

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Machine Technology and Design of Production Processes		Code 1011105251011100159
Field of study Engineering Management - Part-time studies -	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 12 Classes: - Laboratory: 10 Project/seminars: 10		No. of credits 4
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art		ECTS distribution (number and %)
Responsible for subject / lecturer:		
dr hab. inż. Józef Gruszka, prof. nadzw.. PP email: jozef.gruszka@put.poznan.pl tel. 665 33 77 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	1. Basic knowledge of the life cycle of machines - [K01-InzA_W01] 2. Basic methods, techniques, tools and materials used in solving simple engineering tasks involving the construction and operation of machines - [K04-InzA_W02] 3. To have knowledge of the technologies used in the construction and operation of machinery - [K07-InzA_W05]
2	Skills	1. Can make identification of project tasks and solve simple design tasks in the construction and operation of machinery - [K01-InzA_U2] 2. Can carry out technical and economic analysis of actions taken engineering - [K01-InzA_U04] 3. Able to design and analyze processes and organize production systems - [K01-InzA_U5] 4. Can design and technology to design simple parts and components of machines and design organization of production units of the first level of complexity - [K01-InzA_U06, K01-InzA_U07]
3	Social competencies	1. Is aware of the importance of design and organization of technological processes in engineering activities - [K01-InzA_K1] 2. It is aware of the significance of good design processes in the finished products - [K01-InzA_K2]
Assumptions and objectives of the course:		
Assumptions and objectives of the course: - To familiarize students with theoretical and practical issues related to the design of technological processes - To familiarize students with theoretical and practical issues of processing and assembling with particular emphasis on conditions of market economy - Drafting of machine technology and process.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. It has a basic knowledge of the life cycle of machines - [K01-InzA_W01] 2. . Knows basic methods, techniques, tools and materials used in solving simple engineering tasks involving the construction and operation of machines - [K04-InzA_W02] 3. Has knowledge about the technology used in the construction and operation of machinery - [K07-InzA_W05]		
Skills:		

1. He can make the identification of project tasks and solve simple design tasks in the construction and operation of machinery - [K01-InzA_U2]
2. Able to carry out technical and economic analysis of actions taken engineering - [K01-InzA_U04]
3. Able to design and analyze processes and organize production systems - [K01-InzA_U5]
4. Can design and technology to design simple parts and components of machines and design organization of production units of the first level of complexity - [K01-InzA_U06, K01-InzA_U07]
Social competencies:
1. Is aware of the importance of design and organization of technological processes in engineering activities - [K01-InzA_K1]
2. It is aware of the significance of good design processes in the finished products - [K01-InzA_K2]

Assessment methods of study outcomes
-Formative assessment: - in lectures: - on the basis of answers to questions about material modified in previous lectures - in the laboratory: on the basis of an assessment of the current progress of the tasks - on the project: on the basis of an assessment of the current progress of the tasks Summary summary: - lecture - written exam on the basis of a previously prepared set of questions. - in the laboratory: written tests after each laboratory cycle - in the scope of the project: final evaluation of the project and its public presentation

Course description

lectures :Selected aspects of machine technology: basic concepts; elements of the technological process; production types and their characteristics; producibility; semi-finished products and their preparation for processing; final machining allowances; base in machine technology; standardization of working time; organizational forms of production. The documentation process. Technical working hours. The accuracy of the machining process. The structures of the technological process typical machine parts. Editing. Designing the assembly process. Elements of automation and robotics manufacturing processes. Analysis of cost. Quality, quality control, certification. Surveying and layout of fits. Tolerances. A process design selected part of the process, the documentation process and variant analysis of the cost of the process. Unconventional technologies, equipment and design processes. Selected processes of production. Laboratories: acquainted with the technological process and its documentation in the field of production of selected products in real production conditions Projects: Design of technological process of selected part of machine construction, process documentation and variant analysis of process cost. Didactic methods: Monographic lecture using a computer with the division of content into separate thematic issues in connection with the subject of the laboratory and the project. Laboratory: visits to the production plant in the scope of selected technological processes Project: teamwork of a multi-stage project in the scope of elaboration of the technological process of a selected part together with elaboration of the technological documentation of the process together with a variant analysis of process costs.

Basic bibliography:
1. Technologia maszyn / Bronisław Choroszy - Wrocław: Oficyna Wydawnicza Politechniki Wrocławskiej, 2000.
2. Podstawy projektowania procesów technologicznych typowych części maszyn / Mieczysław Feld. - Wyd. 2 zm. - Warszawa: Wydawnictwa Naukowo-Techniczne, 2003.
3. Edward Chlebus, Techniki komputerowe CAx w inżynierii produkcji, WNT, Warszawa 2000.
4. Gruszka J. Studium rozwoju technologii produkcji tulei cylindrowych. Monografia- Modelowanie warstwy wierzchniej s.53-66,Wydawca IBEN Gorzów Wlkp.,2014
5. Łabędz J.: Projektowanie procesów technologicznych obróbki. Zagadnienia ogólne. Wydawnictwa AGH, Kraków 2001.

Additional bibliography:		
1. Ashby M., Shercliff H., Cebon D. Inżynieria materiałowa, Wyd. Galaktyka T.2, Łódź 2011.		
2. Kolman R. Kwalitologia. PG Gdańsk 2009		
3. Feld M. Technologia Budowy Maszyn. PG, Gdańsk 1993		
4. Krzyżanowski J: Wprowadzenie do elastycznych systemów wytórczych. PWr. Wrocław 2005		
Result of average student's workload		
Activity	Time (working hours)	
1. Lecture	12	
2. Laboratory	10	
3. Project	10	
4. Prepare for the lab.i project evaluation	10	
5. Preparation for an exam	10	
6. Exam	5	
7. Consultation	20	
Student's workload		
Source of workload	hours	ECTS
Total workload	77	4
Contact hours	57	3
Practical activities	20	1