

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Technological machines		Code 1011104341010222395
Field of study Logistics - Part-time studies - First-cycle	Profile of study (general academic, practical) general academic	Year /Semester 2 / 4
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 12 Classes: - Laboratory: 12 Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: dr hab. inż. Piotr Frąckowiak email: piotr.frackowiak@put.poznan.pl tel. 616652263 Wydział Budowy Maszyn i Zarządzania ul. Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge in the field of materials science, machine construction, manufacturing techniques
2	Skills	The student has the ability to think logically, use information obtained from literature and the Internet
3	Social competencies	The student understands the need to learn and acquire new knowledge
Assumptions and objectives of the course: Understanding the basic issues related to the design of technological processes for the production of machine parts and assembly		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. The student should characterize the phases of existence of technical objects - [K1A_W05]		
2. The student should be able to define the concepts of the production process, technological process and its components - [K1A_W05]		
3. The student should explain the basic concepts in the field of technological equipment - [K1A_W05]		
4. The student should characterize the factors describing the top layer - [K1A_W05]		
5. The student should characterize the basic factors of technological and operational quality - [K1A_W05]		
6. The student should characterize the methods of computer-aided design and implementation of technological processes - [K1A_W05]		
7. The student should be able to choose data for the design of the technological process - [K1A_W05]		
Skills:		
1. The student is able to choose a blank to produce the indicated machine part - [K1A_U05]		
2. The student can determine machining allowances - [K1A_U05]		
3. The student is able to determine the time standard for a technological operation - [K1A_U05]		
4. The student is able to develop a technological process for selected part classes - [K1A_U05]		
5. Student is able to provide the concept of technological equipment for technological operations - [K1A_U05]		
Social competencies:		

1. The student is able to cooperate in a group; is willing to cooperate and work in a group to solve problems within the studied subject - [K1A_K03]
 2. The student is aware of the role of machine technology in the life cycle of the machine - [K1A_K04]

Assessment methods of study outcomes

Forming rating

- a) in the field of the laboratory: based on the current progress of the exercise
 b) in the field of lectures: too large lecture group and limited time prevent any knowledge checking procedure

Assessment summary:

Lecture: Exam based on a written test consisting of 4 questions rated on a scale from 0 to 1. Credit for a minimum of 2.4 points.

Laboratory: Assessment based on oral or written answer in the scope of the content of each laboratory exercise, a report on each laboratory exercise as indicated by the laboratory conductor. All exercises must be completed in order to pass the laboratories (positive assessment of the answer and report).

Course description

Lecture:

General introduction to machine technology. Phases of the existence of a technical object. The essence of machine technology. New trends in machine technology. Production process. Technological process. Technological documentation. Output data for the design of the technological process. Semis. Technical working time standard. Machining bases. Allowances. Machining accuracy, errors. Product quality. The surface layer and its shaping factors. Technological equipment. Costs. Technological construction. Assembly. Designing technological processes of typical machine parts. Elements of computer-aided design of technological processes.

Lab:

- 1 Technology of machining axisymmetrical objects (shaft, sleeve, disc)
- 2 Post-processing techniques
- 3 The technology of machining non-axisymmetrical objects (body, lever, plate, bracket)
- 4 Robotic assembly technology
- 5 Technological process of a cylindrical gear

Teaching methods: informative lecture, laboratory method

Basic bibliography:

1. Golatowski T.: Prasy mechaniczne : Konstrukcja, eksploatacj i modernizacja. Wydawnictwa Naukowo-Techniczne, Warszawa 1970.
2. Tomczak J., Bartnicki J.: Maszyny i urządzenia do obróbki plastycznej, Politechnika Lubelska, Lublin 2012
3. Boczarow J. A.: Prasy śrubowe. Wydawnictwo Naukowo ? Techniczne, Warszawa 1980.
4. Praca zbiorowa: Prasy mechaniczne stosowane w tłocznictwie. Wydawnictwo Naukowo Techniczne. Warszawa 1959.

Additional bibliography:

1. Romanowski W. P.: Poradnik obróbki plastycznej na zimno. Wydawnictwo Naukowo ? Techniczne, Warszawa 1976.

Result of average student's workload

Activity	Time (working hours)	
1. Lectures	12	
2. Laboratory	12	
3. Preparation for the laboratory	15	
4. Consultation	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	49	2
Contact hours	34	1
Practical activities	12	1