DESCRIPTION OF THE COURSE OF STUDY

Course code	**0719-2ID-C11-PM**	
Name of the course in	Polish	**Podstawy matematyki**
	English	**Basics of Mathematics**

1. LOCATION OF THE COURSE OF STUDY within the system of studies

1.1. Field of study	Data engineering
1.2. Mode of study	Full time studies
1.3. Level of study	First level studies
1.4. Profile of study*	General academic studies
1.5. Person/s preparing the course description	Hubert Przybycień
1.6. Contact	hprzybycien@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	english
2.2. Prerequisites*	none

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. **Form of classes**		Lectures, seminars
3.2. **Place of classes**		classes in the teaching rooms of UJK
3.3. **Form of assessment**		exam(lecture), passing with a note (seminar)
3.4. **Teaching methods**		lecture - seminar lecture, seminar - group discussion, subject exercises
3.5. **Bibliography**	**Required reading**	1. H. Rasiowa, *Introduction to a modern mathematics*, American Elsevier Publishing Company New York1973 2. W. Krysicki, *Problems and methods in analysis*, Pergamon 1966.
	Further reading	1. K. Kuratowski, *Introduction to a set theory and topology*, Pergamon 1961

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives *(including form of classes)*

Knowledge

C1 - familiarization with concepts and reasoning in the field of mathematical logic and set theory**,**

C2 - introduction to the basics of differential calculus of a real function of one real variable**,**

Skills

C2 - acquiring skills for students in using the language of mathematical logic

C2 - developing the ability to work with concepts such as functions of one variable, sequences, limits, derivatives

Social competencies

C3 - *cultivating the habit of learning, improving own's work skills, and formulating questions to deepen own's understanding of a given topic.*

4.2. Detailed syllabus *(including form of classes)*

Lectures

Elements of mathematical logic: propositional calculus, predicate functions, laws of quantifier calculus. Set theory. Relations. Properties of relations. Equivalence relations. Basic properties of real functions of a real variable. Sequences and series of numbers. Differential calculus of functions of a single variable. Matrix calculus.

Classes

Elements of mathematical logic: propositional calculus, predicate functions, laws of quantifier calculus. Set theory. Relations. Properties of relations. Equivalence relations. Basic properties of real functions of a real variable. Sequences and series of numbers. Differential calculus of functions of a single variable. Matrix calculus.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of **KNOWLEDGE:**		
W01	Can lists the basic laws of propositional calculus and predicate calculus	ID1A_W01
W02	Is able to formulates basic definitions and theorems of differential calculus of a real function of one real variable, applies them to the study of sequences, series, and functions. Knows the elements of matrix calculus	ID1A_W01
within the scope of **ABILITIES:**		
U01	Is able to uses a statement calculus and quantifiers in proofs of basic theorems describing the properties of operations on sets, generalized operations, images, and preimages of sets determined by functions. Can defines abstraction classes for simple examples of equivalence relations Can uses a matrix calculus.	ID1A_U01 ID1A_U11
U02	Can defines functions and describes their basic properties also can uses theorems and methods of differential calculus of single-variable functions to study the properties of functions	ID1A_U01 ID1A_U11
within the scope of **SOCIAL COMPETENCE:**		
K01	precisely formulates questions that serve to deepen own's understanding of a given topic or to find the missing elements of reasoning	ID1A_K01
...		

4.4. **Methods of assessment of the intended learning outcomes**

Teaching outcomes *(code)*	Method of assessment (+/-)																					
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*		
	L	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...
W01	+																				
W02	+																				
U01					+																
U02					+																
K01					+																
...																					

**delete as appropriate*

4.5. **Criteria of assessment of the intended learning outcomes**

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	achieving <50-60)% of the requirements applied in assessment methods
	3,5	achieving <60-70)% of the requirements applied in assessment methods
	4	achieving <70-80)% of the requirements applied in assessment methods
	4,5	achieving <80-90)% of the requirements applied in assessment methods
	5	achieving <90-100>% of the requirements applied in assessment methods
classes (C)* (including e-learning)	3	achieving <50-60)% of the requirements applied in assessment methods
	3,5	achieving <60-70)% of the requirements applied in assessment methods
	4	achieving <70-80)% of the requirements applied in assessment methods
	4,5	achieving <80-90)% of the requirements applied in assessment methods
	5	achieving <90-100>% of the requirements applied in assessment methods

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT	***60***	

HOURS/		
*Participation in lectures**	***30***	
*Participation in classes, seminars, laboratories**	***30***	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	***40***	
*Preparation for the lecture**	***7***	
*Preparation for the classes, seminars, laboratories**	***20***	
*Preparation for the exam/test**	***13***	
TOTAL NUMBER OF HOURS	***100***	
ECTS credits for the course of study	***4***	

delete as appropriate

Accepted for execution *(date and legible signatures of the teachers running the course in the given academic year)*

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