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.

**SECONDDARY:**

<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>Physics</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>
<tr>
<td>PATHWAY COMPLETER</td>
<td>Foundations of Engineering and Technology</td>
<td>Engineering Concepts</td>
<td>Engineering Applications</td>
<td>Another course in focus area, Work-Based Learning, or Youth Apprenticeship</td>
</tr>
</tbody>
</table>

**Industry Recognized Credential (Pathway Completer)**

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

<table>
<thead>
<tr>
<th>Required/ Selective Electives</th>
<th>Health &amp; Personal Fitness (can be taken in grades 9-12)</th>
<th>Financial Literacy</th>
<th>Engineering and Drafting by Design</th>
<th>Introduction to Business and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Language/Latin</td>
<td>2 units required for admissions to Georgia University System Colleges/Universities</td>
<td>For a listing of Modern Language/Latin courses offered at your high school, please contact your advisor, counselor, or curriculum handbook.</td>
<td>Other Electives</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>

**Postsecondary Transition**

- University System of Georgia Institutions: Admissions Testing
  - ACT or SAT
  - For More Information:
  - Contact the institution of your choice
- Technical College System of Georgia
  - Placement Exam
- United States Military
  - ASVAB Assessment
- Use BRIDGE Law platform to inform decisions on postsecondary opportunities
- Dual Enrollment
- Earning high school course credits while taking college courses

**Engineering and Technology Pathway Completers - Industry Credentialing for High School Students**

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

Secondary students completing the Early Childhood and Care Education pathway will be able to sit for the National Industry Credentialed assessment offered on-line from ADDA, CSWA, SkillsUSA, Autodesk-AutoCAD, and NOCTI.

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: https://tinyurl.com/EngineerandTech

**Engineering and Technology Pathway Description**

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. 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.

**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>2018 – 2028 Employment Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avionics Technicians</td>
<td>Associate degree</td>
<td>$65,440</td>
<td>150</td>
<td>In Demand, High Skill</td>
</tr>
<tr>
<td>Industrial Engineering Technicians</td>
<td>Associate degree</td>
<td>$61,920</td>
<td>130</td>
<td>In Demand</td>
</tr>
<tr>
<td>Electrical Engineers</td>
<td>Bachelor’s Degree</td>
<td>$98,430</td>
<td>350</td>
<td>In Demand, High Skill</td>
</tr>
<tr>
<td>Aerospace Engineers</td>
<td>Bachelor’s Degree</td>
<td>$111,200</td>
<td>210</td>
<td>In Demand</td>
</tr>
</tbody>
</table>

**Related Pathway Occupations**

- All Engineers and Engineering Technologists

**Other Related Occupations**

- Civil Drafters
- Cost Estimators
- Mapping Technicians
- Electrical & Electronics Drafters
- Electronic Technician
- Quality Control Systems Managers

O*NET Online
# PROGRAM OF STUDY:

## ENGINEERING AND TECHNOLOGY

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.

## POSTSECONDARY:

### TCC

- **EF11 Engineering Technology Fundamentals Certificate**
- **ENGT 1000 Introduction to Engineering and MATH 1111 College Algebra**
- **MATH 1113 Precalculus** and Select One of the Following:
  - **ALET 1130 Energy Systems Applications** or **MATH 1113 Precalculus** and Select 4 Credits from the Following:
  - **DFTG 1101 CAD Fundamentals** or **DFTG 1105 3D Mechanical Modeling**
  - **DFTG 2010 Engineering Graphics** or **PHYS 1111 Introductory Physics with Lab or ECET 1191 Computer Programming Fundamentals**

### DIPLOMA OR AAS

- Completion of **EF11 Engineering Technology Fundamentals Certificate** and **ENGL 1101 Composition & Rhetoric or ENGL 1105 Workplace & Technical Communication and Social/Behavioral Science Elective and Humanities & Fine Arts Elective and MATH 1112 College Trigonometry or MATH 1113 Precalculus (certificate option) and each of the following:
  - **DFTG 1101 CAD Fundamentals (certificate option)**
  - **CETC 1114 Intermediate Computer Aided Design**
  - **DRFT 2050 Surveying I**
  - **CETC 1113 Engineering Economics**
  - **PHYS 1111 Introductory Physics w/PHYS 1111L Introductory Physics Lab**
  - **MEGT 2030 Statics**
  - **MEGT 2080 Strength of Materials**
  - **CETC 1111 Fundamentals of Hydrology**
  - **CETC 1112 Fundamentals of Soil Mechanics**
  - **CETC 1117 Fundamentals of Road Design**
  - **Select an Area of Specialization:**
    - **General Specialization:**
      - **CETC 1118 Construction Materials**
      - **CETC 1121 Hydraulics & Fluid Mechanics**
      - **ENGT 2300 Capstone Project**
      - **Physics Cluster:**
        - **PHYS 1112 Introductory Physics II and PHYS 1112L Introductory Physics II Lab and Surveying Cluster:**
          - **CETC 1116 Surveying II and Chemistry Cluster:**
            - **CHEM 1151 Survey of Inorganic Chemistry and CHEM 1151L Survey of Inorganic Chemistry Lab or CHEM 1211 Chemistry I and CHEM 1211L Chemistry Lab I or Surveying Specialization:**
              - **CETC 1116 Surveying II**
              - **CETC 1119 Surveying with Global Positioning Systems**
    - **CETC 1120 Evidence and Procedures for Boundary Locations**
    - **ENGT 2400 Evidence and Procedures for Boundary Locations Internships**

### BACHELOR OF SCIENCE

- 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. [Visit](https://apps.ds.usg.edu/ords/f?p=118:1:0:)

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## CAREER ENHANCEMENT OPPORTUNITIES

- Career Awareness
- Career Exploration
- Instructional Related
- Connecting
- Work-Based Learning
- Employability Skill Dev.
- Cooperative Education
- Internship
- Youth Apprenticeship
- Clinicals

## 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

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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).