MODELLO D (inglese)	
General Information	Formal Methods in Computer Science
Academic subject	Theoretical computer Science
Degree course	LAUREA MAGISTRALE DEGREE IN COMPUTER SCIENCE
Curriculum	
ECTS credits	6
Compulsory attendance	No
Language	English

Subject teacher	Name Surname	Mail address	SSD
	Giovanni Pani	**giovanni.pani@uniba.it**	Info 01

ECTS credits details			
Basic teaching activities	Lectures	lab	

Class schedule	
Period	First term
Year	First
Type of class	Lecture- workshops

Time management	
Hours	170
Hours of lectures	62
Tutorials and lab	108

Academic calendar	
Class begins	25th September 2017
Class ends	12th January 2018

Syllabus	
Prerequisites/requirements	Programming Languages, Automata.
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in the Didactic Regulation and Prospectus a.a. 2017-2018)	Syntax and semantics of formal logic and formal programming languages. Computability and complexity Applying knowledge and understanding to theoretical computer science problems. Design and develop software, also suggesting and evaluating alternative solutions and choosing the most appropriate programming languages, Capacity to face further studies and/or continue their didactic path autonomously, thus keeping themselves continually updated in the technological evolution.
Contents	•
Course program	Logic. Propositional Logic. Syntax. Structural induction.

	Semantics. Interpretations and models. Equivalences and normal forms. Negation normal forms. Clause forms. Resolution. Soundness and Completeness Theorems. Predicate Logic. Syntax. Structural induction. Semantics. Substitutions. Interpretations and models. Herbrand Interpretations. Equivalences and normal forms. Prenex Normal Form. Skolem Normal Form. Unification. Resolution. Soundness and Completeness Theorems. The Compactness Theorem. Computability. Turing machine. Universal Turing machine. Halting Problem. Higher type computability. Fixed point. Domains. Pcf. Operational and Denotational Sematics. Full Abstraction
Bibliography	**1.** J.H Gallier. Logic for Computer Science: Foundations of Automatic Theorem Proving 2. G. Winskell. The Formal Semantics of Programming Languages
Notes	
Teaching methods	Lectures
Assessment methods (indicate at least the type written, oral, other)	Written, oral
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are).	Marks, minimum 18, max 30.
Further information	