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: Engineering Drafting and Design					Postsecondary			
Course/Grade	**Ninth**	**Tenth**	**Eleventh**	**Twelfth**	Entrance or Exit Point	**TCC**	**Diploma or AAS**	Entrance or Exit Point	**Bachelor of Science**
English	9th grade Lit/ Composition	10th grade Lit/ Composition	American Lit/ Composition	World Lit/Composition / British Lit		**Drafters Assistant TCC (DA31)** - MATH 1111 - DFTG 1101 CAD Fundamentals - DFTG 1103 Multiview Basic Dimensions - DFTG 1105 3D Mechanical Modeling	If the student completes the DA31 TCC leads to DT12 Drafting Technology Diploma and DT13 Drafting Technology AAS.		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. https://apps.usg.edu/ords/f?p=118:1:0:::::
Mathematics	Coordinate Algebra / Algebra I	Analytic Geometry / Geometry	Advanced Algebra / Algebra II	Pre-calculus					
Science	Physical Science	Biology	Chemistry	AP Physics - Engineering					
Social Studies	Psychology	World History	US History	Government (½ unit) Economics (½ unit)					
Pathway Completer	**Introduction to Drafting and Design**	**Survey Engineering Graphics**	**3-D Modeling and Analysis**	Work-Based Learning, Youth Apprenticeship, or Capstone Project					
Industry Recognized Credential (Pathway Completer)	Visit the End of Pathway Assessment Page (*see note below*)								
Required/ Selective Electives	Health & Personal Fitness (*can be taken in grades 9-12*)	Spanish I	Physics	Introduction to Digital Technology					
	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 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 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

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Sample High Demand Careers in Georgia				
Occupation Specialties	**Level of Education Needed**	**Georgia Average Salary**	**Annual Average Openings in Georgia**	**2014 – 2024 Employment Outlook**
Mechanical Engineers	Bachelor's Degree	$82,653	236	High Demand, High Skill
Architectural Drafters	Bachelor's Degree	$51,854	34	High Demand, High Skill
Electronic Drafters	Associate's Degree	$68,115	11	High Demand, High Skill

GDOL Labor Market Explorer

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 Enhancement Opportunities

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

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.

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.

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)
- 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
• Electronic Drafters • Architectural Drafters • Mechanical Drafters • Civil Drafters • Electrical Drafters • Cartographers • Civil Engineering Technicians	• Aerospace Engineers • Agricultural Engineers • Architectural Drafters • Biochemical Engineers • Cost Estimators • Fuel Cell Engineers • Materials Engineers

*ONET Online

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. 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's 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's 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.