

	Course name: MATH 329 Set theory		Department: Mathematics				Semester	
	Methods of Education						5	
	Lecture	Recitation/ (Etud)	Lab	Exams	Homework/ Quiz	Other	Total	Credit (ECTS)
42	0	0	40	0	98	180	6	
Language	English							
Compulsory/Elective	Elective							
Prerequisites	None							
Course Contents	Weeks	Subjects						
	1	Naïve set theory. Russell's Paradox.						
	2	Zermelo-Frankel set theory.						
	3	Relations and orderings.						
	4	Functions and equinumerosity.						
	5	Ordinals and cardinals.						
	6	Natural numbers. Ordinals.						
	7	The axiom of choice.						
	8	The axiom of choice.						
	9	Zorn's lemma and the well-ordering principle						
	10	The continuum hypothesis.						
	11	Briefly about independence results and models of set theories.						
	12	Briefly about independence results and models of set theories.						
	13	Briefly about category theory.						
	14	Briefly about category theory.						
Course Objectives	<ol style="list-style-type: none"> 1. be able to formalize mathematical statements in set theory; 2. be able to apply variants of the axiom of choice; 3. be familiar with various paradoxes in naive set theory and understand the need for formalization of set theory; 4. know independence results for the continuum hypothesis and the axiom of choice; 							
Learning Outcomes and Competences	<p>Upon completion of this course students will be able to</p> <ul style="list-style-type: none"> • Acquires mathematical thinking skills (problem solving, generating ways of thinking, forming correspondence, generalizing etc.) and can use them in related fields. 							

	<ul style="list-style-type: none"> Can design mathematics related problems, devise solution methods and apply them when appropriate. 		
Textbook and /or References	Main textbooks : <ol style="list-style-type: none"> Elements of Set Theory, Herbert B. Enderton, Elsevier, 1997. Set Theory and its Philosophy: A Critical Introduction by Michael Potter, OUP 2004. 		
Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	40
	Quizzes		
	Homeworks		
	Projects		
	Laboratory work		
	Other		
	Final Exam	X	60