

PROGRAM OF STUDY: Energy Systems



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:					POSTSECONDARY:		
COURSE/ GRADE	NINTH	TENTH	ELEVENTH	TWELFTH	TCC	DIPLOMA OR AAS	BACHELOR OF SCIENCE
ENGLISH	9 th grade Lit/ Composition	10 th grade Lit/ Composition	American Lit/ Composition	World Lit/ Composition / British Lit	Entrance/Exit Point EI11 TCC Energy Industry Fundamentals Find the campus for the TCC options	Entrance/Exit Point 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.	Entrance/Exit Point 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.ds.usg.edu/ords/ ?p=118:1:0
MATHEMATICS	Coordinate Algebra / Algebra I	Analytic Geometry / Geometry	Advanced Algebra / Algebra II	Pre-calculus			
SCIENCE	Physical Science	Biology	Chemistry	Physics			
SOCIAL STUDIES	World History	Psychology	US History	Government (½ unit) Economics (½ unit)			
PATHWAY COMPLETER	Foundations of Energy Technologies	Energy and Power: Technology	Appropriate and Alternative Energy Technologies	Another course in focus area, Work-Based Learning, or Youth Apprenticeship			
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)	Environmental Science	Foundations of Electronics	Statistics			
	Modern Language/Latin <i>2 units required for admissions to Georgia University System Colleges/Universities</i> 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 Systems Career Pathway Completers - Industry Credentialing for High School Students
Upon completion of sequenced courses in the Energy Systems Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Energy Systems pathway will be able to sit for the National Industry Credentialed assessment offered on-line from NOCTI and Skills USA. 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>

Sample In 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	In Demand, High Skill, High Wage
Industrial Production Managers	Bachelor's Degree	\$96,979	123	In Demand, High Skill, High Wage
Electrical Power-Line Installers and Repairers	Some postsecondary, no degree required	\$53,334	630	In Demand, High Skill
Power Plant Operators	Some postsecondary, no degree required	\$66,126	60	High Skill, In Demand

[Data link here.](#)

Go to [GAfutures at www.gafutures.org](http://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 <ul style="list-style-type: none"> Career Awareness Career Exploration Instructional Related Connecting <ul style="list-style-type: none"> Work-Based Learning Employability Skill Dev. Cooperative Education Internship Youth Apprenticeship Clinicals 	Postsecondary Options: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Dual Enrollment Program Earn postsecondary credit while in high school You can complete <ul style="list-style-type: none"> Industry Credential Technical Certificate of Credit (TCC) Associates of Applied Science Degree Bachelor's Degree Who can help? <ul style="list-style-type: none"> Parents School Counselor Advisor
	Postsecondary Transition <ul style="list-style-type: none"> University System of Georgia Institutions: Admissions Testing <ul style="list-style-type: none"> ACT or SAT For More Information: <ul style="list-style-type: none"> Contact the institution of your choice OR Technical College System of Georgia <ul style="list-style-type: none"> Placement Exam United States Military <ul style="list-style-type: none"> ASVAB Assessment Use BRIDGE Law platform to inform decisions on postsecondary opportunities Dual Enrollment <ul style="list-style-type: none"> Earning high school course credits while taking college courses 		
Related Pathway Occupations		Other Related Occupations	
<ul style="list-style-type: none"> Engineering Technicians Petroleum Engineers Pipefitters/ Pipe Layers Meteorologists Mining Engineers Hazardous Waste Technicians Value/Regulator Repairers Geologists 		<ul style="list-style-type: none"> Telecommunication Technicians Equipment, Cable, Line Repairers/Installers Power Plant Operators Electronics Technicians Engineering Technicians 	
*ONET Online			

Energy Systems Pathway Description

Energy is a diverse field with many job opportunities. There are many people who help generate energy, transport it and connect energy to the things we use every day. There are also individuals 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. Related jobs include power plant operators, power distributors and dispatchers, industrial machinery mechanics, reactor operators and engineers.

Employment opportunities are promising for experienced workers and those just starting their careers. Occupations require varying levels of education, from work experience to college and advanced degrees. Most scientific and research related jobs usually require at least a bachelor's degree.

The energy industry is projected to experience growth in the coming years, particularly with the increase in infrastructure investment for renewable energy and clean energy generation, energy efficiency and Smart Grid technologies. The growth in demand for workers is attributed to the large number of projected retirements in the industry.

With the emphasis on a green economy, occupations like energy auditors and energy engineers are considered new and emerging because of the vast change in their tasks, skills knowledge, and credentials. Electrical power-line Installers and repairers will enjoy increased growth from 10%-19% between 2014 and 2024.