DESCRIPTION OF THE COURSE OF STUDY

Course code	0541.6.MAT1.C.TOP1	
Name of the course in	Polish	**Topologia I**
	English	**Topology I**

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	mathematics
1.2. Mode of study	full-time studies
1.3. Level of study	Undergraduate (Bachelor)
1.4. Profile of study*	general academic profile of studies
1.5. Person/s preparing the course description	dr Michał Popławski
1.6. Contact	mpoplawski@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	Polish and English
2.2. Prerequisites*	Introduction to mathematics

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes		Lecture, classes
3.2. Place of classes		classes in the UJK teaching room
3.3. Form of assessment		Exam (lecture), graded credit (classes)
3.4. Teaching methods		Lecture – informative lecture, problem lecture; classes – discussion, subject exercises, group discussion
3.5. Bibliography	**Required reading**	K. Kuratowski, Wstęp do teorii mnogości i topologii, PWN Warszawa 2004. J.Jędrzejewski, W.Wilczyński, Przestrzenie metryczne w zadaniach, Lodz, 1999. R. Engelking, K. Sieklucki, Wstęp do topologii , PWN Warszawa, 1986. S. Betley, J. Chaber, E. Pol, R. Pol, Topologia I. Wykłady i zadania, http://duch.mimuw.edu.pl/~betley/wyklad1/topologia.pdf
	Further reading	R. Engelking, Topologia ogólna, PWN Warszawa 1976. R. Engelking, General topology, Heldermann Verlag,1989 R. Engelking, Zarys topologii ogólnej, PWN Warszawa, 1968. A. V. Archangielski, W. I. Ponomariow, Podstawy topologii ogólnej w zadaniach, PWN Warszawa, 1986.

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

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

Lecture:

C1 - acquainting students with the basic knowledge of set-theoretic topology

Classes:

C1 - developing the ability to use metric and topological spaces

C2 - developing the habit of learning, improving one's own workshop

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

Lectures:

The notion of topological space. Metric spaces as a special example of topological spaces. Continuous mappings. Equivalent conditions of continuity. Homeomorphisms of topological spaces. Different ways of introducing topology. Separations axioms. Urysohn's lemma. Tietze-Urysohn's theorem. Compact spaces. Metric compact spaces. Axioms of countability (first and second axioms of countability, separability, Suslin's property, Lindelef's property), Basic properties of connected spaces.

Classes:

The notion of topological space - various examples. Properties of closure and interior. Determination of weight, density and Suslin number of topological spaces. Continuity of mappings. Study of topological properties with examples of various metric spaces. Fulfillment of separation axioms on examples of various topological spaces. Study of topological properties of compact spaces. Products of topological spaces. Selected aspects of connectedness of topological spaces.

4.3 Intended learning outcomes

Code	**A student, who passed the course**	**Relation to learning outcomes**
within the scope of **KNOWLEDGE:**		
W01	has a basic knowledge of the concepts of set-theoretic topology	MAT1A_W01 MAT1A_W02

		MAT1A_W03
W02	knows the basic theorems of general topology	MAT1A_W04 MAT1A_W05 MAT1A_W11 MAT1A_W12
within the scope of **ABILITIES:**		
U01	recognizes and determines the most important topological properties of subsets of Euclidean spaces and metric spaces	MAT1A_U01
U02	Uses topological properties of sets to solve qualitative tasks	MAT1A_U02
within the scope of **SOCIAL COMPETENCE:**		
K01	is able to formulate questions for his own deepening of understanding of the essence of the subject	MAT1A_K01

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes *(code)*	**Method of assessment (+/-)**											
	Exam written			**Effort in class***			**Self-study***			**Group work***		
	Form of classes			***Form of classes***			***Form of classes***			***Form of classes***		
	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**	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible
classes (C)* (including e-learning)	**3**	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible

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 HOURS/	***63***	
*Participation in lectures**	30	
*Participation in classes, seminars, laboratories**	30	
*Preparation in the exam/ final test**	3	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	***37***	
*Preparation for the lecture**	2	
*Preparation for the classes, seminars, laboratories**	25	
*Preparation for the exam/test**	10	
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)*

.....