CM0246 Discrete Structures Introduction

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Course web page https://asr.github.io/courses/cb0246-discrete-structures/

Exams, textbook, etc.

See course web page.

Discrete Structures

Definition of 'discrete'

Adjective. Individually separate and distinct. Late Middle English. From Latin discretus 'separate'.^{\dagger}

Adjetivo. Separado, distinto.[‡]

[†]From http://www.oxforddictionaries.com .

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Description

Abstract mathematical structures used to represent discrete objects (separated from each other) and relationships between these objects.

Example

Sets, relations, graphs, trees, finite-state machines, among others.

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Discrete Structures

Applications

- Algorithm design
- Automata theory
- Bio-informatics
- Complexity theory
- Computability
- Cryptography

- Formal languages
- Genetic algorithms
- Mathematical modelling
- Network flows
- Simulations

• Functions, infinite sets, and mathematical and structural induction

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- Graphs (classification, representation, Euler and Hamilton paths, shortest-path problems, planar graphs, graph coloring)