium and exam, project implementation) 1	55	2,5

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