

## 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 grading<sup>1</sup>

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.

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<sup>1</sup>Information 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  $\mathbb{Z}_m$ .