



# PROGRAM OF STUDY



Career Cluster: Agriculture, Food, and Natural Resources

Career Cluster Pathway: Power, Structural and Technical Systems

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)		<b>ASD CTE COURSE OPTIONS</b>  Industrial Engineering Wood Technology I Wood Technology II Work-based Learning CTE Grad Project	<b>Little or No Preparation</b> ⊙ Construction Laborers ⊙ Septic Tank Servicers and Sewer Pipe Cleaners ⊙ Entry level Utility worker ⊙ Lineman
	10	English 2 or Honors English 2	US History	<i>*Class of 2013 (add't 1.0 credit)</i>  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)	<b>LEADERSHIP</b>  Skills USA	<b>Some Preparation</b> • Telecommunications Line Installers and Repairers • Helpers--Installation, Maintenance, and Repair Workers • Glaziers ⊙ Hydrogen Power Plant Installation, Operations Pipelayers
	11	English Electives or Business English	World History <u>or</u> Economics <u>or</u> Economics II	Pre-Calculus  Calculus		Credits from Art Courses  or CTE Equivalent	Credits from Health and Fitness Courses	and  Project Me  and  Other CAA requirements	Wood Technology II – Grays Harbor College (5cr.)  Beginning Industrial Engineering – Bates (5cr.)  Applied Math – Grays Harbor College (5cr.)	• Structural Iron and Steel Workers ⊙ Hazardous Materials Removal Workers • Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters • Excavating and Loading Machine and Dragline Operators • Helpers--Electricians ⊙ Power plant control operator assistant
	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.		<b>CERTIFICATION</b>  Work Readiness Credential	<b>Medium Preparation</b> ⊙ Apprentice plant Electrician ⊙ Boiler Operator ⊙ Construction and Building Inspectors ⊙ Construction Managers • Control and Valve Installers and Repairers, Except Mechanical Door • Crane and Tower Operators ⊙ Earth Drillers ⊙ Electrical and Electronics Repairers, Powerhouse, Substation, and Relay

<p><b>Technical Certification</b> <i>(instruction provided through certified training and/or testing centers)</i></p>	<p><b>Apprenticeship Opportunities</b></p>	<p><b>2-yr or ATA Degree</b> <i>(Find specific colleges at <a href="http://www.checkoutcollege.com">www.checkoutcollege.com</a>)</i></p>	<p><b>4 –yr Degree or Advanced Training</b></p>	<ul style="list-style-type: none"> <li>● Electrical Power-Line Installers and Repairers</li> <li>● Electricians</li> <li>● First-Line Supervisors/Managers of Construction Trades and Extraction Workers*</li> <li>● Insulation Workers, Mechanical</li> <li>● Journey Level Plant Electrician</li> <li>● Operating Engineers and Other Construction Equipment Operators</li> <li>● Power Distributors &amp; Dispatchers</li> <li>● Power Plant control Operator</li> <li>● Power Plant Equipment Operator</li> <li>● Power Plant Mechanic</li> <li>● Power Plant Operating Engineer</li> <li>● Power Plant Technician</li> <li>● Riggers</li> <li>● Security and Fire Alarm Systems Installers</li> <li>● Stationary Engineer</li> <li>● Telecommunications Equipment Installers and Repairers, Except Line Installers</li> <li>● Biofuel Plant Field Technician</li> <li>● Plant Technician Specialist – Instrument Repair Technician</li> </ul> <p><b>Considerable Preparation</b></p> <ul style="list-style-type: none"> <li>● CTE Teacher</li> <li>● Hydro-Electric Power Generation Engineer</li> <li>● Geothermal Power Generation Engineer</li> <li>● Geothermal Power Plant Structural Engineer</li> <li>● Engineering, and Management</li> <li>● Hydrogen Plant Operator and Operations Manager</li> <li>● Carbon Capture Power Plant Installations, Operations, Engineering, and Management</li> <li>● Carbon Sequestration Plant Installation, Operations, Engineering, and Management</li> <li>● Environmental Health and Safety Lead</li> <li>● Renewable Energy Consultant</li> <li>● Safety Investigator/Cause Analyst</li> <li>● Plant Supervising Technical Operator</li> </ul> <p><b>Extensive Preparation</b></p> <ul style="list-style-type: none"> <li>● Environmental, Health, and Safety Engineering Manager</li> <li>● Plant Safety Engineer</li> <li>● PV Power Systems Engineer</li> </ul>
<p><b>Power Operations and Customer Operation I, II</b></p> <ul style="list-style-type: none"> <li>● Centralia Community</li> </ul> <p><b>Power Utilities Technology</b></p> <ul style="list-style-type: none"> <li>● Clark College</li> </ul> <p><b>Zero Energy Building Practices</b></p> <ul style="list-style-type: none"> <li>● Shoreline Community College</li> </ul> <p><b>Solar Designer Certificate</b></p> <ul style="list-style-type: none"> <li>● Shoreline Community College</li> </ul> <p><b>Energy Technology Certificate</b></p> <ul style="list-style-type: none"> <li>● Wenatchee Community College</li> </ul> <p><b>Electrician</b></p> <ul style="list-style-type: none"> <li>● Bates Technical College</li> <li>● Bellingham Technical College</li> <li>● Big Bend Community College</li> <li>● Perry Technical Institute</li> <li>● Spokane Community College</li> </ul> <p><b>Heavy/Earthmoving Equipment Operation</b></p> <ul style="list-style-type: none"> <li>● Bates Technical College</li> <li>● West Coast Training</li> </ul> <p><b>Industrial Mechanics and Maintenance Technology</b></p> <ul style="list-style-type: none"> <li>● Lake Washington Technical College</li> </ul> <p><b>Mechanic and Repair Technologies/Technicians</b></p> <ul style="list-style-type: none"> <li>● Shoreline Community College</li> </ul>	<p>To learn more about Apprenticeship, visit <a href="http://Labor and Industries">Labor and Industries</a> website.</p> <p>Follow these steps to learn about the specific apprenticeships available in this pathway:</p> <p><b>STEP 1:</b> Link to <a href="#">Apprenticeship Registration and Tracking System</a></p> <p><b>STEP 2:</b> Search by using key words below or the SOC code listed</p> <ul style="list-style-type: none"> <li>● Combustion Turbine Specialist (51-8013)</li> <li>● Control Systems Technician (17-3023)</li> <li>● Energy Control Dispatcher (43-5032)</li> <li>● Hydro Plant Operator (51-8013)</li> <li>● Lineman (49-9051)</li> <li>● Meter Technician (49-9012; 47-2111)</li> <li>● Stationary Engineer (51-8021)</li> <li>● Power Plant Operator (51-8013)</li> <li>● Sub Station Operators (51-8012)</li> <li>● Substation (47-2111; 49-2095)</li> <li>● Substation Engineer (51-8012; 49-2095)</li> <li>● Utility (47-2111; 47-3013; 49-2095)</li> <li>● Water Pipe Worker (47-2151)</li> <li>● Wireman (47-2111; 49-2095)</li> </ul> <p><b>STEP 3:</b> Click “View” and scroll down to find contact name and program standards for qualifications and how to apply</p>	<p><b>Applied Science in Process Technology</b></p> <ul style="list-style-type: none"> <li>● Bellingham Technical College</li> </ul> <p><b>Industrial Electrical Technology</b></p> <ul style="list-style-type: none"> <li>● Bates Technical College</li> <li>● North Seattle Community College</li> </ul> <p><b>Applied Science in Energy Technology</b></p> <ul style="list-style-type: none"> <li>● Centralia Community College</li> </ul> <p><b>Applied Arts and Science in Energy Systems</b></p> <ul style="list-style-type: none"> <li>● Walla Walla Community College</li> </ul>	<p><b>Energy Industry Programs</b></p> <ul style="list-style-type: none"> <li>● Evergreen State College</li> <li>● Oregon Institute of Technology</li> </ul> <p><b>CTE Secondary Education Teacher</b></p> <ul style="list-style-type: none"> <li>● Education Degree in a CTE program area with 2000 hours of related work experience</li> <li>● 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</li> </ul>	

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