GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Tribology, PG_00057396 | | |
| 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 | Optional subject group<br>Subject group related to scientific research in the field of study |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | Polish<br>some materials in English |
| Semester of study | 2 | ECTS credits | 4.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Zakład Konstrukcji Maszyn i Inzynierii Medycznej -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Michał Wasilczuk | |
| | Teachers | | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 30.0 | 0.0 | 30.0 | 0.0 | 0.0 | 60 |

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 | 60 | 8.0 | 32.0 | 100 |

**Subject objectives**

Presenting knowledge concerning friction and wear with a special emphasis on modern bearing systems. In addition presenting the scientific methods used in friction and wear assessment

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_U06] when solving engineering problems on design, technology and operation of machines is able to assess and classify typical methods and tools, define systemic and ex-technical aspects using modern calculating methods and design tools or modifying the current ones | The student is able to use contemporary knowledge to arrange the experiment to monitor machine operation | [SU1] Assessment of task fulfilment |
| [K7_W07] possesses profound knowledge on the diagnostics and monitoring of the condition of devices, assemblies and technical systems, as well as measurement methods of process and operation control | The student is acquainted with contemporary knowledge concerning friction wear and machine bearing systems | [SW1] Assessment of factual knowledge |
| [K7_W05] possesses profound knowledge on the operation of complex systems and mechanical devices, including process equipment | The student is acquainted with contemporary knowledge concerning machine operation, including the wear and durability issues | [SW1] Assessment of factual knowledge |

<table>
<tr><td>Subject contents</td><td>Fundamentals of friction and wear<br><br>Sliding beariing systems - theory and practice<br><br>Bearing materials and lubricants including the unconventional ones<br><br>rolling element bearings - theory and advanced issues of application<br><br>Environmental issues in tribology</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>completed course of Machine Design</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>written exam</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>laboratory</td><td>100.0%</td><td>50.0%</td></tr>
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</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>A Stolarski Tribology in Machine Design</td></tr>
<tr><td>Supplementary literature</td><td>Barwell Bearing systems</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>bearing alloys<br><br>Problems of using water as a lubricant<br><br>Form od failures of REB<br><br>Applcation of polymers in bearings</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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