

The Department of Mathematics

2017–18–B term

Course Name Discrete Mathematics for Communication Engineering

Course Number 201.1.6201

Course web page

<https://www.math.bgu.ac.il/en/teaching/spring2018/courses/discrete-mathematics-for-communication-engineering>

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Office Hours <https://www.math.bgu.ac.il/en/teaching/hours>

Abstract

Requirements and grading¹

Prerequisites: 20119531 Linear Algebra Brief syllabus 1. Operations over sets, logical notation, relations. 2. Enumeration of combinatorial objects: integer numbers, functions, main principles of combinatorics. 3. Elementary combinatorics: ordered and unordered sets and multisets, binomial and multinomial coefficients. 4. Principle of inclusion and exclusion, Euler function. 5. Graphs: representation and isomorphism of graphs, valency, paths and cycles. 6. Recursion and generating functions: recursive definitions, usual and exponential generating functions, linear recurrent relations with constant coefficients. 7. (Optional) Modular arithmetics: congruences of integer numbers, Z_m , invertible elements in Z_m .

Course topics

Prerequisites: 20119531 Linear Algebra

Brief syllabus

1. Operations over sets, logical notation, relations.
2. Enumeration of combinatorial objects: integer numbers, functions, main principles of combinatorics.

¹Information may change during the first two weeks of the term. Please consult the webpage for updates



3. Elementary combinatorics: ordered and unordered sets and multisets, binomial and multinomial coefficients.
4. Principle of inclusion and exclusion, Euler function.
5. Graphs: representation and isomorphism of graphs, valency, paths and cycles.
6. Recursion and generating functions: recursive definitions, usual and exponential generating functions, linear recurrent relations with constant coefficients.
7. (Optional) Modular arithmetics: congruences of integer numbers, \mathbb{Z}_m , invertible elements in \mathbb{Z}_m .