

Syllabus

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Titul dl curs	Discrete Mathematics
Codesc dl curs	76239
Titul suplementar	
SSD	MATH-01/A
Lingaz	Inglese
Curs de laurea	Corso di laurea in Informatica
D'autri cursc de laurea (cursc deberieda)	
Dozenc	prof. dr. Oliver Kutz, Oliver.Kutz@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/35483
Assistent didatich	
Semester	Primo semestre
Ann/Agn de stude	1
Credic universitars	6
Ores de insegnament	40
Ores de laboratore	20
Ores de stude individual	90
Ores de riceviment prevedudes	18
Ressumè di contegnus	• Elements of logic, propositions and quantifiers, methods of mathematical proof • Basic number theory and the Induction Principle • Set Theory, Russell Paradox and Halting Problem • Functions, infinite cardinalities and countability • Relations, orders, equivalence classes • Graphs and trees
Argomenc dl curs	The aim of this course is to introduce students to basic topics in discrete mathematics. An overview of proof methods and their

	relation to logic will be given. The induction principle is introduced in a number of variants, and methods to analyse and describe the main properties of relations, functions, graphs and trees will be studied. We will also introduce the basic principles governing the mathematical definitions of infinite sets and of countability.
Paroles clef	Logic and proof, number theory and sets, functions and cardinality, relations and orders, graphs and trees
Prerequisic aconsiés	There are no prerequisites for this course.
Cursc propedeutics	
Modalité de enseignament	The course includes frontal lectures and lab exercises.
Oblianza de frecuencia	Attendance is not compulsory but recommended. Non-attending students have to contact the lecturer at the start of the course to agree on the modalities of the independent study.
Obietifs formatifs y competenzes da arjonje	Knowledge and Understanding - D1.1: Have a solid knowledge of mathematical analysis, algebra, numerical calculus, discrete mathematics and elementary notion of logic that are in support of computer science Applying knowledge and understanding - D2.1: Be able to use the tools of mathematics and logic to solve problems. Ability to make judgments - D3.2: Be able to work autonomously according to the own level of knowledge and understanding. Communication skills - D4.1: Be able to use one of the three languages English, Italian and German, and be able to use technical terms and communication appropriately. Learning skills - D5.1: Have developed learning capabilities to pursue further studies with a high degree of autonomy.
Obietifs formatifs y competenzes da arjonje (informazions suplementares)	

Sort de ejam	The written exam includes verification questions, knowledge transfer tasks, and exercises.
Criters de valutazion	Final written exam counting 100% for the evaluation and covering the full program of the course. Written exam questions will be evaluated in terms of correctness, clarity, quality of argumentation, and problem solving ability.
Bibliografia obligatora	Susanna Samuels Epp. Discrete Mathematics with Applications. Cengage Learning, 5th edition, 01 2019. ISBN 978-1337694193. URL: https://www.cengage.com/c/discrete-mathematics-with-applications-5e-epp/9781337694193 .
Bibliografia aconsieda	K.H. Rosen and K. Krithivasan. Discrete Mathematics and Its Applications: With Combinatorics and Graph Theory. McGraw-Hill Companies, 2012. ISBN 9780070681880.
Deplù informazions	If the use of specific software is required, it will be communicated during class by the lecturer.
OSS	Istruzione di qualità