



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Processes of machining and assembly of machine parts [N1Log2>POiMCM]

Course

Field of study
Logistics

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
10

Laboratory classes
8

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

prof. dr hab. inż. Stanisław Legutko
stanislaw.legutko@put.poznan.pl

Lecturers

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

Provide students with knowledge of the basic issues related to machining and assembly of machine parts.

Course-related learning outcomes

Knowledge:

1. Student should describe the phases of existence of technical objects [P6S_WG_01, P6S_WG_02]
2. Student should be able to define the concept of production process, technological process and its components [P6S_WG_01, P6S_WG_02]
3. Student should be able to select data for the technological process planning [P6S_WG_01, P6S_WG_02]
4. Student should describe the factors describing the surface layer [P6S_WG_01, P6S_WG_02]
5. The student should characterize the machining processes of typical machine parts [P6S_WG_01,

P6S_WG_02]

6. The student should characterize the assembly methods and organizational forms of assembly [P6S_WG_01, P6S_WG_02]

Skills:

1. Student can choose the raw material to form a designated machine part [P6S_UW_01]
2. Student can determine the machining allowances [P6S_UW_01]
3. The student is able to present the machining processes for selected classes of parts [P6S_UW_01]
4. The student is able to choose the organizational forms of assembly for selected types of production [P6S_UW_01]

Social competences:

1. 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]
2. Student is aware of the role of technology used in the life cycle of the machine [P6S_KO_02]
3. The student is aware of the critical assessment and noticing the cause-effect relationships in the implementation of the set goals and the importance of the importance of tasks [P6S_KK_01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Forming rating: not applicable. Summary assessment: Examination 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: Forming rating: based on the current progress of the exercises. Summary assessment: 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: The phases of the existence of a technical object. Production process. Technological process. Semi-finished products. Allowances. Machining accuracy, errors. The surface layer. Costs. Assembly technology.

Laboratory: Manufacturing technology of axially symmetrical workpieces. Manufacturing technology of the not axially symmetrical workpieces

Course topics

Lecture: General introduction to the processes of shaping machine parts. The phases of the existence of a technical object. Place of processing and assembly processes in the life cycle of products. New trends in shaping machine parts. Production process. Technological process. Technological documentation. Input data for the planning of the technological process. Semi-finished products. Allowances. Product quality. Machining accuracy, errors. The surface layer and its shaping factors. Costs. Machining processes of typical machine parts for classes of parts: shaft, sleeve, disc, lever, body, flat parts, gear. Elements of computer-aided planning of technological processes. Assembly technology - assembly methods, organizational forms of assembly.

Laboratory: Manufacturing technology of axially symmetrical workpieces (shafts, sleeves, shields). Finishing techniques. Manufacturing technology of the not axially symmetrical workpieces (body, handle, plate, bracket). Robotic technology of assembly. The technological process of cylindrical gear.

Teaching methods

Lecture: multimedia presentation with comment, illustrated with examples on the board.

Laboratory: a multimedia presentation illustrated with examples given on a blackboard and performing tasks given by the teacher - practical exercises.

Bibliography

Basic:

1. Feld M., Technologia budowy maszyn, Wydawnictwo Naukowe PWN, Warszawa, 2002.
2. Feld M., Podstawy projektowania procesów technologicznych typowych części maszyn, WNT, Warszawa, 2000.

Additional:

1. Feld M., Uchwyty obróbkowe, WNT, Warszawa, 2002.
2. Pastwa K., Wieczorowski K., Materiały pomocnicze do projektowania uchwytów i przyrządów, Wydawnictwo Politechniki Poznańskiej, Poznań, 1977, skrypt nr 721.
3. Wołk R., Normowanie czasu pracy na obrabiarkach skrawających do metali, WNT, Warszawa, 1972.
4. Poradnik inżyniera. Obróbka skrawaniem - tom II i III, WNT, Warszawa, 1993 i 1994.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00