



Course name	Industrial Technologies
Entity running the course	Faculty of Interior Architecture and Design
Entity for which the course has been prepared	Department of Design
Course type	Basic / obligatory
Year of study / semester, type of studies	Year III, sem. V, full-time bachelor's degree
ECTS credits	1 point ECTS
Academic tutor	Sen. lect. Bogdan Kochan, MFA
Aim of the course	To gain extended knowledge about the laws of physics and mechanics, classical technologies and specific features and usage possibilities of new and ultranew materials, which are useful for designers who make projects in the area of industrial design.
Prerequisites	Having completed the 1st year of Material Science and 3rd & 4th semester of Industrial Technologies
Learning outcomes:	
- knowledge	Student has advanced knowledge in the area of techniques and technologies of making products, as well as features and use possibilities of traditional and new construction materials. Understands basic laws of physics and can utilize them in realizing their tasks. Is aware of the existence of different materials which have similar features and very similar materials that can have very different features. Can recognize them and tell the differences between them. Understands the need of adjusting design to technical and material requirements.

<p>- skills</p>	<p>Student has advanced skills in selecting the most suitable technologies and materials for specific purposes, consciously applies technical and technological knowledge. Can independently compare features and qualities of construction materials and technological solutions being used. Advanced knowledge of searching for information necessary during realization of the project.</p>
<p>- personal and social competence</p>	
<p>Course content</p>	<p>Classes are about problems of using materials such as metals, polymers, ceramics and composites as well as basic and more advanced technologies used in production. Special emphasis is upon new technologies (such as nanotechnologies, incremental techniques), and the newest materials (multi-functional materials based on knowledge, nanometric materials, bio-materials, gradient composites, fullerenes, carbon nanopipes, multi-crystal materials). During the course students learn about basic laws of physics (optics, electricity, static and dynamic and selected construction questions) which are necessary for a designer.</p>
<p>Course form and number of course hours</p>	<p>Illustrated lectures, discussions; 30 hours per semester.</p>
<p>Assessment methods and criteria</p>	<p>10% participation in classes 15% activity during classes 75% written exam</p>
<p>Assessment type</p>	<p>Graded pass</p>
<p>Literature</p>	<p>„Metaloznawstwo”; Przybyłowicz Karol; seria "Podręczniki akademickie. Mechanika"; „Technologia tworzyw sztucznych”; Pielichowski Jan, Puszyński Andrzej; „Inżynieria nanomateriałów i struktur ultradrobnoziarnistych”; Maria Richert; Wydawnictwa AGH; „Materiałoznawstwo”; A. Ciszewski , T. Radomski , A. Szummer; Oficyna Wydawnicza Politechniki Warszawskiej; „Kompozyty”; A. Boczkowska, J. Kapuściński , Z. Lindemann , D. Witemberg-perzyk , S. Wojciechowski; Oficyna Wydawnicza Politechniki Warszawskiej; „Fulereny 20 lat później”; Andrzej Huczko, Michał Bystrzejewski; Wydawnictwa Uniwersytetu Warszawskiego; „Spiekane metale i kompozyty z osnową”; Nowacki Jerzy; WNT; „Kompozyty metalowe”; Jerzy Sobczak; Instytut Transportu Samochodowego;</p>

Teaching aids

Computer, projector

Language of instruction

Polish; communication in English possible