# Student Plan of Study – Energy Systems

**Name____________________________**

**School______________________________________**

**Signature_____________________________**

**Date_____________**

**Advisor/Counselor**

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**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.

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### Area of Interest:

**Energy/Energy Systems**

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<table>
<thead>
<tr>
<th>Grade Level</th>
<th>I. English/Language Arts Total 4 credits</th>
<th>II. Math Total 4 credits</th>
<th>III. Science Total 4 credits</th>
<th>IV. Social Studies Total 3 credits</th>
<th>V. Health/Personal Fitness Total 1 credit</th>
<th>VII. Possible electives in additional pathways (students should check the local course description catalog for these and other electives)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th</td>
<td>1 CCGPS Core Algebra 1 credit</td>
<td>2 CCGPS Analytic Geometry 1 credit *</td>
<td>Biology or Approved Dual Enrollment Course 1 credit *</td>
<td>American Government/Civics or AP Government/Politics US or Approved Dual Enrollment Course 1 credit *</td>
<td>Health ½ credit Personal Fitness ½ credit</td>
<td>Advanced Academic Pathways 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 Dual Enrollment course. An advanced academic pathway should also include at least two credits in one world language. AP, Dual Enrollment and Georgia Virtual School courses may be available.</td>
</tr>
<tr>
<td>10th</td>
<td>1 CCGPS Analytic Geometry 1 credit</td>
<td>2 CCGPS Advanced Algebra 1 credit *</td>
<td>World History or AP World History or Approved Dual Enrollment Course 1 credit *</td>
<td>49.53700 Foundations of Energy/Technologies or Approved Dual Enrollment Course 1 credit</td>
<td>48-53711 Environmental Science or Earth Systems or AP1 or Approved Dual Enrollment Course 1 credit *</td>
<td>World Language Pathways <strong>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 Dual Enrollment designation. Georgia Virtual School and ACCEL courses may be available.</strong></td>
</tr>
<tr>
<td>11th</td>
<td>3 CCGPS Advanced Algebra 1 credit *</td>
<td>4 CCGPS Pre-Calculus 1 credit *</td>
<td>5 CCGPS Pre-Calculus 1 credit *</td>
<td>United States History or AP US History or IB History of the Americas or Approved Dual Enrollment Course 1 credit</td>
<td>21.45700 Energy &amp; Power Technology or Approved Dual Enrollment Course 1 credit</td>
<td>Fine Arts/Performing Arts Pathways 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, Dual Enrollment and Georgia Virtual School courses may be available.</td>
</tr>
</tbody>
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**Advanced Composition or British Literature or AP IB**

**English Literature & Composition or Approved Dual Enrollment Course**

**Other English Elective Courses:**

- Literary Types/Composition Journalism
- Oral/Written Communications Speech

**Other Math Elective Courses:**

- Adv Math Decision Making
- Math of Ind & Govern

**Other Science Elective Courses:**

- Meteorology or AP1
- Science

**Other Social Studies Elective Courses:**

- Current Issues or AP1
- Soc Studies or Sociology or World Geography

**Other CTAE Elective Courses:**

- Other CTAE electives are available to complete a related pathway

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**At the end of the 11th 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).**

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**Legend:**

- *Science: Approved 4th Sciences 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. Students may take science courses in any sequence.*
- **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.**

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**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 Georgia’s Virtual School Program, Dual Enrollment, Advanced Placement (AP), International Baccalaureate (IB) and Work-Based Learning (WBL) to reach their educational and career goals.
### SAMPLE Pathway OCCUPATIONS
See *Georgia’s HOT Careers to 2020* for more information on high-skilled, high-wage and high-demand occupations.

<table>
<thead>
<tr>
<th>Occupation Specialties</th>
<th>Entry Level of Education Needed</th>
<th>2012 Annual Wage</th>
<th>Annual Openings 2012-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineers</td>
<td>Bachelor’s Degree</td>
<td>$86,300</td>
<td>120</td>
</tr>
<tr>
<td>Industrial Production Managers</td>
<td>Bachelor’s Degree</td>
<td>$76,200</td>
<td>130</td>
</tr>
<tr>
<td><em>Equipment, Cable, Line Repairers/Installers</em></td>
<td>Some College</td>
<td>$53,100</td>
<td>180</td>
</tr>
<tr>
<td><em>Equipment, Cable, Line Repairers/Installers</em></td>
<td>No Degree Required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
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<th>**** Current Georgia Graduation Rule</th>
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<tr>
<td><strong>Coursework</strong></td>
</tr>
<tr>
<td>I. English/Language Arts</td>
</tr>
<tr>
<td>II. Math</td>
</tr>
<tr>
<td>III. <em>Science</em></td>
</tr>
<tr>
<td>IV. Social Studies</td>
</tr>
</tbody>
</table>

*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:
- 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. [www.usg.edu/student_affairs/documents/Staying_on_Course.pdf](http://www.usg.edu/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 take the COMPASS test for admissions.
- 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 Move On When Ready, in which high school students may earn their high school course credits while taking college courses.

### 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 [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)

### Energy Systems
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.

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. Renewal 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 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.

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.

Richard Woods, Georgia’s School Superintendent
"Educating Georgia’s Future"