Program of Study: Energy & Power: Generation, Transmission and Distribution

This Program of Study may serve as a graduation guide for the next four plus years, along with other career planning and educational materials. Courses listed in this model may include recommended coursework and should be individualized to students' educational and career goals. Each graduation plan needs to meet minimum high school graduation requirements. Dual Enrollment courses can be high school academic and/or career technical education courses.

	Secondary: Energy & Power: Generation, Transmission & Distribution					Postsecondary			
Course/Grade	**Ninth**	**Tenth**	**Eleventh**	**Twelfth**	Entrance or Exit Point	**TCC**	**Diploma or AAS**	Entrance or Exit Point	**Bachelor of Science**
English	9th grade Lit/ Composition	10th grade Lit/ Composition	American Lit/ Composition	World Lit/Composition / British Lit		**Energy Industry Technology – EI 11** - Complete Academic courses - ALET 1100 History and Structure of the Energy Industry - ALET 1120 Electric Power and Natural Gas Generation, Transmission, and Distribution - ALET 1130 Introduction to Alternative Energy - IDSY 1020, Print Reading and Problem Solving - IDSY 1160 Mechanical Laws and Principles - IDSY 1101 DC Circuit Analysis - IDSY 1105 AC Circuit Analysis	If the student completes EI11 – Energy Industry Fundamentals (Industrial Systems Track) TCC leads to IST4 – Industrial Systems Technology diploma or IS13 – Industrial Systems Technology degree.		The University System of Georgia offers students' higher education options at 30 institutions throughout the state, providing a wide range of academic programming including certificates and associate, baccalaureate, masters, doctoral and professional degrees. https://apps.usg.edu/ords/f?p=118:1:0:::::
Mathematics	Coordinate Algebra/ Algebra I	Analytic Geometry / Geometry	Advanced Algebra/ Algebra II	Pre-calculus					
Science	Physical Science	Biology	Chemistry	AP Physics					
Social Studies	Psychology	World History	US History	Government (½ unit) Economics (½ unit)					
Pathway Completer	**Foundations of Energy and Power Technologies**	**Energy & Power: Generation, Transmission, & Distribution**	**Energy Systems Applications**	Work-Based Learning, Youth Apprenticeship, or Capstone Project					
Industry Recognized Credential (Pathway Completer)	Visit the End of Pathway Assessment Page (*see note below*)								
Required/ Selective Electives	Health & Personal Fitness (*can be taken in grades 9-12*)	AP Environmental Science	Physics	Statistics					
	Modern Language/Latin *2 units required for admissions to Georgia University System Colleges/Universities* For a listing of Modern Language/Latin courses offered at your high school, please contact your advisor, counselor, or curriculum handbook.			**Other Electives** For a listing of other elective courses offered at your high school, please check with your advisor, counselor, or curriculum handbook.					

NOTE: Students have many options to **ENTER** and **EXIT** from their academic studies into the workforce. When a student graduates from high school, they are eligible to choose one of many **ENTRANCE POINT** options: **1.** Enroll in either a 2 or 4 year post-secondary program; **2.** Enroll in an apprenticeship program or the military; or **3.** Enter the workforce using technical skills learned in high school. When a student finishes a 2- or 4-year degree program, they may choose to **EXIT** and **1.** Enroll in an apprenticeship program or the military; **2.** Enroll in a professional university degree program; or **3.** Enter the workforce using technical skills learned.

Energy and Power: Generation, Transmission and Distribution Career Pathway Completers - Industry Credentialing for High School Students

Upon completion of sequenced courses in the Energy and Power: Generation, Transmission and Distribution Career Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Energy and Power pathway will be able to sit for the National Industry Credentialed assessment offered on-line from NOCTI and SkillsUSA. Once mastery is reached, students will receive recognition for completion and use this credential in conjunction with their job or continuing training. For specific assessment information, refer to: http://bit.ly/GAEnergy

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Sample High Demand Careers in Georgia				
Occupation Specialties	**Level of Education Needed**	**Georgia Average Salary**	**Annual Average Openings in Georgia**	**2014 – 2024 Employment Outlook**
Electrical Engineers	Bachelor's Degree	$90,445	120	High Demand, High Skill
Industrial Production Managers	Bachelor's Degree	$96,979	123	High Demand, High Skill
Electrical Power-Line Installers and Repairers	Some postsecondary, no degree required	$48,355	234	High Demand, High Skill

GDOL Labor Market Explorer

Go to GAfutures at www.gafutures.org for more information about your education and career planning, including valuable financial information (grants and scholarships including HOPE Program, grants and loans, FAFSA, and CSS forms).

Career Enhancement Opportunities

Career-Related Education Activities

- ❑Career Awareness
- ❑Career Exploration
- ❑Instructional Related
- ❑Connecting
- ❑Work-Based Learning
  - Employability Skill Dev.
  - Cooperative Education
  - Internship
  - Youth Apprenticeship
  - Clinicals

Postsecondary Options:

- 4-Year Universities/ Colleges
- 2-Year Colleges
- Technical Colleges
- State Registered Apprenticeships
- Special Purpose Schools
- On-the-Job Training
- Military

Earning Postsecondary Credits While in High School

A vital way to get ahead and realize you can pass college courses is by earning postsecondary credits as a high school student. Georgia offers a dual credit program titled Dual Enrollment. You need to talk with your parents, school counselor, or advisor about the proper courses to take each year in high school and dual credit.

Students completing the course work in this Plan, will have earned/completed an Industry Credential, Technical Certificate of Credit (TCC), Associates of Applied Science Degree, and/or Bachelor's Degree.

Postsecondary Transition

- Students who will continue their education in a Program of Study at one of the University System of Georgia institutions should prepare to take the ACT or SAT for admissions. Tests for admissions may vary from institution to institution. Contact the selected institution for specific testing information. Additional admissions information can be found at Staying On Course.(https://www.usg.edu/assets/student_affairs/documents/Staying_on_Course.pdf)
- Students who will continue their education in a Program of Study at one of the Technical College System of Georgia institutions should prepare to complete a placement exam.
- Students who will continue their education and training in the US Military should take the ASVAB assessment.
- Students should utilize electronic college and career databases to select the most appropriate postsecondary opportunities to match their selected career field, including registered apprenticeships.
- Georgia's dual-credit programs have been combined into one program entitled Dual Enrollment, in which high school students may earn their high school course credits while taking college courses.

Related Pathway Occupations	Other Related Occupations
• Engineering Technicians • Mining Engineers • Petroleum Engineers • Hazardous Waste Technicians • Pipefitters/ Pipe Layers • Value/Regulator Repairers • Meteorologists • Geologists	• Telecommunication Technicians • Equipment, Cable, Line • Repairers/Installers • Electronics Technicians • Power Plant Operators • Engineering Technicians

*ONET Online

Energy & Power: Generation, Transmission & Distribution Pathway Description

The United States is a leader in the production and supply of energy and is one of the world's largest energy consumers. The energy industry is the third largest industry in the United States. U.S. energy companies produce oil, natural gas, coal, nuclear power, renewable energy and electricity services, as well as supply energy and electricity technologies worldwide. Energy and electricity equipment made in the U.S. dominates the domestic market and commands a strong market share abroad. Growing consumer demand and world class innovation – combined with a competitive workforce and supply chain capable of building, installing and servicing all energy technologies – makes the United States the world's most attractive market.

There are many people who help conserve, generate energy, transport it and connect it to the things we use every day. There are also those creating new methods of energy generation. Working in energy can mean working for utilities, for gas and oil companies, for government and research groups, for energy education or environmental regulation agencies, for nonprofit energy awareness and conservation organizations or for many other energy related agencies.

Most of the electricity produced in the United States comes from nonrenewable sources such as coal, petroleum and natural gas. Renewable power generation, from sources such as wind, water, solar and biomass, are becoming more common. Research and development in this area is ongoing, therefore, the job opportunities in renewable energy will continue to increase.

Overall employment of line installers and repairers is expected to grow 13 percent from 2010 to 2020, about as fast as the average for all occupations. Job opportunities should be best for those who have excellent technical and mechanical skills. Jobs in the energy field require varying levels of education, from work experience to college and advanced degrees.