

## The Department of Mathematics

2020–21–B term

**Course Name** Fundamentals of Analysis for EE - part I

**Course Number** 201.2.5331

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/spring2021/courses/fundamentals-of-analysis-for-ee-part-i>

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

### Abstract

### Requirements and grading<sup>1</sup>

### Course topics

**Metric spaces:** closed sets, open sets, Cauchy sequences, completeness, compactness, Theorem of Heine–Borel, continuity and uniform continuity of functions, uniform convergence of sequences of functions.

**Measure theory:** algebras, measures and outer measures, measurable sets, discrete measure spaces, Lebesgue measure on the real line, measurable functions, Lebesgue integral, dominated convergence theorem,  $L_p$ -spaces as complete normed spaces. Time-permitting: signed measures and absolute continuity of measures and the Radon-Nykodim theorem.

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