



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machine technology

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### Course

Field of study

Logistics

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

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### Number of hours

Lecture

30

Tutorials

Laboratory classes

45

Projects/seminars

Other (e.g. online)

### Number of credit points

3

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### Lecturers

Responsible for the course/lecturer:

Prof. Stanisław Legutko, Ph.D., D. Sc. Eng.,

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Faculty of Mechanical Engineering

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:



### Prerequisites

Basic knowledge on material science, construction of machines and manufacturing methods

Student has the ability to think logically, to use the information obtained from the literature and the Internet

Student understands the need to learn and acquire new knowledge

### Course objective

Providing students with knowledge of basic issues related to the design of technological processes in the production of machine parts and assembly

### Course-related learning outcomes

#### Knowledge

Student should describe the phases of existence of technical objects [P6S\_WG\_01, P6S\_WG\_02]

Student should be able to define the concept of production process, technological process and its components [P6S\_WG\_01, P6S\_WG\_02]

Student should be able to select data for the technological process planning [P6S\_WG\_01, P6S\_WG\_02]

Student should describe the factors describing the surface layer [P6S\_WG\_01, P6S\_WG\_02]

Student should describe the key factors of technological quality and exploitation quality [P6S\_WG\_01, P6S\_WG\_02]

Student should describe the methods of computer-aided design and implementation of technological processes [P6S\_WG\_01, P6S\_WG\_02]

#### Skills

Student can choose the raw material to form a designated machine part [P6S\_UW\_01]

Student can determine the machining allowances [P6S\_UW\_01]

Student can determine the standard time on the technological operation [P6S\_UW\_01]

Student can develop a manufacturing process for selected classes of machine parts [P6S\_UW\_01]

#### Social competences

Student can work together in a group and is willing to cooperate and work in teams to resolve problems contained within the subject being studied [P6S\_KR\_02]

Student is aware of the role of technology used in the life cycle of the machine [P6S\_KO\_02]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Forming rating:



a) in the laboratory: based on the current progress of the exercises

b) of lectures: not applicable

Summary assessment:

Lecture: Test on the basis of a written test consisting of four questions rated on a scale from 0 to 1. Included in the case of a minimum of 2,6 points.

Laboratory: Assessment based on oral and written answers concerning the content of each exercise which has been performed. Laboratory report from each laboratory exercises based on indications of the teacher. All exercises must be included in order to be credited laboratories (positive evaluation of the answers and reports).

### Programme content

Lecture:

A general introduction to the mechanical technology. The existence phases of the technical object. The essence of machine technology. New trends in manufacturing technology. The production process. The technological process. Technological documentation. The input of the design of technological process. Raw materials. Technical standard of the working time. Machining bases. Allowances. Precision of machining, errors. The quality of the product. The surface layer and the factors shaping it. Costs. Producibility machine parts. Assembly. Planning of the typical processes of machine parts. Elements of computer aided processes planning.

Laboratory:

- 1 Manufacturing technology of axially symmetrical workpieces (shafts, sleeves, shields)
- 2 Finishing techniques
- 3 Manufacturing technology of the not axially symmetrical workpieces (body, handle, plate, bracket)
- 4 Robotic technology of assembly
- 5 The technological process of cylindrical gear

### Teaching methods

1. Lecture: multimedia presentation with comment, illustrated with examples on the board.
2. Laboratory exercises: a multimedia presentation illustrated with examples given on a blackboard and performing tasks given by the teacher - practical exercises.

### Bibliography

Basic

- [1] M. Feld: Technologia budowy maszyn, PWN, Warszawa, 2002.



[2] M. Feld: Podstawy projektowania procesów technologicznych typowych części maszyn, WNT, Warszawa, 2000.

Additional

3] M. Feld: Uchwyty obróbkowe, WNT, Warszawa, 2002.

[4] K. Pastwa, K. Wieczorowski: Materiały pomocnicze do projektowania uchwytów i przyrządów, Wyd. Politechniki Poznańskiej, Poznań, 1977, skrypt nr 721.

[5] R. Wołk: Normowanie czasu pracy na obrabiarkach skrawających do metali, WNT, Warszawa, 1972.

[6] Poradnik inżyniera. Obróbka skrawaniem – tom II i III, WNT, Warszawa, 1993 i 1994.

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	75	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) <sup>1</sup>	15	1,0

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