PROGRAM OF STUDY:
Engineering Drafting and Design

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.

<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 / Algebra I</td>
<td>Analytic Geometry / 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>World History</td>
<td>Psychology</td>
<td>US History</td>
<td>Government (½ unit) Economics (½ unit)</td>
</tr>
</tbody>
</table>

PATHWAY COMPLETER
Introduction to Drafting and Design
Survey Engineering Graphics
3-D Modeling and Analysis
Another course in focus area, Work-Based Learning, or Youth Apprenticeship

Required/ Selective Electives
Health & Personal Fitness (can be taken in grades 9-12)
Introduction to Digital Technology
Physics
Financial Literacy

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.

Engineering Drafting and Design Career Pathway Completers - Industry Credentialing for High School Students
Upon completion of sequenced courses in the Engineering Drafting and Design Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Engineering Drafting and Design pathway will be able to sit for the National Industry Credentialed assessment offered on-line from ADDA, Autodesk, CSWA, 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/STEMGA.
# Engineering Drafting and Design Pathway Description

Engineering Drafting & Design occupations translate ideas from design layouts, specifications, rough sketches, and calculations of engineers and architects into working drawings, maps, plans, and illustrations that are used in making products. They prepare 3D computer models and 2D drawings using computer-aided design (CADD) and 3D modeling systems. Workers may enjoy new systems such as building information modeling (BIM) and product data management (PDM).

They perform design and drafting work in mechanical, electrical/electronic, structural, architectural, civil, piping, and technical illustration fields. They make mathematical calculations related to the above fields using algebra, trigonometry, plane, and solid geometry, applied mechanics, strength of materials and basic physics. These occupations usually require working closely with both professional and nonprofessional people. It is essential they have good communication skills.

Degrees are not specifically in the Engineering Drafting and Design area. They are in manufacturing, mechanical, industrial, electrical, engineering, engineering technology, or engineering technician programs.

Employers prefer applicants who have completed postsecondary education in drafting, typically an associate degree from a technical institute or community college. Drafters who specialize in architecture and engineering may need a higher degree, such as a bachelor’s degree. Developments in new technology are causing entry-level requirements to rise. An associate degree is the typical level of education needed to enter the occupation. In addition, drafters need skills from academic programs so that they may move into the work of designing directly for professionals such as engineers or architects.

## Sample In 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>Mechanical Engineers</td>
<td>Bachelor’s Degree</td>
<td>$82,653</td>
<td>236</td>
<td>In Demand, High Skill</td>
</tr>
<tr>
<td>Architectural Drafters</td>
<td>Bachelor’s Degree</td>
<td>$51,854</td>
<td>34</td>
<td>In Demand, High Skill</td>
</tr>
<tr>
<td>Electronic Drafters</td>
<td>Associates Degree</td>
<td>$68,115</td>
<td>11</td>
<td>In Demand, High Skill</td>
</tr>
<tr>
<td>Civil Engineering Technicians</td>
<td>Postsecondary Certificate</td>
<td>$46,692</td>
<td>157</td>
<td>In Demand, High Skill</td>
</tr>
</tbody>
</table>

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-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
- Dual Enrollment Program
- Earn postsecondary credit while in high school
- You can complete
  - Industry Credential
  - Technical Certificate of Credit (TCC)
  - Associates of Applied Science Degree
- Bachelor’s Degree
- Who can help?
  - Parents
  - School Counselor
  - Advisor

### Related Pathway Occupations
- Electronic Drafters
- Architectural Drafters
- Mechanical Drafters
- Civil Drafters
- Electrical Drafters
- Cartographers
- Civil Engineering Technicians

### Other Related Occupations
- Aerospace Engineers
- Agricultural Engineers
- Architectural Drafters
- Biochemical Engineers
- Cost Estimators
- Fuel Cell Engineers
- Materials Engineers

*ONET Online

Data link here.