

TEMATY PRAC DYPLOMOWYCH
planowany termin obrony rok akademicki 2026/2027
Kierunek studiów: **Inżynieria Środowiska**
poziom studiów: studia II stopnia

załącznik nr 5

Process Engineering and Environmental Protection

Instytut	Katedra	Rodzaj pracy (MGR)	Promotor	Temat pracy dyplomowej	Krótka charakterystyka pracy	Dotyczy tylko pracy magisterskiej	
						Praca eksperymentalna (TAK/NIE)	Krótki opis eksperymentu
Instytut Inżynierii i Ochrony Środowiska	Katedra Biotechnologii w Ochronie Środowiska	MGR	prof. dr hab. inż. Katarzyna Bemat	Biomethane potential during co-digestion of organic substrates	The aim of the study is to compare the methane potential of the 2-component organic substrates at two temperature conditions	TAK	The study will be carried out in the Automatic Methane Potential Test System that has become the research-standard analytical tool for anaerobic batch fermentation testing. Methane potential will be determined for the 2-component mixture of organic substrates. Two temperatures will be used: mesophilic and thermophilic conditions.
Instytut Inżynierii i Ochrony Środowiska	Katedra Biotechnologii w Ochronie Środowiska	MGR	dr inż. Katarzyna Bulkowska, prof. UWM	Characterization of Digestate from Methane Fermentation of Agricultural Substrates	The aim of this thesis is to comprehensively analyze digestate obtained from methane fermentation of agricultural substrates, with emphasis on its biochemical composition, fertilizer potential, and role as a secondary raw material in circular bioeconomy strategies.	TAK	Scope will include laboratory methane fermentation of different agricultural substrates, biogas analysis, detailed chemical and biochemical characterization of digestate, assessment of digestate's agronomic value and potential environmental impacts.
Instytut Inżynierii i Ochrony Środowiska	Katedra Biotechnologii w Ochronie Środowiska	MGR	prof. dr hab. inż. Sławomir Ciesielski	Organic wastes as a substrates for polyhydroxyalkanoates production	This study aims to analyze the potential of various substrates for microbial polyhydroxyalkanoates production.	TAK	Bacteria will be cultivated in a growth medium containing specific carbon and nitrogen sources under controlled conditions. During fermentation, the growth of the bacteria will be monitored. At the end of the cultivation period, polyhydroxyalkanoates will be extracted from the culture broth. The extracted polyhydroxyalkanoates will be then purified to remove impurities and obtain a concentrated product.
Instytut Inżynierii i Ochrony Środowiska	Katedra Biotechnologii w Ochronie Środowiska	MGR	dr hab. inż. Mariusz Gusiain, prof. UWM	The role of biochar modification in shaping its properties and remediation functions in soil	The aim of this study is to determine how biochar modification supports the remediation of soils contaminated with heavy metals. The properties of modified and unmodified biochar will be compared. The remediation potential of biochar will be assessed based on the analysis of the physical, chemical, and biological properties of the remediated soil.	TAK	The study will include the modification of biochar using a selected method and its physicochemical characterization, e.g., sorption capacity and the content of functional groups. In the second part, soil incubation tests with the addition of biochar will be conducted, along with an assessment of the effect of biochar on the remediation potential with respect to selected heavy metals.
Instytut Inżynierii i Ochrony Środowiska	Katedra Biotechnologii w Ochronie Środowiska	MGR	dr hab. inż. Magdalena Zielińska, prof. UWM	Analysis of the possibilities of recovering raw materials in municipal wastewater treatment plants	The aim of this study is to analyze the potential for water, nutrients, and energy recovery in municipal wastewater treatment plants, depending on the treatment technology used. The work will be carried out based on a literature review.	NIE	