Specification for the book of courses

Study program	Electrical Engineering and Computer Science
Module	Computing and Informatics
Type and level of studies	Undergraduate Academic Studies
The name of the course	Discrete Mathematics
Lecturer (for lectures)	Milovanović Ž. Igor
Lecturer/associate (for exercises)	Matejić M. Marjan, Milošević D. Predrag
Lecturer/associate (for OFE)	

Number of ECTS	6	**Course status (obligatory/elective)**	Obligatory
Prerequisites			

Course objectives	This course covers widely applicable mathematical tools for computer science, including topics from logic, set theory, combinatorics, number theory and graph theory. It includes mathematical logic, sets, relations and functions, combinatorics, basic graph theory.
Course outcomes	Regarding knowledge and understanding the student is expected to be able to on completion of the course to analyze given problem logically, solve combinatorial problems, apply basic graph and number theory for problem-solving and calculation, relate discrete mathematical models and techniques to areas within computer science.

Course outline

Theoretical teaching	Mathematical logics. Propositional calculus. Propositional functions. Coexistency and logical consequences. Normal forms. Sets. Representations. Operations on sets. Principle of sum. Principle of inclusion-exclusion. Partitive sets. Cartesian product. Principle of product. Relations. Matrix representations. Oredring relations. Equivalence relations.Lexicographical ordering. Functions. Principles of injection, surjection, bijection and complemet. Dirichlet principle. Sequences. Generatrisa functions. Recurrent sequences. Solving linear recurrente relations. Fibonacchi, Catalan and Stirling numbers. Finite differences and summs. Permanent. Computation and properties. Permanent matrix in special form. Sistems of different representatives. Integers. Divisibility. GCD. Euclid algorithm. Diophantine equations. Modular equations. Chinese remider theorem. Euler funtion. Litttle Ferma theorem. Modular arithmetics. Number sequences. Functional sequences. Fourier sequences. Power sequences.
Practical teaching (exercises, OFE, study and research	Oral exercises that exemplify problem statements examined in the lectures.

Textbooks/references

1	James A. Anderson, Discrete Mathematics with Combinatorics, Second Edition, Prentice Hall, 2003.
2	Susanna S. Epp, Discrete Mathematics with Applications, Fourth Edition, Brooks/Cole Cengage Learning, 2011
3	
4	
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Number of classes of active education per week during semester/trimester/year

Lectures	Exercises	OFE	Study and research work	Other classes
3	2	0	0	0

Teaching methods	lectures and exercises.

Grade (maximum number of points 100)

Pre-exam duties	Points	Final exam	Points
Activity during lectures	10	**Written exam**	20
Exercises		**Oral exam**	40
Colloquia	30		
Projects			