

Exploring Computer Science: PC Pro and Python Programming

10th Grade Course Syllabus

Instructor

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Course Description

This 36-week course introduces students to fundamental computer science concepts, combining hands-on PC hardware and software skills with Python programming. Students will use TestOut PC Pro materials to learn about computer systems and troubleshooting, while also developing programming skills through CodeHS's Introduction to Python curriculum.

Course Objectives

By the end of this course, students will be able to:

1. Understand basic computer hardware and software components
2. Perform basic computer maintenance and troubleshooting
3. Write simple Python programs
4. Understand fundamental programming concepts
5. Apply problem-solving skills to both hardware and software challenges

Grading Policy

- Assignments and Labs: 80%
- Class Participation: 10%
- Final Exam 10%

Course Materials

- TestOut PC Pro materials (online access)
- CodeHS Introduction to Python (online access)
- A notebook for taking notes

- USB flash drive (at least 8GB)

Classroom Expectations

1. Arrive on time and prepared for class
2. Respect classmates, teachers, and equipment
3. Participate actively in discussions and hands-on activities
4. Complete assignments on time
5. Follow proper safety procedures when working with computer hardware

Weekly Schedule

Weeks 1-18: PC Pro Fundamentals

1. Introduction to Computer Systems
2. PC Components: Motherboards and Processors
3. PC Components: Memory and Storage
4. Input and Output Devices
5. Power Supplies and System Cooling
6. Operating System Basics
7. Windows Installation and Configuration
8. File Management and Organization
9. Networking Fundamentals
10. Internet Connectivity and Network Troubleshooting
11. Computer Security Basics
12. Malware Prevention and Removal
13. Software Installation and Management
14. System Maintenance and Optimization
15. Printer Setup and Troubleshooting
16. Mobile Devices and Laptops
17. Virtualization and Cloud Computing
18. Review and PC Pro Mini-Project

Weeks 19-36: Introduction to Python Programming

19. Introduction to Programming and Python
20. Variables and Data Types
21. Input and Output in Python
22. Arithmetic Operations and Expressions
23. Conditional Statements (if, else, elif)

24. Loops: While Loops
25. Loops: For Loops
26. Functions: Basics
27. Functions: Parameters and Return Values
28. Lists and List Operations
29. Strings and String Methods
30. Dictionaries
31. File Input and Output
32. Error Handling and Debugging
33. Introduction to Object-Oriented Programming
34. Simple GUI Programming with Tkinter
35. Final Project Planning and Development
36. Final Project Presentations and Course Wrap-up

Assignment Types

- Weekly homework assignments
- In-class labs and exercises
- Quizzes (approximately every two weeks)
- Two major projects (one PC-related, one Python-related)

Remember, this course combines both hardware and software aspects of computer science. Stay organized, ask questions, and have fun exploring the world of computers and programming!