Computer Science and Engineering Pathway

The Computer Science and Engineering Pathway is a great program for students interested in using math, science and technology to solve problems. **Students who complete 2 credits in this pathway will meet state ELA and Math testing requirements, and…**

- Use tools, software and equipment used in the Engineering and Computer Science field.
- Participate in skill challenges through Robotics or Technology Student Association clubs.
- Earn college credits which can be applied directly into partner college programs.
- Meet Art, 3rd Year Math and/or Science requirements through their Pathway courses.

This CTE Pathway is a great fit for students who…

- ✓ Are curious and desire to figure out why and how things work.
- ✓ Enjoy using math, science and technology to solve problems and improve their world.
- ✓ Enjoy designing and building things.
- ✓ Enjoy developing and analyzing various solutions to problems.
- ✓ Are interested in continuing their education in Engineering, Computer Science or other related STEM fields.

Start Your Pathway with 2 or more credits of Pathway courses → **Then, After You Have Finished High School…** → **Finally, Begin Your Career!**

Sample Plan for Career and College Readiness in this Pathway	
Grade 9	
English	
Math	
Science	
World History 9	Health
PE	Art
Robotics	**CS Foundations**
Grade 10	
English	
Math	
Social Studies	
Science	
PE	Art
Pathway Course(s)	
Grade 11	
English	
Math	
US History	
Science	
Elective	Elective
Pathway Course(s)	
Grade 12	
English	
Sr. Social Studies	
Personal Finance	PE
Elective	Elective
Elective	Elective
Pathway Course(s)	

Apply college credits earned in this Pathway directly into these partner college programs:

Lake WA Institute of Technology
- Engineering Technology

Edmonds College
- Engineering Technology
- Digital Forensics and Cybersecurity
- Computer Information Systems

University of Washington
- Computer Science

Continue your training in another college program such as:

Multiple Regional University programs
- Engineering (multiple areas)
- Computer Science

Jobs you can get with 2-Years Post-High School Training:

Cybersecurity Analyst
Computer Support Specialist
Engineering Technician
PC Support Technician
Web Developer

Jobs you can get with 4 or more Years Post-High School Training:

Aerospace Engineer
Civil Engineer
Computer Programmer
Mechanical Engineer
Software Developer
System Analyst

For more information on these and other occupations related to this pathway, visit

http://careerbridge.wa.gov/

CTE
Edmonds SD Career and Technical Education

Pathway Courses and Descriptions

Pathway Courses	Grades	Length	Equivalencies	EWHS	MHS	LHS	MTHS	SLHS
Robotics	9-12	.5 credit, Semester	None	✓		✓	✓	
Computer Science Foundations	9-12	.5 credit, Semester	None	✓			✓	
Web Programming and Design	9-12	.5 credit, Semester	None		✓			
Intro to Engineering Design*	9-12	1 credit, Full Year	1 credit Art			✓	✓	
Comp. Science Principles (LHS)	9-12	.5 credit, Semester	None			✓		
Cybersecurity*	10-12	1 credit, Full Year	None	✓				
AP Computer Science Principles*	10-12	1 credit, Full Year	1 cr. Math or Science				✓	
AP Computer Science A*	10-12	1 credit, Full Year	1 cr. Math or Science		✓	✓	✓	
Principles of Engineering*	10-12	1 credit, Full Year	.5 credit Science				✓	
Aerospace Engineering	11-12	1 credit, Full Year	1 credit Science				✓	
English 12 STEM	12	1 credit, Full Year	1 credit English				✓	

✓ ***Course is available at this school*** **** College Credit Available***

COMPUTER SCIENCE FOUNDATIONS

COM180 (Semester)
Grades 9-12

This course introduces students to the basics of computer science and programming. Students will use visual, block-based programming and seamlessly transition to text-based programming with languages to create apps and develop websites, and learn how to make computers work to create products that address topics and problems important to them.

WEB PROGRAMMING AND DESIGN

COM180 (Semester)
Credits: .5
Grade Level: 9 – 12

Web Programming and Design is a project-based course that teaches students how to build their own web pages. Students will learn the languages HTML and CSS, and will create their own live website to serve as portfolios of their creations.

COMPUTER SCIENCE PRINCIPLES (Lynnwood High School)

COM195 (Semester)
Grades 9-12

Use current technology for self-expression and problem solving: programming, abstractions, algorithms, large data sets, the Internet, and cybersecurity concerns will be covered. Students prepare for the AP Computer Science Principles exam.

AP COMPUTER SCIENCE PRINCIPLES

COM195/196 (Year)
Grades 10-12
Equivalency: 1 credit Math or Science

Use current technology for self-expression and problem solving: programming, abstractions, algorithms, large data sets, the Internet, and cybersecurity concerns will be covered. Students prepare for the AP Computer Science Principles exam. **Students can earn college credit through this course.**

CYBERSECURITY

COM557/558 (Year)
Grades 10-12

Learn principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate career opportunities in the field of cybersecurity. Topics include installation, configuration and securing of networks and devices; and legal and ethical issues related to computing behavior.

Continued on next page…

Computer Science and Engineering Pathway Courses and Descriptions

AP COMPUTER SCIENCE A

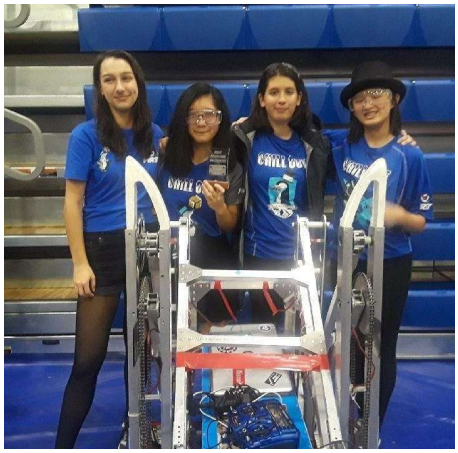
COM206/207 (Year)
Grades 10-12
Equivalency: 1 credit Math or Science
Prerequisite: Computer Science Principles or teacher permission

Engage in a progression of programming instruction and challenges including common software development and engineering practices. Investigate fundamental programming concepts then focus on object-oriented programming using the Java programming language. Students prepare for the AP Computer Science A exam. **Students can earn college credit through this course.**

ROBOTICS

IAR265 (Semester)
Grades 9-12

Develop skills in several areas of Robotics, including mechanics, structure, assembly, software programming, sensor electronics and motors. Students will also have opportunity to participate in Robotics competitions as part of this class.



INTRO TO ENGINEERING DESIGN

IAR115/116 (Year)
Grades 9-12
Equivalency: .5 credit Arts
Prerequisite: Algebra 1

Learn the strategic steps used by engineers today in the "Engineering Design Process" and practice this design process by developing skills such as teamwork, brainstorming, 2-d and 3-d sketching, and the use of Autodesk Inventor 3-D software. Students will use an advanced 3-dimensional fast-prototype printer to create actual physical models of their designs. **Students can earn college credit through this course.**

PRINCIPLES OF ENGINEERING

IAR135/136 (YR)
Grades 10-12
Equivalency: .5 credit Science
Prerequisite: Geometry

Apply principles of science, math, and technology in an introduction to the challenges, tools and disciplines of the field of engineering. Shop machines, computers, engineering software, and precision tools will be combined with challenging texts and classroom instruction. Students complete a culminating project. **Students can earn college credit through this course.**

AEROSPACE ENGINEERING

IAR267/268 (YR)
Grades 11-12
Prerequisite: Geometry

Launch into the world of aeronautics, rocketry and aerospace engineering: Students work individually and in teams to solve engineering design problems in aerodynamics, propulsion, space flight, the biology of space science, materials and structures, and flight stability and control.

Computer Science and Engineering Pathway Courses and Descriptions

ENGLISH 12 STEM ENGINEERING

ENG405/406 or ENG407/408 (Year)
Grade Level: 11 – 12
Equivalency: 1.0 credit Senior English
Prerequisite: teacher signature

The Senior English course for STEM program students. Explore the practices of science research and engineering design, perform a substantive literature review, and conduct an in-depth, student-initiated scientific investigation. Participate in the Central Sound Regional Science and Engineering Fair, and the ESC STEM Expo, plus at least one more approved STEM Competition or Showcase of their choice. Completion of summer homework assignment is required prior to start of Course