

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Technology of IC Engines Manufacture		Code 1010624151010620274
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty Internal Combustion Engines	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: 18 Classes: 6 Laboratory: - Project/seminars: -		No. of credits 3
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 %) 3 100%
Responsible for subject / lecturer: Prof. dr hab. inż. Marek Idzior email: marek.idzior@put.poznan.pl tel. 61 665 2243 Maszyn Roboczych i Transportu ul. Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has a broader and deeper knowledge of the design of combustion engines and solving complex engineering tasks
2	Skills	He has an ability of the reading of schemes, sketches and technical drawings, connected thematically with the internal-combustion engine.
3	Social competencies	He understands connections between the structure and technologies of the structure of the internal-combustion engine.
Assumptions and objectives of the course: To make students basic knowledge over about production processes, methods of the production and materials of structural parts and teams of internal-combustion engines		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. He has a basic knowledge about methods of producing internal-combustion engines - [W02]		
2. He knows structural materials of both the technology of producing the part and teams of internal-combustion engines. - [W03]		
3. He has a knowledge about tendencies of developmental methods of producing internal-combustion engines. - [W05]		
Skills:		
1. Has knowledge of subject matter of processes of producing internal-combustion engines together him with structure. - [U01]		
2. He is able to obtain information from specialist literature and to assess the degree of the technological modernity of the internal-combustion engine - [U07]		
3. He has a basic preparation to the work at the production and the operation of internal-combustion engines - [U11]		
Social competencies:		
1. He understands the need of supplementing the knowledge by the entire professional life - [K01]		
2. He is aware and meaning of effects understands specificities of processes of producing internal-combustion engines to the natural environment of the man - [K02]		
Assessment methods of study outcomes		

Written test, which is based on answers related to the selection of given answers and open questions. Credits will be given after achieving at least 50% of points. Answers are scores from 0 to 1 point.		
Course description		
Basic terminology from the scope of the technology combustion engines, technological documentation, labour intensity, material consumption rate, optimization of processes, classification. Engine block - structural solutions, materials, the production and the control. Cylindrical cornets, pistons, piston rings, connecting rods, bearings - semi-finished products, production, control, finishing the area. Cylindrical heads - structure, materials, making casts, the machining. Valves, valve springs, cams and camshafts - materials, semi-finished products, production, control. Other elements, untypical technologies. Assembly - methods, fundamental processes, organization of working positions. Attempts - test positions, reaching, the control. Painting, conservation - methods, organization of conducting processes.		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Łukomski Z.: Technologia spalinowych silników kolejowych i okrętowych. WKiŁ, Warszawa 1972. 2. Izdebski K., Modelowanie i symulacja procesów technologicznych montażu, WPB, Białystok, 3. Jeziński J., Technologia tłokowych silników wysokoprężnych, WNT, Warszawa, 1999 4. Kapiński St., Kształtowanie elementów nadwozi samochodów, WKiŁ, Warszawa, 1996 5. Nowakowski P., Łukasik T., Wybrane techniki komputerowe w projektowaniu i wytwarzaniu, WPŚ, Gliwice, 2003 6. Stolarski B. (red.): Technologia budowy samochodów, część I: Technologia silników spalinowych. Wydawnictwo Politechniki Krakowskiej, Kraków 1977 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. The press and specialist magazines 2. Information materials of companies producing internal-combustion engines 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	5	
2. Literature studies	30	
3. Consultation	1	
4. Preparation for written credits (based on lectures)	10	
5. Participation in written test solving	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	46	3
Contact hours	24	1
Practical activities	10	1