

Computer Science Fundamentals

Syllabus Outline

Course Overview

- Introduction to fundamental concepts in computer science
- Topics include algorithms, programming, data structures, and software design

Course Objectives

- Develop problem-solving skills using computational thinking
- Understand core programming constructs
- Analyze basic algorithms and data structures

Weekly Topics Outline

1. Introduction to Computer Science & Computational Thinking
2. Programming Basics: Variables, Data Types, Operators
3. Control Structures: Conditionals & Loops
4. Functions & Modular Programming
5. Arrays and Lists
6. Strings & Basic Algorithms
7. Object-Oriented Programming Basics
8. Recursion
9. Introduction to Data Structures: Stacks, Queues
10. Searching and Sorting Algorithms
11. Basic Software Development Lifecycle
12. Project Work & Review

Grading Breakdown

- Assignments: 40%
- Quizzes: 20%
- Midterm Exam: 20%
- Final Project: 20%

Required Materials

- Textbook: Introduction to Computer Science (specific title TBD)
- Laptop or PC with programming environment