



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machine Technology and Design of Production Processes 1

### Course

Field of study

Field of study

Engineering Management - Full-time studies

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

10

Tutorials

Laboratory classes

10

Projects/seminars

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

PhD., Katarzyna Kalisz-Szwedzka

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Faculty of Engineering Management

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Responsible for the course/lecturer:



## Prerequisites

Basic knowledge about the life cycle of machines

## Course objective

-The aim of the course is to familiarize students with theoretical and practical issues in the field of manufacturing techniques applied in the machine industry, with particular emphasis on market economy conditions.

## Course-related learning outcomes

### Knowledge

The student describes the life cycle of machines, including basic elements of the technological process and their documentation [P6S\_WG\_14].

The student lists and characterizes basic methods, techniques, tools, and materials used in machine technology, including in metallurgy, casting, plastic deformation, plastics, welding, and gluing [P6S\_WG\_16].

The student identifies typical industrial technologies, including technologies for the construction and operation of machines, with emphasis on machining processes like turning, milling, drilling, threading, and grinding [P6S\_WG\_17].

### Skills

The student analyzes technological processes in machine production and the organization of production systems, assessing their efficiency and feasibility [P6S\_UW\_13].

The student identifies and solves simple design tasks in the field of machine construction and operation, utilizing acquired knowledge of industrial technologies [P6S\_UW\_14].

The student applies methods for solving technological problems, designing structures and technology for simple machine parts and components [P6S\_UW\_15].

The student designs the organization of first-level complexity production units, guided by principles of efficiency and process optimization [P6S\_UW\_16].]

### Social competences

The student describes and applies a systemic approach in creating products, considering technical, economic, marketing, legal, organizational, and financial issues [P6S\_KO\_02].

The student is aware of the impact of engineering activities on the environment and assesses their responsibility for decisions made in the context of non-technical aspects [P6S\_KR\_01].

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:



- a) in terms of laboratories: on the basis of an assessment of the current progress of the tasks.
- b) in lectures: on the basis of answers to questions about material modified in previous lectures.

Summary:

- a) lecture - written test on the basis of previously prepared questionnaire
- b) written laboratory pass.

### Programme content

lectures:

- Introduction to the subject of lectures.
- The outline of metallurgy,
- Molding,
- Plastic working,
- Plastic processing,
- Welding,
- Thermal treatment,
- Routing and hand-
- Machining (turning, planing, chiseling, tugging, drilling, tapping, milling, boring, - Abrasive).

Laboratories: Getting acquainted with production techniques in the conditions of production plants

### Teaching methods

lectures; monographic with the use of a computer with the division of the content of the program into separate thematic issues in connection with the subject of the laboratory

Laboratories: visits to production plants in the scope of selected technological processes

### Bibliography

Basic

1. red. Erbel J. Encyklopedia technik wytwarzania stosowanych w przemyśle maszynowym tom I i II Oficyna Wydawnicza PW W-wa 2001
2. Szreniawski J. Techniki wytwarzania. Odlewnictwo. PWN Warszawa 1989
3. Szweyger M Metalurgia skrypt PP Poznań 1993



4. Sikora R. Przetwórstwo tworzyw wielkocząsteczkowych Wyd. Żak W-wa 1993
5. Gruszka J. Studium rozwoju technologii produkcji tulei cylindrowych. Monografia- Modelowanie warstwy wierzchniej s.53-66,Wydawca IBEN Gorzów Wlkp.,2014

Additional

1. Feld M. Technologia budowy maszyn WNT W-wa 2004
2. Gruszka J.Światowe tendencje w technologii produkcji tulei cylindrowych. Silniki Spalinowe nr 3,2011

**Breakdown of average student's workload**

|  | Hours | ECTS |
|--|-------|------|
| Total workload   | 100   | 4,0  |
| Classes requiring direct contact with the teacher  | 25    | 1,0  |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) <sup>1</sup> | 75    | 3,0  |

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