Course code	
Type and description	Elective Course
ECTS credit	1
Course name	Fixed Point Theory with Applications 2
Course name in Polish	Teoria punktów stałych z zastosowaniami 2
Language of instruction	English
Course level	8 PRK
Course coordinator	Jacek Jachymski
Course instructors	Jacek Jachymski

Delivery methods and course duration

	Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester
Contact hours	0	0	0	15	0	0	15
E-learning	No	No	No	No	No	No	
Assessment criteria (weightage)	0					0,00	

Course objective

1. Acquiring knowledge in the field of fundamental theorems of fixed point theory.

2. Acquiring knowledge on applications of methods of fixed point theory.

Learning outcomes

After the course a student is able to:

1. Recognize relations of an order type and verify a monotonicity of a given mapping - outcomes W4, K1.

2. Apply methods of fixed point theory in some problems of nonlinear functional analysis - outcomes U4, K1.

Assessment methods

Outcome W4 – oral exam

Outcomes U4, K1 - project seminar presentation

Outcomes W4, U4 - written project

The final grade: Oral exam - 50%; Presentation - 20%; Project evaluation– 30%

Prerequisites

Knowledge of functional analysis and topology

Course content with delivery methods

LECTURE

1. Fixed point theorems for monotone or progressive mappings on partially ordered sets.

2. Applications of fixed point theory in nonlinear functional analysis.

PROJECT

	Presentation of concrete applications with the use of methods of ordering fixed point theory
Basic reference materials	Lecturer's materials 1. S. Carl, S. Heikkila, Fixed Point Theory in Ordered Sets, Springer, 2011. 2. A. Granas, J. Dugundji, Fixed Point Theory, Springer, 2003.
Other reference materials	E. Zeidler, Nonlinear Functional Analysis and its Applications. Fixed Point Theorems, Springer, 1986.
Average student workload outside classroom	10h
Comments	
Last update	11.05.2023