# STUDY MODULE DESCRIPTION FORM

| Name of the module/subject | | Code |
|---|---|---|
| **Designing industrial plants** | | **1011101371011110558** |
| Field of study | Profile of study (general academic, practical) | Year /Semester |
| **Engineering Management - Full-time studies -** | **general academic** | **4 / 7** |
| Elective path/specialty | Subject offered in: | Course (compulsory, elective) |
| **-** | **Polish** | **elective** |
| Cycle of study: | Form of study (full-time,part-time) | |
| **First-cycle studies** | **full-time** | |
| No. of hours | | No. of credits |
| Lecture: **15** Classes: **-** Laboratory: **-** Project/seminars: **15** | | **2** |
| Status of the course in the study program (Basic, major, other) | (university-wide, from another field) | |
| **other** | **university-wide** | |
| Education areas and fields of science and art | | ECTS distribution (number and %) |
| **technical sciences** | | **2 100%** |

**Responsible for subject / lecturer:**

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## Prerequisites in terms of knowledge, skills and social competencies:

| | | |
|---|---|---|
| 1 | **Knowledge** | The student has a basic knowledge of managing production and services. |
| 2 | **Skills** | The student understands and can apply the tools and techniques for the design of the production units of the first level of complexity. |
| 3 | **Social competencies** | The student understands and is prepared to design the organization of production systems, especially in terms of production structures. |

## Assumptions and objectives of the course:

Understanding the theoretical and practical issues related to the design of production systems and the basic methods and techniques used in the process.

## Study outcomes and reference to the educational results for a field of study

### Knowledge:

1. know the methods and tools for designing the production structures - [K1A_W09]
2. has knowledge of organizational norms - [K1A_W16]
3. has a basic knowledge of the life cycle of socio-technical systems - [K1A_W23]
4. knows the basic methods, techniques, tools and materials used to solve simple engineering tasks in the field of production systems design - [K1A_W24]
5. has the basic knowledge necessary to understand non-technical conditioning of engineering activities; knows the basic principles of occupational safety and health in the construction industry - [K1A_W25]
6. knows typical industrial technologies and is proficient in the technologies of machine construction and operation - [K1A_W27]

### Skills:

1. he can plan and conduct experiments, including computer simulations and measurements, interpret the results and draw conclusions - [K1A_U12]
2. he can use analytical, simulation and experimental methods to formulate and solve engineering tasks - [K1A_U13]
3. he can, when formulating and solving engineering tasks, see their systemic, socio-technical, organizational, economic and non-technical aspects - [K1A_U14]
4. he can perform a preliminary economic analysis of undertaken engineering activities - [K1A_U15]
5. it can perform critical analysis of technological processes of machine production and organization of production systems - [K1A_U16]
6. it can identify design tasks and solve simple design tasks in terms of machine construction and operation - [K1A_U17]
7. he can use common methods of solving simple problems in the field of construction and operation of machines - [K1A_U18]
8. it can identify design tasks and solve simple design tasks in terms of machine construction and operation - [K1A_U19]

**Social competencies:**

1. is aware of the responsibility for self-employment and the willingness to follow the rules of teamwork and responsibility for jointly accomplished tasks - [K1A_K02]
2. he can see causal relationships in the achievement of the goals set and the importance of alternative or competitive tasks - [K1A_K03]
3. he can prepare and execute a business venture - [K1A_K07]

## Assessment methods of study outcomes

Formative assessment:

a) For the project: on the basis of progress in the implementation stages of the project, and knowledge of the issues necessary to carry b) for the lecture: on the basis of answers to questions about the topics covered in previous lectures

Recapitulative assessment:

a) For the project: on the basis of (1) the quality of the project (2) answers to questions about the project b) for the lecture: on the basis of colloquium - written work on the issues discussed during the lecture. The exam can be applied after obtaining the ratings of the project . The exam is passed, after giving the correct answers to most questions

## Course description

Basis of design production systems. The company as a system. The term project situation (upgrading or developing new systems). Product realization process. Algorithm design and technical assumptions - economic production preparation products. The problem of design: the structure of production systems, production start, the spatial organization of manufacturing processes. Project documentation. The master plan, the location of the company. Project evaluation system. New directions and trends in the design of production systems.

Teaching methods:

- Lecture - information lecture (conventional) (information transfer in a systematic way) monographic (specialist).
- Project - project method (individual or team implementation of large, multi-stage

cognitive or practical task resulting in the creation of a work).

## Basic bibliography:

1. Brzeziński M. (red.), Organizacja i sterowanie produkcją, AW Placet, Warszawa, 2002.
2. Lewandowski J., Skołud B., Plinta D., Organizacja systemów produkcyjnych, PWE, Warszawa 2014.
3. Gawlik J., Plichta J., Świć A., Procesy produkcyjne, PWE, Warszawa 2013.
4. Mazurczak J., Projektowanie struktur systemów produkcyjnych, WPP, Poznań, 2001.
5. Lis S., Organizacja i ekonomika procesów produkcyjnych w przemyśle maszynowym, PWN, Warszawa 1984.
6. Jackowicz R., Lis S, Podstawy projektowania struktur przedsiębiorstw przemysłowych, WPW, Warszawa 1987.
7. Mazurczak, J., Gania, I., 2008. Kryteria klasyfikacji warunków organizowania systemów produkcyjnych, [red.] Fertsch Marek, Grzybowska Katarzyna, Stachowiak Agnieszka, Poznań, Politechnika Poznańska, Instytut Inżynierii Zarządzania, str. 175 ? 186

## Additional bibliography:

1. Pająk E., Klimkiewicz M., Kosieradzka A., Zarządzanie produkcją i usługami, PWE, Warszawa 2014.
2. Muhlemann A., Oakland J., Lockyer K, Zarządzanie. Produkcja i usługi, PWN, Warszawa 2001.
3. Pająk E., Zarządzania produkcją, Wydawnictwo Naukowe PWN, Warszawa 2017.

## Result of average student's workload

| Activity | Time (working hours) |
|---|---|

| | |
|---|---|
| 1. Participation in lectures | 15 |
| 2. Participation in project activities | 15 |
| 3. Consulting project | 13 |
| 4. Exam preparation | 13 |
| 5. Exam | 2 |

| **Student's workload** | | |
|---|---|---|
| **Source of workload** | **hours** | **ECTS** |
| Total workload | 58 | 2 |
| Contact hours | 45 | 1 |
| Practical activities | 15 | 0 |