

PROGRAM OF STUDY



Career Cluster: Science, Technology, Engineering, and Math Technology

Career Cluster Pathway: Engineering and

This Career Pathway Program of Study can serve as a guide along with other career planning materials as learners continue on a career path. Courses listed within this program are only recommended coursework and should be individualized to meet each learner's education and career goals. **Note:** Many items have links to external resources with more information.

REQUIRED CREDITS	GRADE	English/ Language Arts (4.0 credits)	Social Studies (2.5 credits)	Math (2.0 credits)*	Science (2.0 credits)	Fine Arts (1.0 credits)	Health/ Fitness (2.5 credits)**	Electives (6.5 credits)	Related Career & Technical/ Occupational (1.0 credits) Certificate and Tech Prep (notation on HS and TP alignment)	SAMPLE Occupations Relating To This Pathway (*indicates job in high demand) (☉ indicates a "green" job)	
SECONDARY SAMPLE COURSE OFFERINGS	9	English 1 or Honors English 1	Pacific Northwest History (.5)	Algebra I Geometry	Integrated Science or Adv Int Science		Health (.5)		ASD CTE COURSE OPTIONS Digital Communications/ Digitools Car Care Introduction to auto Technology Auto Tech Advanced/Cooperative Work Experience Introduction to Web Design Advanced Web Design Computer Programming I Computer Programming II Industrial Engineering Advanced Industrial Engineering Broadcasting Advanced Broadcasting Robotics Work Based Learning CTE Grad Project	Medium Preparation • Cartographers and Photogrammetrist • Avionics Technician • Computer Programmer • CAD Technician • Electronics Technician • Survey Technician ☉ Solar Energy Systems Designer	
	10	English 2 or Honors English 2	US History	*Class of 2013 (add't 1.0 credit) Algebra II	Biology <u>or</u> AP Biology <u>or</u> Biotechnology <u>or</u> Horticulture <u>or</u> Natural Resources I			Elective courses (6.5)	Introduction to Web Design Advanced Web Design Computer Programming I Computer Programming II Industrial Engineering Advanced Industrial Engineering Broadcasting Advanced Broadcasting Robotics Work Based Learning CTE Grad Project	Considerable Preparation • Aeronautical Engineer • Agricultural Engineer • Architectural Engineer • Automotive Engineer ☉ Automotive Power Electronics Engineer ☉ Battery Design Engineer • Biological Technician* ☉ Biomass Plant Operations, Engineering, and Maintenance • Biomedical Engineer • Biomedical Engineer • Biotechnology Engineer ☉ Carbon Capture Power Plant Installations, Operations, Engineering, and Management ☉ Carbon Sequestration Plant Installation, Operations, Engineering, and Management • Chemical Engineer ☉ Civil Engineer for Agricultural, Irrigation, and Water Supply • Civil Engineer* • Communications Engineer • Computer Engineer • Construction Engineer	
	11	English Electives or Business English	World History <u>or</u> Economics <u>or</u> Economics II	Pre-Calculus Calculus	Credits from Art Courses <u>or</u> CTE Equivalent		Credits from Health and Fitness Courses	Credits from Health and Fitness Courses	Project Me <u>and</u> Other CAA requirements	LEADERSHIP SkillsUSA	
	12	English Electives or Business English	World History <u>or</u> Economics <u>or</u> Economics II <u>and</u> CWP	CTE Equivalent (Students must pass a math competency test or have four years of math credits.)	Science Electives		**Successfully completing two years of physical education and one semester of health is required for high school graduation.		TECH PREP ARTICULATIONS Digital Communications/Digitools – Grays Harbor College Computer Applications – Grays Harbor College (12cr.) Beginning Industrial Engineering – Bates (7.5cr.) Advanced Broadcasting – Bates (9cr.)	CERTIFICATION	

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4-yr ED	Technical Certification <i>(instruction provided through certified training and/or testing centers)</i>	Apprenticeship Opportunities	2-yr or ATA Degree <i>(Find specific colleges at www.checkoutcollege.com)</i>	4 –yr Degree or Advanced Training	Considerable Prep (cont.) <ul style="list-style-type: none"> • Electrical Engineer • Electronics Engineer*
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<p><u>Surveying Technology</u></p> <ul style="list-style-type: none"> • Bates Technical College • Bellingham Technical College • Renton Technical College 	<p>To learn more about Apprenticeship, visit Labor and Industries website.</p> <p>Follow these steps to learn about the specific apprenticeships available in this pathway:</p> <p><u>STEP 1:</u> Link to Apprenticeship Registration and Tracking System</p> <p><u>STEP 2:</u> Search by using key words below or the SOC code listed</p> <ul style="list-style-type: none"> • Electronics Technician (17-3023) • Engineer Technician (17-3027) • Estimator (17-2071) • Industrial Instrument Technician (17-3023) • Quality Control (17-3026) • Technical Engineer (17-1022) <p><u>STEP 3:</u> Click “View” and scroll down to find contact name and program standards for qualifications and how to apply</p>	<p><u>Engineering Technology</u></p> <ul style="list-style-type: none"> • Edmonds Community College • Columbia Basin College • ITT Technical Institute <p><u>Surveying Technology</u></p> <ul style="list-style-type: none"> • Bates Technical College • Bellingham Technical College • Peninsula College • Renton Technical College 	<p><u>Aerospace, Aeronautical and Astronautical Engineering</u></p> <ul style="list-style-type: none"> • University of Washington <p><u>Agricultural/Biological Engineering and Bioengineering</u></p> <ul style="list-style-type: none"> • University of Washington • Walla Walla College • Washington State University <p><u>Chemical Engineering</u></p> <ul style="list-style-type: none"> • University of Washington • Washington State University <p><u>Civil Engineering</u></p> <ul style="list-style-type: none"> • Gonzaga University • Saint Martin’s University • Seattle University • University of Washington • Washington State University <p><u>CTE Secondary Education Teacher</u></p> <ul style="list-style-type: none"> • BA - Education Degree in a CTE program area with 2000 hours of related work experience • Industry Route Certificate requires 6000 hours of work experience in the field and completion of a state approved CTE Preparation Program along with passage of Basic Skills Math and English <p><u>Engineering Technology</u></p> <ul style="list-style-type: none"> • Central Washington University • City University • ITT Technical Institute <p><u>Electrical Engineering</u></p> <ul style="list-style-type: none"> • Washington State University - Tri-Cities <p><u>Industrial Engineering</u></p> <ul style="list-style-type: none"> • University of Washington <p><u>Mechanical Engineering</u></p> <ul style="list-style-type: none"> • Gonzaga University • Saint Martin’s University • Seattle University • University of Washington • Washington State University • Washington State University - Tri-Cities • Washington State University - Vancouver <p><u>Metallurgical Engineering</u></p> <ul style="list-style-type: none"> • University of Washington 	<ul style="list-style-type: none"> • Environmental Science and Protection Technician Health • Geothermal Electrical Engineer • Geothermal Engineer Intern • Geothermal Engineering • Geothermal Operations Engineer • Geothermal Power Generation Engineer • Green Building Design and Engineering (Refrigeration, Lighting, HVAC, Electrical, Construction, Energy, and Structural) • Health and Safety Engineer • Hybrid Powertrain Development Engineer • Hydro-Electric Electrical Engineer • Hydro-Electric Power Generation Engineer • Hydrogen Power Plant Installation, Operations, Engineering, and Management • Industrial Engineer* • Landfill Gas to Energy Installation, Operations, Engineering & Management • Manufacturing Engineering • Marine Engineer • Marine Engineer/Architect • Materials Engineer • Mechanical Engineer* • Metallurgist • Nuclear Engineer • Petroleum Engineer System Engineer • Powertrain Control Systems & Software Engineer • PV Solar Cell Designer • Solar Energy Engineer • Solar Operations Engineer • Solar Thermoelectric Plant Manager • Transportation Engineer CTE Teacher • Water Resource Engineer • Wind Turbine Electrical Engineer • Wind Turbine Mechanical Engineer
				<p><u>Extensive Preparation</u></p> <ul style="list-style-type: none"> • Aerospace Engineer* • Engineering Manager* • Geothermal Power Plant Structural Engineer • Hydro-Electric Structural Engineer • PV Power Systems Engineer • Smart Grid Engineer

**Data acquired from www.workforceexplorer.com, www.sbctc.edu, www.careerclusters.org, and www.edf.org/cagreenjobs,
Adapted from <http://www.nthurston.k12.wa.us/education/components/scrapbook/default.php?sectiondetailid=34988>*

Revised: 1/4/10