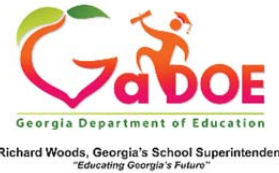


# Student Plan of Study – Energy Systems



Name \_\_\_\_\_ Date \_\_\_\_\_ School \_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_ Date \_\_\_\_\_ Advisor/Counselor Signature \_\_\_\_\_ Date \_\_\_\_\_

*Current Area of Interest: **Energy/Energy Systems** - This PLAN OF STUDY should serve as a guide for the next four years. **Courses listed in this plan are only recommended coursework and should be individualized to meet each student's educational and career goals. All plans will meet minimum high school graduation requirements. Applicants to the University System of Georgia and the Technical College System of Georgia institutions should be advised that meeting minimum requirements will not guarantee admission. Postsecondary institutions may set additional requirements.***

Grade Level	I. English/Language Arts Total 4 credits	II. Math Total 4 credits	III. Science Total 4 credits	IV. Social Studies Total 3 credits	V. Health/Personal Fitness Total 1 credit	VII. Possible electives in additional pathways (students should check the local course description catalog for these and other electives) Total 4 credits
<b>Energy</b>	9 9 <sup>th</sup> Literature & Composition or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	1 CCGPS Cord Algebra 2 CCGPS Analytic Geometry 3 CCGPS Accel Cord Algebra/Analytic Geometry 4 CCGPS Accel Analytic Geometry B/Adv. Algebra 1 credit * Credit Earned <input type="checkbox"/>	Biology or Approved Dual Enrollment Course  1 credit * Credit Earned <input type="checkbox"/>	American Government/Civics or AP Government/ Politics US or Approved Dual Enrollment Course  ½ credit Credit Earned <input type="checkbox"/>	Health ½ credit Credit Earned <input type="checkbox"/> Personal Fitness ½ credit Credit Earned <input type="checkbox"/> <b>VI. CTAE Pathway</b> Total 3 credits	<b>Advanced Academic Pathways</b> English/Language Arts, Math, Science, Social Studies An advanced academic pathway may be followed in any one of the content subjects listed above. Upon graduation, students earn an advanced academic pathway when they complete the required coursework to include at least one AP or one IB or one <a href="#">Dual Enrollment</a> course. An advanced academic pathway should also include at least two credits in one world language. AP, Dual Enrollment and <a href="#">Georgia Virtual School</a> courses may be available.
	10 10 <sup>th</sup> Literature & Composition or World Literature & Composition or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	1 CCGPS Analytic Geometry 2 CCGPS Advanced Algebra 3 CCGPS Accel Analytic Geometry/Adv. Algebra 4 CCGPS Pre-Calculus 1 credit * Credit Earned <input type="checkbox"/>	Physical Science or Physics or AP Physics or Approved Dual Enrollment Course  1 credit * Credit Earned <input type="checkbox"/>	World History or AP World History or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	49.53700 Foundations of Energy Technologies or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	<b>World Language Pathways</b> **Two credits are required for admissions to University System Institutions. For a listing of world language courses offered at your high school, please check with your advisor, counselor, or local course description catalog. A world language pathway may be followed in any of the world language areas included in the state list of approved courses. Upon graduation, students earn a world language pathway when they complete three credits in one language. The third course may reflect an AP, IB or <a href="#">Dual Enrollment</a> designation. <a href="#">Georgia Virtual School</a> and ACCEL courses may be available.
	11 American Literature/Composition or AP English Language & Composition/American Lit or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	1 CCGPS Adv. Algebra 2 CCGPS Pre-Calculus 3 CCGPS Accel Pre-Cal 4 CCGPS Cal or AP Cal 1 credit * Credit Earned <input type="checkbox"/>	Chemistry or Environmental Science or Earth Systems or AP/IB or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	United States History or AP US History or IB History of the Americas or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	21.45100 Energy & Power Technology or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	<b>Fine Arts/Performing Arts Pathways</b> Visual Arts, Dance, Music, Journalism, Theater A fine arts pathway may be followed in any one of the five areas listed above. Upon graduation, students complete a fine arts/performing arts pathway when three courses have been successfully completed in any one of the five areas. A student should consult a counselor or advisor for related coursework. AP, <a href="#">Dual Enrollment</a> and <a href="#">Georgia Virtual School</a> courses may be available.
	<b>At the end of the 11<sup>th</sup> grade, students planning to enter a University System of Georgia Institution or Technical College System of Georgia Institution should take the appropriate admissions test (SAT, ACT, Compass).</b>					<b>Legend:</b> *Science: Approved <a href="#">4th Sciences</a> may be used to meet both the required science and required elective in a Career, Technical and Agricultural Education (CTAE) sequence of courses; see Fourth Science Requirements for more information. Student may take science courses in any sequence. **Math: Select Math sequence 1, 2, 3, 4, based on 9 <sup>th</sup> grade entry course. ***Students must complete two credits of the same world language for admission to University System of Georgia institutions. *** Students should complete a CTAE pathway and take the related end of pathway assessment.
	12 Advanced Composition or British Literature or AP/IB English Literature & Composition or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	CCGPS Pre-Cal or Calculus or AP Cal or AP Stats or IB Math or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	Any other of the previous courses or Ecology or Geology or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	Econ/Business/Free Enterprise or AP Macro Econ or AP Micro Econ or IB Econ or Dual Enrollment  ½ credit Credit Earned <input type="checkbox"/>	21.45700 Appropriate & Alternative Energy Technologies or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	
Sample Elective Courses	<b>Other English Elective Courses:</b> Literary Types/Composition Journalism Oral/Written Communications Speech	<b>Other Math Elective Courses:</b> Adv Math Decision Making Math of Ind & Govern Math of Finance	<b>Other Science Elective Courses:</b> Meteorology or AP/IB Science	<b>Other Social Studies Elective Courses:</b> Current Issues or AP/IB Soc Studies or Sociology or World Geography	<b>Other CTAE Elective Courses:</b> Other CTAE electives are available to complete a related pathway	NOTE: Local systems may offer core courses in a different sequence; not all local systems offer every pathway. Students should explore all credit possibilities including <a href="#">Georgia's Virtual School Program</a> , <a href="#">Dual Enrollment</a> , Advanced Placement (AP), International Baccalaureate (IB) and Work-Based Learning (WBL) to reach their educational and career goals.

SAMPLE Pathway OCCUPATIONS			
See * <a href="#">Georgia's HOT Careers to 2020</a> for more information on high-skilled, high-wage and high-demand occupations.			
Occupation Specialties	Entry Level of Education Needed	2012 Annual Wage	Annual Openings 2012-2020
Electrical Engineers	Bachelor's Degree	\$86,300	120
Industrial Production Managers	Bachelor's Degree	\$76,200	130
*Equipment, Cable, Line Repairers/Installers	Some College No Degree Required	\$53,100	180

Source: Georgia Department of Labor/ONET

For more information about your education and career planning, including valuable financial aid information that includes grants and scholarships, see your school counselor.			
*** <a href="#">Current Georgia Graduation Rule</a>			
Coursework	Credits	Coursework	Credits
I. English/Language Arts	4	V. Health & Physical Education	1
II. Math	4	VI. **Career, Technical & Agricultural Education and/or ***World Languages, and/or Fine Arts	3
III. *Science	4	VII. Electives	4
IV. Social Studies	3	<b>TOTAL</b>	<b>23</b>

\*Selected [4th Science](#) courses may be used to meet both the required science and required elective in a CTAE sequence of courses.  
 \*\*Students must complete three credits to complete a CTAE pathway and take the end of pathway assessment.  
 \*\*\*Students must complete two credits of the same world language for admission to Georgia Board of Regents colleges/universities.  
 \*\*\*\* Current graduation requirements should be met in all content areas.  
 NOTE: This plan represents minimum graduation requirements. Local systems may require additional coursework.

Postsecondary Transition:
<ul style="list-style-type: none"> <li>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. (<a href="http://www.usg.edu/student_affairs/documents/Staying_on_Course.pdf">www.usg.edu/student_affairs/documents/Staying_on_Course.pdf</a>)</li> <li>Students who will continue their education in a Program of Study at one of the Technical College System of Georgia institutions should prepare to take the COMPASS test for admissions.</li> <li>Students who will continue their education and training in the US Military should take the ASVAB assessment.</li> <li>Students should utilize electronic college and career databases to select the most appropriate postsecondary opportunities to match their selected career field, including registered apprenticeships.</li> <li>Georgia's dual-credit programs have been combined into one program entitled Move on When Ready, in which high school students may earn their high school course credits while taking college courses.</li> </ul>

Possible Student Pathway Credentialing Opportunities:
Students completing a pathway are eligible to take a Credentialing/End of Pathway Assessment (EOPA) upon successful completion of the three required courses in the pathway. For specific assessment information, refer to <a href="http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Assessments.aspx">http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Assessments.aspx</a>

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

Energy Systems
<p>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 everyday. 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.</p> <p>Most of the electricity produced in the United States comes from non-renewable 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. Renewable energy jobs are also growing.</p> <p>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.</p> <p>The energy industry as a whole 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.</p> <p>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 2010 and 2020.</p>