

Course code																																							
Type and description	Obligatory Course																																						
ECTS credit	2 ECTS																																						
Course name	Methods of Scientific Research																																						
Course name in Polish	Metodyka badań naukowych																																						
Language of instruction	English																																						
Course level	8 PRK																																						
Course coordinator	Tomasz Kubiak																																						
Course instructors	Tomasz Kubiak																																						
Delivery methods and course duration	<table><tr><td></td><td>Lecture</td><td>Tutorials</td><td>Laboratory</td><td>Project</td><td>Seminar</td><td>Other</td><td>Total of teaching hours during semester</td></tr><tr><td>Contact hours</td><td>0</td><td>15</td><td>0</td><td>0</td><td>0</td><td>0</td><td>15</td></tr><tr><td>E-learning</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td></td></tr><tr><td>Assessment criteria (weightage)</td><td></td><td>1,00</td><td></td><td></td><td></td><td></td><td></td></tr></table>								Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester	Contact hours	0	15	0	0	0	0	15	E-learning	No	No	No	No	No	No		Assessment criteria (weightage)		1,00					
	Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester																																
Contact hours	0	15	0	0	0	0	15																																
E-learning	No	No	No	No	No	No																																	
Assessment criteria (weightage)		1,00																																					
Course objective	<div>1. Acquiring knowledge about techniques of writing scientific papers in mechanical engineering.</div> <div>2. Acquiring knowledge about techniques of researching in mechanical engineering.</div> <div>3. Acquiring skills in planning experimental and numerical investigations in mechanical engineering.</div> <div>4. Acquiring skills in processing and present results of scientific research.</div>																																						
Learning outcomes	<div>Having completed the course students will be able to:</div> <div>1. present the subject of research with their novelty and originality based on state of art (literature overview) – effects K1</div> <div>2. plan research choosing the proper techniques and methods - effects W4, U1</div> <div>3. process and present the results of experimental or numerical research – effects U1, U2</div>																																						
Assessment methods	<div>Participation in discussions – W4, U2, K1</div> <div>Projects presentation – U1, U2</div> <div>The final grade:</div> <div>Participation in discussions - 40%</div> <div>Project presentation - 60%</div>																																						
Prerequisites	None																																						

<b>Course content with delivery methods</b>	<ol style="list-style-type: none"> <li>1. Ways to search for articles presenting the results of research similar to performing one's by us.</li> <li>2. Discussion on the basis of the exemplary scientific articles of how to present the research issue, the selection of literature and the state of art</li> <li>3. Methods of research in mechanical engineering: types of methods, typical numerical methods, the ideas of experimental destructive and non-destructive.</li> <li>4. Overview of the basic principles of preparing research plans.</li> <li>5. Different ways of developing and presenting research results for easier of drawing the conclusion.</li> </ol>
<b>Basic reference materials</b>	<ol style="list-style-type: none"> <li>1. Gerald Rau, Writing for Engineering and Science Students: Staking your claim, New York, Routledge, 2019, eBook</li> <li>2. Gabor L. Lovei, Writing and publishing Scientific paper: A Primer for the non-English speaker, Open book publisher</li> <li>3. Taylor J.R.: An Introduction to Error Analysis: The study of Uncertainty in Physical Measurements. University Science Books, 1996</li> </ol>
<b>Other reference materials</b>	<ol style="list-style-type: none"> <li>1. Paper databases: e.g., Science Direct; Scopus; Web of Science</li> <li>2. Books and articles depending on candidates' profile, to be decided upon entering the course in cooperation with scientific advisor.</li> </ol>
<b>Average student workload outside classroom</b>	35h
<b>Comments</b>	
<b>Last update</b>	January the 19 <sup>th</sup> , 2022