WROCŁAW UNIVERSITY OF TECHNOLOGY – PHD STUDIES

FACULTY OF FUNDAMENTAL PROBLEMS OF TECHNOLOGY

SUBJECT CARD

Course name in Polish	ANALIZA NA ROZMAITOŚCIACH
Course name in English	ANALYSIS ON MANIFOLDS
Course language	polish
University-wide general course type: basic course (mathematics)	
Type of course: optional	
Educational effects according to ZW 26/2017: **P8S_WG, P8S_UW, P8S_KR**	
Subject code INP9016	

	Lecture	Laboratory	Seminar
Number of hours of organized classes in University (ZZU)	30		
Number of hours of total student workload (CNPS)	90		
Form of crediting	Exam		
Number of ECTS points	3		
including number of ECTS points for practical (P) classes	0		
including number of ECTS points for direct teacher-student contact (BK) classes	3		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
It is recommended to complete the standard course of Mathematical analysis of functions of one and several variables and knowledge of basic Linear Algebra

WROCŁAW UNIVERSITY OF TECHNOLOGY – PHD STUDIES

SUBJECT OBJECTIVES

C1 Mastering the notion of differential form and the skills of their integration
C2 Understanding topological basis of Mathematical Analysis
C3 Mastering advanced methods of Mathematical Analysis to solve practical problems in various fields of science and technology

SUBJECT EDUCATIONAL EFFECTS

Relating to knowledge:
P8S_WG

Relating to skills:
P8S_UW

Relating to social competences:
P8S_KR

PROGRAMME CONTENT

Form of classes - lecture		Number of hours
Lec 1	Topological properties of euclidean spaces	4
Lec 2	Continuity	2
Lec 3	Differentiability, implicit function, inverse function	2
Lec 4	Classical integration. Elements of Lebesgue measure	2
Lec 5	Differential forms: algebraic and geometric interpretation	4
Lec 6	Integration on complexes	2
Lec 7	Integration of manifolds	4
Lec 8	Stokes theorem on manifolds	4
Lec 9	Volumen element	2
Lec 10	Classical theorem of Mathematical Analysis	2
	Total hours	**30**

TEACHING TOOLS USED

N1. Lecture - traditional method.
N2. Consultation.
N3. Student's own work - preparing to exercise and test.

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

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Evaluation: F – forming (partial) C – concluding	Educational effect number	Way of evaluating achievement of educational effects
C	P8S_WG, P8S_UW, P8S_KR	Exam

PRIMARY AND SECONDARY LITERATURE
PRIMARY LITERATURE: [1] M. Spivak *Calculus on Manifolds*. Boulder, Colorado: Westview Press., 1971 [2] W. Rudin *Principles of Mathematical Analysis,* McGraw-Hill Higher Education, 1973 **SECONDARY LITERATURE:** [3] K. Kuratowski , Introduction to Set Theory and Topology, Pergamon Press, 1961.
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)
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