

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Construction and Exploitation of Machines</b>		Code <b>1011104321011126776</b>
Field of study <b>Logistics - Part-time studies - First-cycle</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>1 / 2</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>elective</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>12</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>other</b>		(university-wide, from another field) <b>university-wide</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> 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		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge of the introduction to the technology and engineering graphics
2	<b>Skills</b>	The ability to acquire knowledge
3	<b>Social competencies</b>	The ability to work in a group
<b>Assumptions and objectives of the course:</b> The aim of the subject is to familiarize the students with the most important information from the operation of the machines, their use and handling.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. 1. Has a basic knowledge of: engineering graphics; design, technology, the construction and operation of machinery - [K1A_W05]		
2. 2. Has a basic knowledge of: mechanics and machine-building industry as well as the strength of materials - [K1A_W07]		
<b>Skills:</b>		
1. 1. Is able to independently develop the problem that exists within the studied subject - [K1A_U05]		
2. 2. Can make use of analytical, experimental and simulation method which falls within the scope of this area, can solve the project problem in the area of logistics and its detailed concepts (inventory management, logistics, distribution logistics and supply, logistics, ecologistics) and supply chain management - [K1A_U09]		
<b>Social competencies:</b>		
1. Is aware of the need for lifelong learning; inspiring and organizing the learning process of other persons within the framework of the studied subject areas - [K1A_K01]		
2. Is willing to work together and work in a group on the resolution in the framework of the studied subject - [K1A_K03]		
<b>Assessment methods of study outcomes</b>		

<p>Formative assessment:</p> <p>a) within the scope of the laboratory: on the basis of an assessment of the current progress of the assigned tasks related to the construction, operation and operation of general purpose machinery and equipment.</p> <p>b) in lectures: on the basis of answers to questions about material modified in previous lectures.</p> <p>Summary summary:</p> <p>a) lecture - written test on the basis of previously prepared questionnaire</p> <p>b) Written assignment of assigned tasks related to the construction, operation and operation of general purpose machinery and equipment within individual visits to production sites.</p>		
<b>Course description</b>		
<p>The program of the subject includes the following subject areas: the genesis of learning about the exploitation, the existence of a technical object, theories of exploitation. Rules for the exploitation of equipment. Use of the devices. Elements of tribology, friction, wear, lubrication, the top layer. Basic issues associated with reliability, quality and durability. Diagnostic machines. Types of diagnostic tests. Maintenance of machinery and equipment related to logistics, maintenance of means of transport and storage devices.</p> <p>Laboratory</p> <p>Technological process of repair of machinery. Disassembly. Repairs. Review, regeneration, machine parts. Regeneration methods of machine parts and their repair. Installation of machine parts. Methods of maintaining and securing the moving machinery.</p> <p>Didactic methods:</p> <p>Lectures; monographic with the use of a computer with the division of the content of the program into separate thematic issues in connection with the subject of the laboratory</p> <p>Laboratories: visits to manufacturing plants in the field of construction, operation, operation of general purpose machinery and equipment and their maintenance and protection in motion.</p>		
<p><b>Basic bibliography:</b></p> <ol style="list-style-type: none"> <li>Napiórkowski J. i inni, Podstawy budowy i eksploatacji pojazdów i maszyn, Wyd. UWM, Olsztyn 2013</li> <li>Legutko S., Eksploatacja maszyn, Wyd. Politechnika Poznańska. Poznań 2007</li> <li>Markusik S., Antoni Skoć A., Jacek Spalek J., Podstawy konstrukcji maszyn, WKŁ, 2008 Tom 2</li> <li>Gruszka J., Technologiczne kształtowanie cech funkcjonalnych warstwy wierzchniej tulei cylindrowych (w silnikach spalinowych)-Monografia, Wyd.PP, Poznań 2012</li> </ol>		
<p><b>Additional bibliography:</b></p> <ol style="list-style-type: none"> <li>Skoć A., Spalek J., Podstawy konstrukcji maszyn, WKŁ, 2017</li> <li>2. Podstawy racjonalnej eksploatacji maszyn, Wyd. Instytut Technologii Eksploatacji. Radom 1998</li> </ol>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. lecture	12	
2. consultations	15	
3. preparation for an exam	30	
4. literature studying	20	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	77	3
Contact hours	27	1
Practical activities	0	0