



Dublin City Schools
Cybersecurity, Engineering and IT Fundamentals
Graded Course of Study

Course Goals

Students will learn valuable skills to get them started in the rapidly developing and advancing field of Cybersecurity through learning IT fundamentals. These skills will prepare them for valuable certification exams and provide the potential for internships in the Cybersecurity Academy. No prior knowledge of Cybersecurity or computer science is necessary, just a basic understanding of computers and computer systems. Networks, Systems Security, Cryptography, Information Security and Risk Identification are among the topics covered in the course. Students complete online learning modules and participate in simulations and authentic, cybersecurity applications. Students may complete, as part of this course, related cybersecurity certifications such as: A+, Network+, Microsoft Security Fundamentals, and Security+.

Semester 1

Topic	Student Competencies
1.0 IT Concepts and Terminology	Compare and contrast notational systems. Compare and contrast fundamental data types and their characteristics. Illustrate the basics of computing and processing. Explain the value of data and information. Compare and contrast common units of measure. Explain the troubleshooting methodology.



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2.0 Infrastructure	<p>Classify common types of input/output device interfaces. Given a scenario, set up and install common peripheral devices to a laptop/PC. Explain the purpose of common internal computing components. Compare and contrast common Internet service types. Compare and contrast storage types. Compare and contrast common computing devices and their purposes. Explain basic networking concepts. Given a scenario, install, configure and secure a basic wireless network.</p>
3.0 Applications and Software	<p>Explain the purpose of operating systems Compare and contrast components of an operating system. Explain the purpose and proper use of software. Explain methods of application architecture and delivery models. Given a scenario, configure and use web browsers. Compare and contrast general application concepts and uses.</p>

Semester 2

Topic	Student Competencies
4.0 Software Development Concepts	<p>Compare and contrast programming language categories. Given a scenario, use programming organizational techniques and interpret logic. Explain the purpose and use of programming concepts.</p>
5.0 Database	<p>Explain database concepts and the purpose of a database.</p>



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Fundamentals	Compare and contrast various database structures. Summarize methods used to interface with databases.
6.0 Security	Summarize confidentiality, integrity and availability concerns. Explain methods to secure devices and best practices. Summarize behavioral security concepts. Compare and contrast authentication, authorization, accounting and non-repudiation concepts. Explain password best practices. Explain business continuity concepts.