

# 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.

SECONDARY:				
COURSE/ GRADE	NINTH	TENTH	ELEVENTH	TWELFTH
ENGLISH	9 <sup>th</sup> grade Lit/ Composition	10 <sup>th</sup> grade Lit/ Composition	American Lit/ Composition	World Lit/ Composition / British Lit
MATHEMATICS	Coordinate Algebra / Algebra I	Analytic Geometry / Geometry	Advanced Algebra / Algebra II	Pre-calculus
SCIENCE	Physical Science	Biology	Chemistry	Physics
SOCIAL STUDIES	World History	Psychology	US History	Government (½ unit) Economics (½ unit)
PATHWAY COMPLETER	Introduction to Drafting and Design	Survey of Engineering Graphics	3-D Modeling and Analysis	Another course in focus area, Work-Based Learning, or Youth Apprenticeship
Industry Recognized Credential (Pathway Completer)		<a href="#">Visit the End of Pathway Assessment Page</a> (see note below)		
Required/ Selective Electives	Health & Personal Fitness (can be taken in grades 9-12)	Financial Literacy	Engineering and Technology	Introduction to Business and 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.	
<b>Postsecondary Transition</b> <ul style="list-style-type: none"> <li>University System of Georgia Institutions: Admissions Testing                             <ul style="list-style-type: none"> <li>ACT or SAT</li> <li>For More Information:</li> <li>Contact the institution of your choice</li> </ul> </li> <li>Technical College System of Georgia                             <ul style="list-style-type: none"> <li>Placement Exam</li> </ul> </li> <li>United States Military                             <ul style="list-style-type: none"> <li>ASVAB Assessment</li> </ul> </li> <li>Use BRIDGE Law platform to inform decisions on postsecondary opportunities</li> <li>Dual Enrollment</li> <li>Earning high school course credits while taking college courses</li> </ul>		<b>Engineering Drafting and Design Career Pathway Completers - Industry Credentialing for High School Students</b>  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: <a href="http://bit.ly/STEMGA">http://bit.ly/STEMGA</a> .		

### 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 and drafting (CADD) and 3D modeling systems.

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.

Employers prefer applicants who have completed postsecondary education in drafting, typically an associate degree from a technical institute or community college

### Sample In Demand Careers in Georgia

Occupation Specialties	Level of Education Needed	Georgia Average Salary	Annual Average Openings in Georgia	2018 – 2028 Employment Outlook
Civil Engineering Technicians	Postsecondary Certificate	\$44,290	160	In Demand, High Skill
Mechanical Drafter	Associate Degree	\$50,560	80	In Demand, High Skill
Architectural Drafters	Bachelor's Degree	\$52,590	320	In Demand, High Skill
Mechanical Engineers	Bachelor's Degree	\$86,560	400	In Demand, High Skill

#### Related Pathway Occupations

- All Drafting Occupations

#### Other Related Occupations

- Aerospace Engineers
- Agricultural Engineers
- Electrical & Electronics Drafters
- Civil Engineering Technicians
- Cartographers

O\*NET Online

**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	DIPLOMA OR AAS	BACHELOR OF SCIENCE
Entrance/Exit Point	<p><b>DA31 Drafters Assistant Certificate</b>                      DFTG 1101 CAD Fundamentals                      DFTG 1103 Multiview/Basic Dimensioning                      Occupational Elective</p>	<p>Completion of DA31 Drafters Assistant Certificate plus the following courses will earn the DT12 Drafting Technology Diploma:                      ENGL1010 Fundamentals of English or                      ENGL1005 Applied Technical Communication and                      EMPL1000 Interpersonal Relations &amp; Professional Development and                      One of the Following:                      MATH1012 Foundations of Mathematics or                      MATH1013 Algebraic Concepts or                      MATH 1005 Applied Technical Mathematics and the following                      Occupational Courses:                      One Math Course from the Following:                      DFTG1015 Practical Mathematics for Drafting or                      MATH 1015 Geometry &amp; Trigonometry or                      MCHT 1013 Machine Tool Math and                      Choose One of the Following Specializations:                      Mechanical Drafting:                      DFTG 1105 3D Mechanical Modeling                      DFTG 1109 Auxiliary Views/Surface Development                      DFTG 1107 Advanced Dimensioning/Sectional Views                      DFTG 1111 Fasteners                      DFTG 1113 Assembly Drawings                      Guided Elective - Choose any Trade and Tech., BUSN, CIST, COMP, IDSY, MATH or MGMT Course Or                      Architectural Drafting Specialization:                      DFTG 1125 Architectural Fundamentals                      DFTG 1127 Architectural 3D Modeling                      DFTG 1129 Residential Drawing I                      DFTG 1131 Residential Drawing II                      DFTG 1133 Commercial Drawing I                      Guided Elective - Choose any Trade and Tech., BUSN, CIST, COMP, IDSY, MATH or MGMT Course or                      Civil Technology Specialization:                      DRFT 2000 Public Works                      DRFT 2005 Plan Reading                      DRFT 2010 Construction Materials                      DRFT 2020 Construction Materials and Cost Estimating                      DRFT2050 Surveying                      DRFT 2030 Project Management                      DRFT 2060 Route Location &amp; Design                      DRFT 2070 Civil Tech. Internship                      To earn the DT13, Drafting Technology A.A.S, the following courses will need to be completed in addition to the earned DA31 Drafters Assistance Certificate:                      General Education Core:                      ENGL 1101 Composition &amp; Rhetoric                      Social/Behavioral Science Elective                      MATH 1111 College Algebra                      Humanities/Fine Arts Elective                      MATH 1112 College Trigonometry or                      MATH 1113 Precalculus and                      Choose One Specialization:                      Mechanical Drafting Specialization:                      Courses listed in Diploma plus additional Occupational Electives or                      Architectural Drafting Specialization:                      Courses listed in Diploma plus additional Occupational Electives or                      Civil Drafting Specialization:                      Courses listed in Diploma plus additional Occupational Electives</p>	<p>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.ds.usg.edu/or/ds/f?p=118:1:0:">https://apps.ds.usg.edu/or/ds/f?p=118:1:0:</a></p>
Entrance/Exit Point			
Entrance/Exit Point			

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).

Career Enhancement Opportunities	Career-Related Education Activities	Postsecondary Options:	Earning Postsecondary Credits While in High School
	<ul style="list-style-type: none"> <li>Career Awareness</li> <li>Career Exploration</li> <li>Instructional Related</li> <li>Connecting                             <ul style="list-style-type: none"> <li>Work-Based Learning</li> <li>Employability Skill Dev.</li> <li>Cooperative Education</li> <li>Internship</li> <li>Youth Apprenticeship</li> <li>Clinicals</li> </ul> </li> </ul>	<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>	<ul style="list-style-type: none"> <li>Dual Enrollment Program</li> <li>Earn postsecondary credit while in high school</li> <li>You can complete                             <ul style="list-style-type: none"> <li>Industry Credential</li> <li>Technical Certificate of Credit (TCC)</li> <li>Associates of Applied Science Degree</li> <li>Bachelor's Degree</li> </ul> </li> <li>Who can help?                             <ul style="list-style-type: none"> <li>Parents</li> <li>School Counselor</li> <li>Advisor</li> </ul> </li> </ul>