



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machine Technology and Design of Production Processes 2

### Course

Field of study

Engineering Management

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

English

Requirements

compulsory

### Number of hours

Lecture

15

Tutorials

Laboratory classes

15

Projects/seminars

15

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Remigiusz Łabudzki

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Responsible for the course/lecturer:

Faculty of Mechanical Engineering

ul. Piotrowo 3, 61-138 Poznań

### Prerequisites

Basic knowledge about the life cycle of machines

Has knowledge of technologies used in the construction and operation of machines (sem. 4)



### 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.

- developing a project on machine technology

### Course-related learning outcomes

#### Knowledge

The student discusses elements of the technological process of machines, including basic concepts, documentation of the technological process, and characteristics of different types of production [P6S\_WG\_14].

The student presents the manufacturability of designs, preparation of semi-finished products for processing, technological allowances, and bases in machine technology [P6S\_WG\_16].

The student analyzes organizational forms of production and principles of designing technological processes, including standardization of working time and fitting systems [P6S\_WG\_17].

#### Skills

The student conducts an analysis of technological aspects of machine manufacturing, including metrology, tolerances, and fitting systems [P6S\_UW\_13].

The student identifies and designs technological processes, considering construction and technological aspects [P6S\_UW\_14].

The student applies the project method to implement practical tasks, creating technological documentation for selected products [P6S\_UW\_15].

The student designs and assesses production systems, considering quality and economic aspects of production [P6S\_UW\_16].

#### Social competences

The student applies a systemic approach to product creation, considering technical, economic, marketing, legal, organizational, and financial aspects in designing technological processes [P6S\_KO\_02].

The student considers non-technical aspects of engineering activities, including the impact of technology on the environment, and is aware of the responsibility for decisions made [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

Project - Stage verification of the project

### 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
6. Szreniawski J. Techniki wytwarzania. Odlewnictwo. PWN Warszawa 1989

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	50	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) <sup>1</sup>	50	2,0

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