

Course title: Composite materials					
	Specialty	Semester	Number of ECTS	Number of hours in the class	Form
	Foreign students	winter	2	30	Lab – 15 h Seminar – 15 h
Name of lecturer: prof. dr hab. Ewa Siedlecka; dr inż. Aleksandra Pieczyńska, dr Aleksandra Bielicka-Giełdoń					
Objective of the course (expected learning outcomes and competences to be acquired)					
<ul style="list-style-type: none"> familiarizing students with all issues listed in the seminar program content, 					
Prerequisites:					
none					
Teaching methods:					
<ul style="list-style-type: none"> thematic presentations laboratory experiments 					
Course contents					
<p>A. Polymerization reactions and polymerization, "living" polymerization, polymer properties, thermoplastic polymers (PE, PP, PVC, polyamides, polycarbonates, polyurethanes), duroplastics (chemo and thermosetting resins), elastomers, foamed polymers, natural polymers (cellulose and its derivatives, rubber, starch, and others), Self-healing polymer materials, the use of nano-materials in polymer composites, polymer composites - laminates, bulletproof composites, nanotubes and carbon fibers; special-purpose polymers - graphene, Kevlar, intelligent polymers, polymer nanomaterials, dental materials, materials used in medicine and cosmetics, artificial skin, hydrogels, conductive polymers.</p> <p>B. Laboratory: Exercises for the synthesis and study of the properties of polymer materials and nanocomposites discussed in classes</p>					
Recommended reading:					
<ol style="list-style-type: none"> J.F. Rabek Polimery. Otrzymywanie, metody badawcze, zastosowanie, Wydawnictwo Naukowe PWN, W-wa, 2013 Ż. Brocka-Krzemińska, G. W. Ehrenstein, Materiały polimerowe, Wydawnictwo Naukowe PWN, W-wa, 2016 J.F. Rabek. Współczesna wiedza o polimerach Wydawnictwo Naukowe PWN, W-wa, 2013 J. Pielichowski, A. Puszyński, Chemia polimerów, Wydawnictwo oświatowe FOSZE, 2012 					
Assessment methods:					
<ul style="list-style-type: none"> Oral presentation Lab report 					
Language of instruction: English					
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