<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>Progress in Chemical Modification of Polymers</td></tr>
<tr><td>Course name in Polish</td><td>Postęp w chemicznej modyfikacji polimerów</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 inż. Lucyna Herczyńska</td></tr>
<tr><td>Course instructors</td><td>dr inż. Lucyna Herczyńska</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></td></tr>
<tr><td>Assessment criteria (weightage)</td><td>0,00</td><td></td><td></td><td>100</td><td></td><td>0,00</td><td>100</td></tr>
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<tr><td>Course objective</td><td>1. The aim of the course is to enable students to acquire knowledge in the field of new directions of chemical modification of natural and synthetic polymers.</td></tr>
<tr><td>Learning outcomes</td><td>After completing the course student is able to:

1. Identify and characterize the reactions of modification of macromolecular compounds

2. Create new directions for modification of natural and synthetic polymers

Effects: W4, U4, K1</td></tr>
<tr><td>Assessment methods</td><td>Assessment methods

written test covering the lecture material

written test covering the lecture material

The final grade consists of:

The result of the written test - 100%</td></tr>
<tr><td>Prerequisites</td><td></td></tr>
<tr><td>Course content with delivery methods</td><td>Project

1. Characterization of the chemical modification reaction of macromolecular compounds. Basics of functionalization, modification and chemical immobilization of polymers.

2. Chemical characterization of cationic polymers. Mechanism and kinetics of side-reactions of polymers - amino and hydroxyl.

3. Functionalization of polymers to facilitate biodegradation.

4. Progress in chemical modification of polysaccharides (cellulose, starch, chitin, dextran).

5. New directions of modification of synthetic polymers.</td></tr>
</table>

	6. Characteristics of properties and potential possibilities of using new modification products of natural and synthetic polymers. 7. Modification of carbon nanotubes. 8. Self-organizing polymeric layers.
Basic reference materials	1. Lecturer's material, 2. Floriańczyk Z., Pęczek S. (wydawcy) praca zbiorowa: Chemia polimerów, OWPW Warszawa 1995-1998 (I - III tom), 3. Elena P. Ivanova Kateryna Bazaka Roy J. Crawford: "New Functional Biomaterials for Medicine and Healthcare" ; Woodhead Publishing 2014, ISBN 9781782422655 4. K. Pyrzynski, G. Nyszko, G. E. Zaikov „Chemical and Structure Modification of Polymers" ; Apple Academic Press 2015, ISBN 9781771881227 5. Carlos Federico Jasso-Gastinel, José M. Kenny "Modification of Polymer Properties" ; William Andrew 2016, eBook ISBN: 9780323443982, Hardcover ISBN: 9780323443531
Other reference materials	Progress in Polymer Science, International Review Journal
Average student workload outside classroom	15h
Comments	
Last update	March 2023