# Discrete Mathematics
# INTRODUCTION

FPT University

**Department of Mathematics**

*Quynhon*, 2023

# Discrete Mathematics

**Description.** This course covers the foundational concepts and methods in discrete mathematics, which is the study of mathematical structures that are discrete or distinct in nature. Upon this course, students will be able to understand:

- *Concepts of logical expressions & predicate logic.*
- *The method of induction and recursive definition.*
- *Concepts of algorithms, recursive algorithms, the complexity.*
- *Recurrence relations and divide-and-conquer algorithms.*
- *Application of integers and congruence in information technology.*
- *Set structure and map, counting principles and combinatorics concepts.*
- *The terminologies and properties of graphs & trees & weighted graphs.*
- *The applications of graphs, trees and weighted graphs in information technology.*

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# Student's tasks

- Students must attend more than 80% of contact slots in order to be accepted to the final examination.
- Student is responsible to do all exercises, assignments given by instructor in class or at home.
- Use laptop in class only for learning purpose.
- Promptly access to the FU CMS at http://cms.fpt.edu.vn for up-to-date course information.

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# Topics

**Topics.**

1. The Foundations: Logic and Proofs
2. Basic Structures: Sets, Functions, Sequences, and Sums
3. The Fundamentals: Algorithms, the Integers
4. Induction and Recursion
5. Counting
6. Graphs
7. Trees

**Textbook.** Discrete Mathematics and Its Applications, Seventh edition, K.Rosen.

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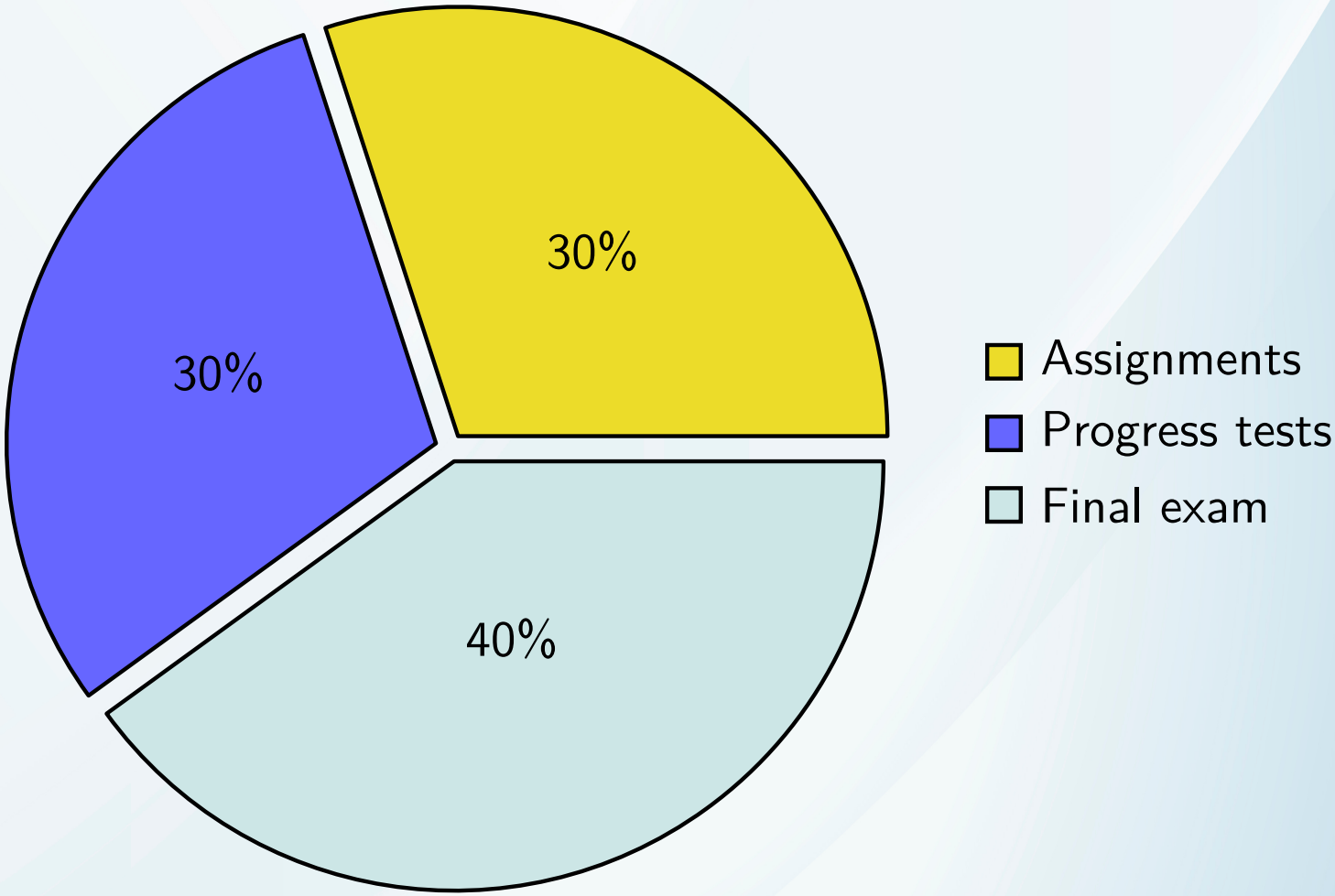
# Assessments

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# Good luck!

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