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.

### Program of Study: Mechatronics

#### Secondary: Mechatronics

<table>
<thead>
<tr>
<th>Course/Grade</th>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
<th>Twelfth</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>9th grade Lit/Composition</td>
<td>10th grade Lit/Composition</td>
<td>American Lit/Composition</td>
<td>World Lit/Composition / British Lit</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Coordinate Algebra</td>
<td>Analytic Geometry</td>
<td>Advanced Algebra/Algebra II</td>
<td>Pre-calculus</td>
</tr>
<tr>
<td>Science</td>
<td>Physical Science</td>
<td>Biology</td>
<td>Chemistry</td>
<td>AP Physics - Engineering</td>
</tr>
<tr>
<td>Social Studies</td>
<td>Psychology</td>
<td>World History</td>
<td>US History</td>
<td>Government (½ unit) Economics (½ unit)</td>
</tr>
<tr>
<td>Pathway Completor</td>
<td>Introduction to Mechatronics-DC Theory, Pneumatic Systems, &amp; PLC</td>
<td>AC Theory, Electrical Motors, &amp; Hydraulic Systems</td>
<td>Semiconductors Mechanical Sys, and Pump &amp; Piping Systems</td>
<td>Work-Based Learning, Youth Apprenticeship, or Capstone Project</td>
</tr>
</tbody>
</table>

**Industry Recognized Credential (Pathway Completor)**

Visit the End of Pathway Assessment Page (see note below)

**Required/Selective Electives**

<table>
<thead>
<tr>
<th>Health &amp; Personal Fitness (can be taken in grades 9-12)</th>
<th>Introduction to Digital Technology</th>
<th>Physics</th>
<th>Other Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Language/Latin</td>
<td></td>
<td></td>
<td>For a listing of other elective courses offered at your high school, please check with your advisor, counselor, or curriculum handbook.</td>
</tr>
</tbody>
</table>

**Other Electives**

- 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.

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.

### Mechatronics Career Pathway Completers - Industry Credentialing for High School Students

Upon completion of sequenced courses in the Mechatronics Career Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Mechatronics 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/GAManufacturing](http://bit.ly/GAManufacturing)
Sample High Demand Careers in Georgia

<table>
<thead>
<tr>
<th>Occupation Specialties</th>
<th>Level of Education Needed</th>
<th>Georgia Average Salary</th>
<th>Annual Average Openings in Georgia</th>
<th>2014 – 2024 Employment Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Engineers</td>
<td>Bachelor’s Degree</td>
<td>$76,880</td>
<td>250</td>
<td>High Demand, High Skill</td>
</tr>
<tr>
<td>Industrial Engineering Technicians</td>
<td>Associate’s Degree</td>
<td>$48,330</td>
<td>45</td>
<td>High Demand, High Skill</td>
</tr>
<tr>
<td>Industrial Machinery Mechanics</td>
<td>Diploma, On-Job-Training</td>
<td>$42,500</td>
<td>293</td>
<td>High Demand, High Skill</td>
</tr>
</tbody>
</table>

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).

**Mechatronics Pathway Description**

Mechatronics is a diverse field. It encompasses many inter-related disciplines including Electronics, Mechanics, Fluid Power, Electrical Control Systems, Programmable Logic Controllers (PLC), Computers, and Robotics. Mechatronics is a term which includes the above disciplines and takes an integrated approach to their study. People employed in the mechatronics field deal with automated systems in a wide variety of applications. They also deal with related professional and technical support activities such as production planning and control, maintenance, and engineering.

Mechatronics employers face recruitment difficulties because many potential employees do not possess the needed skills. With the advances in automation and robotics, some jobs have been eliminated, but there are more job opportunities for individuals that have advanced technical skills and higher levels of education. Employers need associates with good communication, technical and problem solving skills.

Industry-wide competencies include safety, quality assurance, maintenance, installation and repair, operations and design and development. Since new processes are increasingly automated, it is necessary that students acquire a broad range of technical skills to be competitive in the job market.

There are a variety of job opportunities in mechatronics. Mechatronics can be utilized with companies that need or provide engineering, maintenance, technical support, and technical consulting. Mechatronic equipment and devices can be found in most modern industries, some of which are advanced manufacturing, processing, aviation, automotive, refining, logistics, and power generation.

Additional information regarding this pathway can be found at [http://www.careeronestop.org/CompetencyModel/pyramid.aspx?ME=Y](http://www.careeronestop.org/CompetencyModel/pyramid.aspx?ME=Y)

**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/assets/student_affairs/documents/Staying_on_Course.pdf](http://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 in a Program of Study at one of the Technical College System of Georgia institutions should prepare to complete a placement exam.
- 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**

- Electrical and Electronics Repairers
- Industrial Equipment Repairers
- Industrial Engineering Technicians
- Industrial Machinery Mechanics
- Commercial and Industrial Engineers
- Industrial Machinery Operators
- Computer User Support Specialists
- Electronics Engineering Technicians
- Chemical Plant & System Operators

*ONET Online