

Study programme(s): Computer Science				
Level: master				
Course title: Model Theory in Computer Science				
Lecturer: Maja Pech				
Status: elective				
ECTS: 6				
Requirements: ---				
Learning objectives In this course students shall acquire basic knowledge in model theory and will understand fundamental model theoretic results, as well as their applications in mathematics and computer science.				
Learning outcomes At the end of the course a successful student will be able to formulate and solve standard model theoretical problems, to apply standard techniques to examples and to explain applications.				
Syllabus The course will include: <ul style="list-style-type: none"> <input type="checkbox"/> Basic definitions and results (e.g. classifying structures by formulas, relation of preservation, quantifier elimination, types, etc.) <input type="checkbox"/> Classical model theoretical results (e.g. Löwenheim-Skolem theorems, back-and-forth techniques, compactness for first-order logic and consequences, etc) <input type="checkbox"/> Special topics and applications (e.g. skolemization, categoricity, etc.) 				
Literature W. Hodges, A Shorter Model Theory, 1997. C. C. Chang, H. J. Keisler, Model Theory, 3rd Ed., Dover 2012 B. Poizat: „A Course in Model theory“, Springer 2000				
Weekly teaching load				Other: 0
Lectures: 2	Exercises: 2	Practical Exercises: 0	Student research: 0	
Teaching methodology Lectures are presented using classical teaching methods supported by beamer presentations and continuous interaction with students. The ability of application of theoretical knowledge is checked through independent solving of exercises on two colloquia. The final exam is oral and a student is supposed to demonstrate general understanding of the presented theoretical material.				
Grading method (maximal number of points 100)				
Pre-exam obligations	points	Final exam	points	
<i>Colloquium 1</i>	20	<i>Oral exam</i>	<i>60</i>	
<i>Colloquium 2</i>	20			