

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Manufacturing Techniques I		Code 1010601221010224791
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 1 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
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 technical sciences		ECTS distribution (number and %) 1 100%
Responsible for subject / lecturer: dr inż. Marek Rybicki email: marek.rybicki@put.poznan.pl tel. 616652723 Wydział Budowy Maszyn i Zarządzania ul. Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student has a basic knowledge of physics, mathematics and mechanics.
2	Skills	Student is able to use the acquired knowledge to the analysis of specific manufacturing techniques and know how to use the information obtained from the library and the Internet.
3	Social competencies	Student demonstrates self-reliance in solving problems, acquire and improve their knowledge and skills, understanding the need for learning.
Assumptions and objectives of the course: Getting to know the future engineers of kinematics, technological capabilities, machine tools and tools with different ways of cutting and eroding. Learn the basics of how to calculate the parameters and cutting power and the selection of the blade material.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Able to characterize different ways of cutting and eroding (kinematics, technological capabilities, machines and tools) - [K1A_W04]		
2. Has knowledge of the types of cutting tool materials and methods for their preparation - [K1A_W03]		
Skills:		
1. He can choose how the cutting and eroding, tools and materials to perform the tool parts - [K1A_U01 K1A_U14]		
2. Able to distinguish and find a variety of tools, methods of cutting and machine tools. - [K1A_U15]		
3. Can communicate using the basic concepts and the size of the field of machining and erosive contained in books, magazines, company materials - [K1A_U02]		
4. It can convert feeds expressed different units and calculate the speed and power cut - [K1A_U10 K1A_U18]		
Social competencies:		
1. Able to resolve dilemmas in the field of machining and erosion at the level of the modern economy and society - [K1A_K06]		
Assessment methods of study outcomes		
Examination under the test performed on the last class semester (in the case of response to 50 to 60% of the questions - dst, over 60 to 70% - dst +, greater than 70 to 80% - db, over 80 to 90% - db +, greater than 90 100% - very good)		

Course description		
<p>1) classification techniques.</p> <p>2) Kinematics , technological capabilities , machines and tools at different cutting methods : a tool made ??of a defined geometry (turning, milling, frezotoczenie cam and crankshafts , operations, drilling , broaching such as splines and keyways slotting into the holes , the methods of threads and gear) b made ??of undefined geometry tools (grinding , grinding assisted ultrasonic honing cylinder engines , superfinish oscillating , reaching) .</p> <p>3) burnishing machine tools responsible for surfaces such as valves , camshafts , bearings , screws, spring for aircraft, etc.</p> <p>4) Tool materials . Basis of calculation parameters and cutting power .</p> <p>5) EDM machining (drilling and cutting) , electrochemical and blast erosion (laser cutting , water jet and abrasive water , plasma , laser surface structuring)</p>		
<p>Basic bibliography:</p> <p>1. Erbel J. (red.): Encyklopedia technik wytwarzania w przemyśle maszynowym tom II. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2001</p> <p>2. Filipowski R., Marciniak.: Techniki obróbki mechanicznej i erozyjnej. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2000</p> <p>3. Olszak W.: Obróbka skrawaniem. WNT Warszawa 2008.</p> <p>4. Żebrowski H. : Techniki wytwarzania. Obróbka wiórowa, ścierna i erozyjna. Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2004</p>		
<p>Additional bibliography:</p> <p>1. Cichosz P.: Narzędzia skrawające. WNT. Warszawa 2008.</p> <p>2. Czasopisma naukowo-techniczne: Mechanik, Przegląd Mechaniczny, Werkstatt und Betrieb</p> <p>3. Dul-Korzyńska B.: - Obróbka skrawaniem i narzędzia. Oficyna Wydawnicza Politechniki Rzeszowskiej 2009.</p> <p>4. Katalogi firmowe (strona ZOS IMt PP)</p> <p>5. Kosmol J. (red.): Techniki wytwarzania ? obróbka wiórowa i ścierna. Wydawnictwo Politechniki Śląskiej, Gliwice 2002</p> <p>6. Schneider G.: Cutting tool applications. ASM International 2002</p> <p>7. Sobolewski J.Z. (red.): Projektowanie technologii maszyn. Oficyna Wydawnicza Politechniki Warszawskiej, Wydział Samochodów i Maszyn Roboczych, Warszawa 2007.</p> <p>8. Zawora J.: Podstawy technologii maszyn. WSiP 2007.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for lectures	2	
2. Participation in the lecture	15	
3. Fixation of the lecture	2	
4. Consultation	1	
5. Exam Preparation	6	
6. Participation in the exam	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	27	1
Contact hours	17	1
Practical activities	0	0