Course code	
Type and description	Elective Course in Physics
ECTS credit	1
Course name	Field Theory 1
Course name in Polish	Teoria pola 1
Language of instruction	English
Course level	8 PRK
Course coordinator	dr inż. Michał Dobrski
Course instructors	dr inż. Michał Dobrski

Delivery methods and course duration

	Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester
Contact hours				15			15
E-learning	No	No	No	No	No	No	
Assessment criteria (weightage)				100%			

Course objective	To present basic methods of classical special-relativistic field theories and their importance in modern physics
Learning outcomes	1. Student recognizes covariance of field theories. 2. Student identifies gauge theory objects. (W4, U4, K1)
Assessment methods	Both outcomes – final presentation on related subject
Prerequisites	Basic knowledge of calculus, algebra, group theory, variational methods, special relativity and electrodynamics (Maxwell equations).
Course content with delivery methods	1) Review of geometric framework of special relativity 2) Simplest relativistic field theories 3) Electrodynamics as a prototype of special-relativistic gauge theory 4) Yang-Mills theory 5) Symmetry breaking - Goldstone fields, Higgs mechanism

Basic reference materials	L. Álvarez–Gaumé, M. Á. Vázquez–Mozo *An invitation to quantum field theory* Springer, 2012 S. Weinberg *The quantum theory of fields* vol. 1-2, CUP, 2005
Other reference materials	H. Georgi Weak interactions and modern particle theory, Dover Publications, New York 2009
Average student workload outside classroom	10 h
Comments	
Last update	