<table>
<tr><td>Course code</td><td></td></tr>
<tr><td>Type and description</td><td>EC – Elective Course</td></tr>
<tr><td>ECTS credit</td><td>1</td></tr>
<tr><td>Course name</td><td>Selected Issues from weaving</td></tr>
<tr><td>Course name in Polish</td><td>Wybrane zagadnienia z tkactwa</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>Dr hab. inż. Marcin Barburski prof. PŁ</td></tr>
<tr><td>Course instructors</td><td>Dr hab. inż. Marcin Barburski prof. PŁ, Dr Maria Cybulska</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>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>no</td></tr>
<tr><td>Assessment criteria (weightage)</td><td>0</td><td>0</td><td>0</td><td>100%</td><td>0</td><td>0</td><td>100%</td></tr>
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<tr><td>Course objective</td><td>To develop skills in designing and using thread structure in an unusual situation. Acquainting with the technologies of braiding, weaving multiaxial and weaving 3D and embroidery. Understanding the principles of forming flat and 3D products with a non-standard arrangement of threads, multiple warps, interlacing matrices, interlaced structures, etc. Developing the imagination of a technologist and designer of unconventional woven structures for using in composites. Develop skills in designing and manufacturing spatial fabrics, braided and embroidered structures</td></tr>
<tr><td>Learning outcomes</td><td>After the course PhD student is able to:
1. describe types of multi-axis, flat, spatial and interlace woven structures.
2. define the type of structure for special construction.
3. design various braided and embroidered structures; flat, shaped, reinforcement composites structures.
K1, W4, U4</td></tr>
<tr><td>Assessment methods</td><td>Writing the report</td></tr>
<tr><td>Prerequisites</td><td>Completion of the second cycle.</td></tr>
<tr><td>Course content with delivery methods</td><td>Project
Special technologies. Braided technologies: braided machines for flat and circular products, machines for shapes products. Technology of multilayer, shaped, spatial and complex fabrics 3D and Technical embroidery.
Analysis of braided machines and braided fabrics.
Technology analysis and design of 3D fabric.
Design and production of technical embroidery.</td></tr>
<tr><td>Basic reference materials</td><td>T. Ishida, Innovations in Weaving Machinery, JTN Osaka 1994
J. Masajtis;Analiza strukturalna tkanin, PAN Łódź 1999,
J. Szosland; Wieloprzesmykowe rotacyjne formowanie struktur tkanych, PAN Łódź 2002,
M. Snycerski; Strukturalne modelowanie własności filtracyjnych i technologiocznych siatek nawojowych i nawojów precyzyjnych, PAN Łódź 2005,
J. Szosland; Struktury tkaninowe, PAN Łódź 2007,</td></tr>
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	A. Miravete;3-D textile reinforcements in composite materials, Woodhead Publishing Limited
Other reference materials	J.C. Charlin, The Story of The Jacquard Machine, Staubli 2003
Average student workload outside classroom	15h
Comments	
Last update	March 2023