



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Production Management [S1IZarz1>ZProd2]

### Course

Field of study

Engineering Management

Year/Semester

3/6

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

### Number of credit points

4,00

### Coordinators

dr inż. Agnieszka Grzelczak

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### Lecturers

### Prerequisites

The student starting this subject should have a basic knowledge of machine technology as well as the basics of management and logistics. 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

Basics of production planning and control. Methods and levels of production control. Classic and contemporary production systems.

### Course topics

Lecture: The essence of production management. Basics of production planning and control. Production control standards. Methods and levels of production control. Production structure. Production process and production system. Classic and contemporary production systems. Lean Production.

Laboratory: Parameters and standards of production management. Production range, design and production series. Production program, pace and tact of production. Product production cycle. Production capabilities, balancing loads with production capacity. Production capacity management, scheduling, production flow analysis. Product structure and resource structure. Resource scheduling in service processes.

Project: Product, production range. Production program. Production pace and tact. Product production cycle. Production stocks. Production capabilities, balancing loads with production capacity. Production scheduling. Design of a production unit of the 1st degree of complexity.

### 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. Pająk E., Zarządzanie produkcją, Wydawnictwo Naukowe PWN, Warszawa, 2021.
2. Pająk E., Klimkiewicz M., Kosieradzka A., Zarządzanie produkcją i usługami, PWE, Warszawa 2014.
3. Brzeziński M. (red.), Organizacja i sterowanie produkcją, AW Placet, Warszawa, 2002.
4. Kulińska E., Busławski A., Zarządzanie procesem produkcji, Difin, Warszawa, 2019.
5. Jardzioch A., Kalinowski K., Kłos S., Organizacja i planowanie produkcji, PWE, Warszawa, 2023.
6. Wróblewski K., Podstawy sterowania przepływem produkcji, WNT, Warszawa 1993.
7. Senger Z., Sterowanie przepływem produkcji, WPP, Poznań, 1998.

Additional:

1. Muhlemann A., Oakland J., Lockyer K., Zarządzanie. Produkcja i usługi, PWN , Warszawa, 2001.
2. Mazurczak J., Projektowanie struktur systemów produkcyjnych, WPP, Poznań, 2001.
3. Boszko J., Struktura organizacyjna przedsiębiorstwa i drogi jej optymalizacji, WNT, Warszawa 1973.
4. 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.
5. Ragin-Skorecka K., Grzelczak A., Motąła D., Podstawy zarządzania nie tylko dla logistyków, Wydawnictwo WSB, Poznań 2017.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	45	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,50