The Department of Mathematics
2021–22–B term

Course Name Coding Theory

Course Number 201.1.4501

Course web page
> `https://www.math.bgu.ac.il//en/teaching/spring2022/courses/`
> `coding-theory`

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

Abstract

Requirements and grading[1]

Course topics

Coding Theory investigates error-detection and error-correction. Such errors can occur in various communication channels: satellite communication, cellular telephones, CDs and DVDs, barcode reading at the supermarket, etc. A mathematical analysis of the notions of error detection and correction leads to deep combinatorial problems, which can be sometimes solved using techniques ranging from linear algebra and ring theory to algebraic geometry and number theory. These techniques are in fact used in the above-mentioned communication technologies.

Topics

- .1 The main problem of Coding Theory
- .2 Bounds on codes
- .3 Finite fields
- .4 Linear codes

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

Bibliography: R. Hill, A First Course in Coding Theory, Clarendon Press, Oxford 1986