

# Program of Study: Engineering and Technology



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: Engineering and Technology				Postsecondary		
Course/Grade	Ninth	Tenth	Eleventh	Twelfth	TCC	Diploma or AAS	Bachelor of Science
<b>English</b>	9 <sup>th</sup> grade Lit/Composition	10 <sup>th</sup> grade Lit/Composition	American Lit/Composition	World Lit/Composition / British Lit	<b>Entrance or Exit Point</b>  <b>EBT1 Engineering Technology Basics TCC</b>  - ENGT 1000 Intro to Engineering Technology - ECET 1101 Circuit Analysis I - DFTG 2010 Engineering Graphics - GIFS 1101 Intro to Geographic Information Systems	The EF11 TCC leads to CEE3 Civil Engineering Technology AAS as well as other engineering-related diplomas and degrees	<b>Entrance or Exit Point</b>  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.  <a href="https://apps.usg.edu/ords/f?p=118:1:0:::">https://apps.usg.edu/ords/f?p=118:1:0:::</a>
<b>Mathematics</b>	Coordinate Algebra / Algebra I	Analytic Geometry / Geometry	Advanced Algebra / Algebra II	Pre-calculus			
<b>Science</b>	Physical Science	Biology	Chemistry	AP Physics - Engineering			
<b>Social Studies</b>	Psychology	World History	US History	Government (½ unit) Economics (½ unit)			
<b>Pathway Completer</b>	<b>Foundations of Engineering and Technology</b>	<b>Engineering Concepts</b>	<b>Engineering Applications</b>	Work-Based Learning, Youth Apprenticeship, or Capstone Project			
<b>Industry Recognized Credential (Pathway Completer)</b>	<a href="#">Visit the End of Pathway Assessment Page</a> (see note below)						
<b>Required/ Selective Electives</b>	Health & Personal Fitness ( <i>can be taken in grades 9-12</i> )	Spanish I	Physics	Introduction to Digital Technology			
	<b>Modern Language/Latin</b> 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.		<b>Other Electives</b> 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 and Technology Career Pathway Computers - Industry Credentialing for High School Students

Upon completion of sequenced courses in the Engineering and Technology Career Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Engineering and Technology 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/STEMGA>

## Sample High Demand Careers in Georgia

Occupation Specialties	Level of Education Needed	Georgia Average Salary	Annual Average Openings in Georgia	2014 – 2024 Employment Outlook
Aerospace Engineers	Bachelor's Degree	\$105,700	170	High Demand, High Skill
Electrical Engineers	Bachelor's Degree	\$88,000	90	High Demand, High Skill
Avionics Technicians	Associate's Degree	\$54,000	40	High Demand, High Skill

GDOL Labor Market Explorer

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).

<b>Career Enhancement Opportunities</b>	<p><b>Career-Related Education Activities</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Career Awareness</li> <li><input type="checkbox"/> Career Exploration</li> <li><input type="checkbox"/> Instructional Related</li> <li><input type="checkbox"/> Connecting</li> <li><input type="checkbox"/> Work-Based Learning                             <ul style="list-style-type: none"> <li>• Employability Skill Dev.</li> <li>• Cooperative Education</li> <li>• Internship</li> <li>• Youth Apprenticeship</li> <li>• Clinicals</li> </ul> </li> </ul>	<p><b>Postsecondary Options:</b></p> <ul style="list-style-type: none"> <li>• 4-Year Universities/Colleges</li> <li>• 2-Year Colleges</li> <li>• Technical Colleges</li> <li>• State Registered Apprenticeships</li> <li>• Special Purpose Schools</li> <li>• On-the-Job Training</li> <li>• Military</li> </ul>	<p><b>Earning Postsecondary Credits While in High School</b></p> <p>A vital way to get ahead and realize you can pass college courses is by earning postsecondary credits as a high school student. Georgia offers a dual credit program titled Dual Enrollment. You need to talk with your parents, school counselor, or advisor about the proper courses to take each year in high school and dual credit.</p> <p>Students completing the course work in this Plan, will have earned/completed an Industry Credential, Technical Certificate of Credit (TCC), Associates of Applied Science Degree, and/or Bachelor's Degree.</p>
---	---	--	---

### 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 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 Dual Enrollment, in which high school students may earn their high school course credits while taking college courses.

Related Pathway Occupations	Other Related Occupations
<ul style="list-style-type: none"> <li>• All Engineers and Engineering Technologists</li> </ul>	<ul style="list-style-type: none"> <li>• Civil Drafters</li> <li>• Cost Estimators</li> <li>• Electrical &amp; Electronics Drafters</li> <li>• Mapping Technicians</li> <li>• Quality Control Systems Managers</li> <li>• Anthropologists</li> <li>• Archeologists</li> </ul>

\*ONET Online

## Engineering and Technology Pathway Description

Today's professionals in the engineering and technology field continue to revolutionize the way we live. They design, produce, operate, and maintain a variety of equipment and services we use in our everyday lives. The rapidly changing engineering and technology field requires a broad educational background and a lifelong commitment to learning new and specialized information.

Overall job opportunities in engineering and technology are expected to be good but will vary by specialty. Technology and technology related employment will continue to increase as technology changes and new technology is invented.

Engineers may work in design and development, testing, production or maintenance. Almost all entry-level engineering jobs require at least a bachelor's degree, and most engineers specialize in a certain field. Those interested in an occupation in the engineering field should be creative, inquisitive, analytical and detail-oriented. They should also have excellent communication skills because working as part of a team and working with others outside the engineering field is often required.

Engineering is considered a nontraditional field for women; therefore, it is important that female students investigate different engineering opportunities where salaries are higher than in many traditional occupations for females. Most science, technology, engineering and math related occupations are nontraditional occupations for young women. Both young men and women should explore all their options for future employment.