COMPUTER SCIENCE

OCCUPATIONS RELATED TO COMPUTER SCIENCE

Network Engineer   Electronic Engineer

Security Analyst   Software Engineer

Hardware Engineer   IT Specialist   Network Associate

Network Administrator

Web Designer   Computer Programmer

Project Manager

Network Architect   Software Applications Developer

Computer Systems Analyst   Computer Systems Engineer

Database Administrator

Business Intelligence Analyst   Web Developer   Cyber Security

Course Length	Credit	Name of Course	Course Number	9	10	11	12	Prerequisite	
1 Year	1	Computer Science Principles [idx]	602B1X	-	X	X	X		PLTW
1 Year	1	Engineering Design & Development	610B1X	-	-	X	X	See Chart Above	
1 Sem	.5	Game and App Design	648B1C	X	X	X	X	None	
1 Sem	.5	Robotics	612B1B	X	X	X	X		
1 Sem	.5	Cybersecurity and Networking 1	650B1A	-	X	X	X		
1 Sem	.5	Cybersecurity and Networking 2	651B1B	-	X	X	X	Cybersecurity Networking 1	
1 Sem	.5	IT: Support: Hardware Intro	656B1A	X	X	X	X		

602B1X – COMPUTER SCIENCE PRINCIPLES (PLTW)*   Grade Indexed (see pg 16)

Year Course	Grades 10 – 12	1 Credit	Prerequisite: None

Potential Careers: Computer Programmer, Software Engineer
Using Python® as a primary tool and incorporating multiple platforms and languages for computation, this course aims to develop computational thinking, generate excitement about career paths that utilize computing, and introduce professional tools that foster creativity and collaboration. This course can be a student's first course in computer science. CSE helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cyber-security, robotics, and simulation.
*This course carries advanced standing with NWTC's Program: Logic (10-152-140) if the student earns a "B" or better when taken as a junior or senior.
*Students meeting the proper requirements upon completion of this course may be eligible for transcribed credit through PLTW affiliated universities.

610B1X - ENGINEERING DESIGN AND DEVELOPMENT (PLTW)

Year Course	Grade 11-12	1 Credit	Prerequisite: See Pathway Map

Potential Careers: All Engineering Fields, Project Manager
Engineering Design and Development (EDD) is the capstone Project Lead the Way course which allows students to use their skills and knowledge from previous PLTW courses to design a solution to a technical problem of their choosing. This course is an engineering research course in which students will work in teams to research, design, prototype and test a solution to an open-ended engineering problem. At the conclusion of the course, students will present and defend their solution to a panel of outside reviewers. Students will need to build a prototype of their design. Students will be allotted $50 for their prototype, but anything above and beyond would need to be donated by businesses or purchased by the student.

648B1C - GAME AND APP DESIGN

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Video Game Designer, Computer Programmer, Software Developer
Students will develop games and apps to solve real world problems. Structured activities using multiple programming languages allow students to progress to open-ended projects and problems that require planning, documentation, communication, and other professional skills. Each unit will culminate with students designing an authentic game or app.

612B1B - ROBOTICS

Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Robotics Engineer, Electromechanical Technician, Software Developer
Students apply the principles of robotics and automation to solve real world problems. Fundamental concepts of robotics used in automated manufacturing are embedded throughout the course.
NOTE: This class is open to both students who took Robotics in middle school and those who did not.

650B1A - CYBERSECURITY AND NETWORKING 1

Semester Course **(Fall Semester)**	Grades 10 – 12	.5 Credit	Prerequisite: None

Potential Careers: Network Technician, Network Specialist, Network Programmer
This class is designed to provide students with classroom and lab experiences in current and emerging network technology. Instruction includes, but is not limited to: cybersecurity, networking, network terminology and protocols, network standards, LANs, WANs, OSI model, cabling, cabling tools, routers, router programming, star topology, and IP addressing. Particular emphasis is given to the use of decision-making and problem solving techniques. In addition, instruction and training are provided in the proper care, maintenance, and

use of networking software, tools, and equipment in compliance with all local, state, and federal safety, building, and environmental codes and regulations.

651B1B - CYBERSECURITY AND NETWORKING 2			
Semester Course **(Spring Semester)**	Grades 10-12	.5 Credit	Prerequisite: Cisco Networking 1

Potential Careers: Network Specialist, Network Programmer, Network Engineer, Network Administrator
This is the second course in the networking series. This class is designed to provide students with classroom and lab experience in current and emerging networking technology. Instruction includes, but is not limited to: cybersecurity, networking, network terminology and protocols, network standards, LANs, WANs, OSI model, Ethernet, token ring, fiber distribution interface, TCP/IP addressing protocol, dynamic routing, routing, and the network administrator's role and function. Particular emphasis is given to the use of decision making and problem solving. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment in compliance with all local, state, and federal safety, building, and environmental codes and regulations.
*This course is transcribed with NWTC's IT: Network: Cisco 1 (10-150-163) when taken as a junior or senior.

656B1A – IT: SUPPORT: HARDWARE INTRODUCTION*			
Semester Course	Grades 9 – 12	.5 Credit	Prerequisite: None

Potential Careers: Network Technician, Network Installer
This course provides an excellent introduction to the IT industry and interactive exposure to personal computers, hardware, and operating systems. Students participate in hands-on activities and lab-based learning to become familiar with various hardware and software components and discover best practices in maintenance and safety. In addition, the course covers laptops and portable devices, wireless connectivity, security, safety and environmental issues, communication skills, and customer support.
*This course carries advanced standing with NWTC's IT: Support: Hardware Introduction (10-154-150) if the student earns a "B" or better when taken as a junior or senior.