

The Department of Mathematics

2021–22–A term

Course Name Discrete Mathematics for Communication Engineering

Course Number 201.1.6201

Course web page

<https://www.math.bgu.ac.il/en/teaching/fall2022/courses/discrete-mathematics-fo>

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

Abstract

Requirements and grading¹

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.
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.

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



7. (Optional) Modular arithmetics: congruences of integer numbers, \mathbb{Z}_m , invertible elements in \mathbb{Z}_m .