Course Syllabus

Description: Do you want to learn the skills required to be competitive in today's high tech workforce? Foundations of Programming (FoP) will teach students the fundamentals of programming using the computer language Python. The course provides students with the concepts, techniques, and processes associated with computer programming and software development. Students will also explore the many programming career opportunities available in this high-demand field. This course is part of a program of study that provides coherent and rigorous content needed for progression in the Information Technology career cluster.

Estimated Completion Time: 2 segments / 32—36 weeks

Major Topics and Concepts:
Segment One:

Module 00: Getting Started

- 01 Things to Know
- 02 Navigation
- 03 Lessons & Assessments
- 04 Course Specifics
- 05 Online Learning
- 06 Pace
- 07 Academic Integrity

Module 01: Introduction to Programming

- 01.00 Welcome to Foundations of Programming
- 01.01 Intro to Programming
- 01.02 Introduction to Python
- 01.03 Printing Strings
- 01.04 Processing String Values
- 01.05 String Input
- 01.06 Module One Exam

Module 02: Computing Numerical Data

- 02.00 Introduction to Computing Numerical Data
- 02.01 Processing Numerical Information
- 02.02 Getting Numeric Input
- 02.03 The Math Module
- 02.04 The Software Development Life Cycle
- 02.05 Discussion-Based Assessment
- 02.06 Module Two Project

Module 03: Loops and Functions

- 03.00 Introduction to Loops and Functions
- 03.01 Turtle Graphics
- 03.02 for Loops
- 03.03 while Loops
- 03.04 Creating Functions
- 03.05 Discussion-Based Assessment
- 03.06 Segment One Exam

Segment Two:

Module 04: Logic in Programming

- 04.00 Introduction to Logic in Programming
- 04.01 Decisions
- 04.02 More Decisions
- 04.03 The Logic of AND, OR, and NOT
- 04.04 Lists
- 04.05 Discussion-Based Assessment
- 04.06 Module Four Project

Module 05: Codes and Objects

- 05.00 Introduction to Codes and Objects
- 05.01 Number Systems
- 05.02 Decoding ASCII
- 05.03 Procedural and Object-Oriented Programming
- 05.04 Classes and Methods
- 05.05 Module Five Exam

Module 06: Testing and Security

- 06.00 Introduction to Testing and Security
- 06.01 Testing
- 06.02 The Ethics of Programming
- 06.03 Coding and Careers
- 06.04 Discussion-Based Assessment
- 06.05 Segment Two Exam

Certification

- 01 Privacy Certification
- 02 Encryption Certification
- 03 Get Certified Certification

Collaboration

- What You Need to Know
- Segment One Collaboration
- Segment Two Collaboration

Course Assessment and Participation Requirements:

To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, "any pace" still means that students must make progress in the course every week. To measure learning, students complete self-checks, practice lesson, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with instructors; the minimum requirement is monthly. When instructors, students, and parents work together, students are successful.

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