



Learners apply principles of computer programming and software development to develop code; build, test, and debug programs; create finished products; and plan, analyze, design, develop, implement, and support software applications. Areas will prepare students for careers using technical and academic skills to design, develop, test, document, implement and maintain computer software.

### Possible post-secondary majors

- Computer Science
- Software Engineering
- Information Science/Studies
- Video Game Development

### Skills necessary for success

- Ability to work independently and as part of a team
- Written and verbal communication skills
- Strong mathematics and logical skills
- Disciplined self-starter and follow directions
- Creative problem-solver
- Logical thinker who pays attention to detail
- Patience to follow through on tasks

### Professional pathway

- Applications Analyst/Engineer
- Computer Programmer/Engineer
- Game/Mobile Applications Developer
- Operating System Designer/Engineer
- Software Applications Specialist/Tester
- Systems Analyst/Administrator

### Recommendations

- Excellent attendance record
- Strong math/algebra skills
- Minimum 2.5 GPA

### Higher education opportunities

- College credit available . See page 33.
- Associate's/Bachelor's degree

## Core Pathway Courses

### Programming & Information Technology (1 credit) (Year 1 - All Year)

Students will obtain a working knowledge of computer concepts including safety, security, and ethical issues in computing and social networking as well as input/output systems, computer hardware and operating systems. Student will also learn the basic units of logic: sequence, selection and looping and will apply algorithmic solutions to problem-domain scenarios using commercial and open source languages, programs and applications.

### Web Development (1 credit) (Year 1 – All year)

Students will learn the dynamics of the Web environment while pursuing an in-depth study of both Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS) and Javascript. Web based protocols such as FTP, TCP/IP, and HTTP will be addressed. Students will create a website with tag text elements, special characters, lines, graphics, hypertext links, and graphical tables, and scripts.

### Object Oriented Programming (1 credit) (Year 2 – All year)

Students will learn to represent programming concepts as “objects” that have data fields and associated procedures known as methods utilizing the language Visual C#. Students will implement classes such as support static, instance method, inheritance, polymorphism, exception handling, and object serialization. A variety of commercial and open source programs and applications will be used.

### Interactive Application Development (1 credit) (Year 2 - All Year)

Students will learn skills to support and create interactive and engaging components for web and standalone interactive applications. Students will utilize web interactivity techniques and developer strategies including PHP and MySQL to manipulate data and develop database applications.

**GRADE LEVEL: 10,11,12**

**LENGTH: Two years, two periods per day**

**CREDITS: Level I: Lab 2; CP English 1.**

**Level II: Lab 2; CP English 1.**

**SCHOOL: Stow-Munroe Falls High School**