GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Pneumatic Systems Design, PG_00058897		
Field of study	Mechanical Engineering		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2024/2025
Education level	second-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Załuski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	18.0	0.0	0.0	10.0	0.0	28

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	28	0.0	0.0	28

Subject objectives

Presentation of various design methods of pneumatic drive and control systems

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U01] is able to acquire information from specialist literary sources and other sources regarding the construction and operation of machines and related disciplines in polish and in a foreign language, is able to conduct a self-learning process, is able to synthesize the information, form conclusions and justify opinions	The student is able to independently find and use the information necessary to carry out the design process	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K7_W11] possesses organized knowledge useful in understanding ex-technical conditioning connected with performing the profession of an engineer and taking it into consideration in engineering practice; possesses well-established knowledge within the range of intellectual property, management and organization of manufacturing processes, including the management and life-cycle of a product	The student is able to make a project in accordance with engineering practice. During its implementation, it takes into account the minimization of costs as well as the availability and rational use of production resources	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K7_W06] possesses organized, profound knowledge necessary for designing and optimization of complex technological processes, modelling and calculations using numerical methods, knows modern manufacturing methods and tools for designing manufacturing processes of machines, devices, their elements and components	The student knows how to use the information presented in the lecture	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>1. Properties of compressed air

2. Elements of pneumatic systems

3.Basic pneumatic systems

4. Methods of design: intuitive, algorhytmic, analitic

5. Calculations of pneumatic systems

6. Design of chosen systems</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Pass of "Basic principles of hydraulics and pneumatics" at I stage studies</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Laboratory pass</td><td>56.0%</td><td>30.0%</td></tr>
<tr><td>Lecture pass</td><td>56.0%</td><td>70.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Napęd i sterowanie pneumatyczne. W. Szenajch</td></tr>
<tr><td>Supplementary literature</td><td>Pneumatyka. Elementy i układy. Ł. Węsierski

Sterowanie pneumatyczne. Ćwiczenia laboratoryjne. J. Niegoda, W. Pomierski</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Design of energy efficient pneumatic system with safe control

Design of sequential pneumatic system with use of algorhytmic method</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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