COMPUTER TECHNOLOGY CLUSTER

T53111 Information (Computer) Technology Support (5230)

Open to grades 9-12
2 semesters, 1 credit per semester
Meets requirements of: THD, AHD, Core 40

Information Tech Support allows students to explore how computers work. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software and troubleshoot hardware and software problems. Students should earn an industry-based certification at the end of the course.

T63111 Principles of Computer Science (7183)

Open to grades 9-12
2 semesters, 1 credit per semester
Meets requirements of: THD, AHD, Core 40
Note: Qualifies for Quantitative Reasoning
Note: Fulfills Core 40 Science Credit
Dual Credits Might be Available

Computer Science introduces the structured techniques necessary for the efficient solution of business-related computer programming logic problems and coding solutions using Python and Linux. The fundamental concepts of programming are provided through explanations and effects of commands and hands-on utilization of lab equipment to produce accurate outputs. Topics include the CIA Triad, program flow-charting, pseudo coding, and hierarchy charts as a means of solving problems related to security. The course covers creating file layouts, program narratives, user documentation, and system flowcharts for business problems, input/output techniques, looping, modules, selection structures, file handling, and offers students an opportunity to apply skills in a laboratory/hands-on environment.

T63221 Information Technology Fundamentals (7180)

Open to grades 10-12
2 semesters, 1 credit per semester
Meets requirements of: THD, AHD, Core 40
Prerequisite(s): Principles of Computer Science
Dual Credits Might be Available

Information Technology Fundamentals allows students to explore how computers work. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software and troubleshoot hardware and software problems. Students should earn an industry-based certification at the end of the course.

T63631 Networking & Cybersecurity Operations (7182)

Open to Grades 11, & 12
2 Semesters, 1 Credit per Semester
Meet Requirements of THD, ADH, Core 40
Prerequisite(s) Principles of Computer Science & Information Technology Fundamentals

Networking Fundamentals describes, explores and demonstrates how a network operates in our everyday lives. The course covers the technical pieces and parts of a network and also societal implications such as security and data integrity. Using hands-on lab work, this course offers students the critical information needed for a role as an Information Technology professional who support computer networks. Concepts covered include the TCP/IP model, OS administration, designing a network topology, configuring the TCP/IP protocols, managing network devices and clients, configuring routers and switches, wireless technology and troubleshooting. Provides students the ability to implement, administer, and troubleshoot information systems that incorporate the Microsoft Windows clients and servers in an enterprise environment. Students will be introduced to managing applications, files, folders, and devices in a windows active directory environment.

T53122 Networking II: Servers (5257)

Open to grades 12
2 semesters, 2 credits per semester
Meets requirements of: THD, AHD, Core 40
Prerequisite(s): Networking I

Networking II: Servers focuses on learning the fundamentals of networking, routing, switching and related protocols. In this course, students learn both the practical and conceptual skills that build the foundation for understanding basic networking, routing and switching. Students are introduced to the two major models used to plan and implement networks: OSI and TCP/IP. The OSI and TCP/IP functions and services are examined in detail. Students will learn how a router addresses remote networks and determines the best path to those networks, employing static and dynamic routing techniques.

T63121 Cybersecurity Fundamentals (7179)

Open to grades 10-12
2 semesters, 1 credit hour per semester
Meets requirements of: THD, AHD, Core 40
Prerequisite(s): Principles of Computer Science
Note: Qualifies for Quantitative Reasoning
Note: Fulfills Core 40 Science Credit
Dual Credit Might be Available

In this course, students learn and practice skills necessary to perform in the role of a Cybersecurity Specialist. Students will discuss the evolution of information security into cybersecurity and the relationship of cybersecurity to nations, businesses, society, and people. Laboratory and classroom components are used to cover key elements such as information security, systems security, network security, mobile security, and defense and mitigation techniques. The core concepts of confidentiality, integrity, and availability are covered. Students will be exposed to multiple cybersecurity technologies and learn how to analyze the threats, vulnerabilities and risks present in these environments. Students will also develop strategies to mitigate potential cybersecurity problems. Students will utilize the Project Lead the Way curriculum and have multiple opportunities to compete in state and national competitions.

T63131 Advanced Cybersecurity (7178)

Open to Grades 11, & 12
2 Semesters, 1 Credit per semester
Meet Requirements of THD, AHD, Core 40
Prerequisite(s) Principles of Computer Science & Cybersecurity Fundamentals

Students will acquire the fundamentals of information and data security and understand the vulnerability most organizations have in their security systems with an emphasis on firewalls, security plans and Virtual Private Networks (VPNs). Discussions will include data security methods, authentication, network attacks, malicious code and viruses, wireless security, email and web security and disaster recovery. This course will also focus on the managerial aspects of information security and assurance. Topics covered include access control models, information security governance, and information security program assessment and metrics. Coverage on the foundational and technical components of information security is included to reinforce key concepts, such as security planning and contingencies, security policies, security management models and practices and ethics.