Syllabus for IT Fundamentals - Example

About this course:

IT Fundamentals lays a foundation for computing, IT infrastructure, software development, and database usage – all the foundational knowledge needed to proceed into an information technology, cybersecurity, or network engineer career. This course not only prepares students for these topics, but also prepares them to verify their technical know-how through the CompTIA IF Fundamentals certification.

At the end of this course, you will:

- Understand the concepts behind the basics of the information technology world (Lessons)
- Practice a variety of programming concepts and get a foundation on how data is transferred on a network (Labs)
- Have a greater understanding of the troubleshooting methodology and how to solve problems in an IT world (Scenarios)

IT Fundamentals Exam:

The content in the IT Fundamentals course from CYBER.ORG is built around the CompTIA IT Fundamentals certification exam because it is an industry-recognized certification. Additionally, it is a credential that has been approved by a variety of state departments of education as a contributing component to earning a diploma. The course introduces all of the IT Fundamentals objectives (FC0-U61) as well as introduces the students to the Python programming language. Students should be encouraged to obtain the certification before graduation, making them significantly more marketable as they pursue careers after high school.

IF Fundamentals Objectives:

- IT Concepts and Terminology
- Infrastructure
- Applications and Software
- Software Development
- Database Fundamentals
- Security

Required Resources:

Within this course, there are labs in the form of hands-on exercises introduce the students to the Python programming language as well as explore the basic of a network. A Python lab uses the free application Thonny as the environment, which works on all operating systems and is simple to install. A network basics lab uses any computer connected to the internet, most labs give examples in a Windows, macOS, or Linux operating system.

Sequencing:

There are 66 lessons that cover all of the FC0-U61 objectives. Every lesson is a short instructional moment that is designed to introduce a concept and prepare for an exercise. It is the intent of the curriculum design team for teachers to present multiple lessons in a 50- or 80-minute class and supplement them with a lab or scenario. While there is a suggested order document for the delivery of the content, it is only a recommendation. Classroom teachers may present lessons in any order that works best for their particular classroom and students' needs. Pacing, scheduling differences, and student learning differences will affect timelines differently. This course is intended for half of a school year, or approximately 90 hours.

Student Diversity and Equity:

CYBER.ORG believes in empowering all students. By expanding student participation in cybersecurity and computer science, we hope to enable student agency in a range of disciplines. Delving into a variety of topics within the course seeks to demystify the technological world around us and, in turn, provide opportunities for further learning through personal curiosity.