<table>
<tr><td>Course code</td><td></td></tr>
<tr><td>Type and description</td><td>EC</td></tr>
<tr><td>ECTS credit</td><td>1</td></tr>
<tr><td>Course name</td><td>Modal Analysis in Design - application</td></tr>
<tr><td>Course name in Polish</td><td>Analiza modalna w konstrukcji - zastosowanie</td></tr>
<tr><td>Language of instruction</td><td>English</td></tr>
<tr><td>Course level</td><td>8 PRK</td></tr>
<tr><td>Course coordinator</td><td>Witold Pawłowski</td></tr>
<tr><td>Course instructors</td><td>Witold Pawłowski</td></tr>
<tr><td>Delivery methods and course duration</td><td>
<table>
<tr><th></th><th>Lecture</th><th>Tutorials</th><th>Laboratory</th><th>Project</th><th>Seminar</th><th>Other</th><th>Total of teaching hours during semester</th></tr>
<tr><td>Contact hours</td><td>0</td><td>0</td><td>0</td><td>15</td><td></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></td><td></td><td>1,00</td><td></td><td></td><td></td></tr>
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<tr><td>Course objective</td><td>Application of modal analysis - the method of modeling and analysis of the dynamics of mechanical structures</td></tr>
<tr><td>Learning outcomes</td><td>After the course a PhD student is able to:

1. Perform the theoretical and experimental modal analysis of the mechanical object – effects W4, U4, K1

2. Draw conclusions from modal analysis due to the mechanical construction of the analyzed object – effect W4, U4, K1</td></tr>
<tr><td>Assessment methods</td><td>Effects W4, U4, K1 – project presentation

The final evaluation is based on:

Presentation - 100%</td></tr>
<tr><td>Prerequisites</td><td>The ability to create a mathematical model describing the dynamics of the mechanical system and a basic knowledge of the dynamics of linear mechanical systems is required.</td></tr>
<tr><td>Course content with delivery methods</td><td>PROJECT

Theoretical basis, purpose, conditions and limitations of use, research equipment for modal analysis. The procedure of performing the theoretical and modal analysis.</td></tr>
<tr><td>Basic reference materials</td><td>1. Uhl T., Komputerowo wspomagana identyfikacja modeli konstrukcji mechanicznych, WNT Warszawa 1997. J.-P. Aubin, A. Cellina, Differential Inclusions, Springer 1987</td></tr>
</table>

	2. Jimin He and Zhi-Fang Fu, Modal Analysis, Butterworth-Heinemann, 2001. 3. D.J. Ewins, Modal Testing: Theory and Practice, Wiley, 1984. 4. Żółtowski B., Cempel Cz. (red.), Inżynieria diagnostyki maszyn, Instytut Technologii Eksploatacji PIB, Warszawa 2004.
Other reference materials	1. Randall R.B., Frequency analysis, Brüel & Kjar, 1987. 2. Żółtowski B., Badania dynamiki maszyn, Wydawnictwo MARKAR-B.Ż., Zielonka 31B, 86-005 Białe Błota, ISBN-83-916198-3-4
Average student workload outside classroom	15 h
Comments	
Last update	17 March 2023