

SCIENCE, TECHNOLOGY, ENGINEERING, & MATH

A GUIDE TO PURSUING YOUR CAREER PATH

ENGINEERING, DRAFTING & DESIGN >>>

Engineering professionals 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.

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 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) and technical illustration fields.

HIGH SCHOOL PATHWAY CLASSES >>>

1 **INTRO TO DRAFTING & DESIGN** Introduces the engineering drawing and design field, and is a pre-requisite to all other courses in the Engineering Design and Drawing program. Emphasis is placed on safety, the correct use of tools and equipment, drafting media, sketching, lettering, alphabet of lines, geometric construction, and fundamentals of CAD and multi-view drawings. Students learn traditional drafting techniques through the study of geometric construction at which time they are introduced to computer aided drafting and design.

2 **SURVEY OF ENGINEERING GRAPHICS** enhances the student's knowledge and skills in the engineering drawing and design field. The student learns to illustrate more complex objects using the Computer-Aided Drafting (CAD) system and develop skills in dimensioning, tolerancing, pictorials, sections, auxiliary views, and intersection and developments. While the term computer-aided design (CAD) does not appear in each competency, CAD tools and software are used extensively throughout the course activities.

3 **3D MODELING & ANALYSIS** focuses on engineering and related mechanical drafting areas that provide more in-depth study of mechanical design. Emphasis is placed on 3-D drawings, wireframes, rendering, solid modeling, and graphic presentations. The student who successfully completes this and other drafting courses should be prepared to take the Drafter Certification Examination from the American Design Drafting Association (ADDA) and should qualify for advanced standing in drafting and design programs in Georgia's technical colleges.



CAPSTONE: WBL INTERNSHIP >>>

WBL (WORK-BASED LEARNING) connects skilled, knowledgeable and driven students to local businesses every year. Students who participate in the STEM program and have been selected to participate in WBL will leave school early to work with our fantastic business partners. Benefits to students include a chance to put skills learned in the classroom to use in an authentic setting, getting a competitive advantage on their career and networking with industry leading professionals all while still in high school. www.hallcowbl.org



CAREER TECH STUDENT ORGANIZATIONS >>>

SKILLSUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. We help each student excel.

SkillsUSA's mission is to empower its members to become world-class workers, leaders and responsible American citizens. We improve the quality of our nation's future skilled workforce through the development of SkillsUSA Framework skills that include personal, workplace and technical skills grounded in academics. Our vision is to produce the most highly skilled workforce in the world, providing every member the opportunity for career success.



POTENTIAL CAREERS >>>

- Engineer
- Electronic Drafters
- Architectural Drafters
- Mechanical Drafters
- Civil Drafters
- Electrical Drafters
- Cartographers
- Civil Engineer
- Millwrights
- Quality Control Systems Manager
- Mechanical Engineers
- Industrial Engineers
- Aerospace Engineers
- Agricultural Engineers
- Biochemical Engineers
- Cost Estimators
- Fuel Cell Engineers
- Materials Engineers
- Mapping Technician

ENGINEERING, DRAFTING & DESIGN

CAREER PATHWAY - PLAN OF STUDY

GRADUATION REQUIREMENTS

ENGLISH/LANGUAGE ARTS

4 Units *Must Include:*

9th Grade Literature & American Literature

SOCIAL STUDIES

3 Units *Must Include:*

World History, US History, Government & Economics

MATHEMATICS

4 Units *Must Include:*

GSE Algebra I, GSE Geometry & GSE Algebra II

+

one additional GSE/AP/IB/DE Math course

OR

GSE Accelerated Algebra I/Analytic Geometry A,

GSE Accelerated Geometry B/Algebra II, GSE Precalculus

+

one additional GSE/AP/IB/DE Math course

SCIENCE

4 Units *Must Include:*

Physical Science or Physics; Biology;

Chemistry, Earth Systems, Environmental Science or AP/IB course

+

one additional Science course

HEALTH & PERSONAL FITNESS

1 Unit *Must Include:*

1/2 unit of each

CAREER, TECHNICAL & AGRICULTURE EDUCATION (CTAE)

3 Units *Must include:*

Intro to Drafting & Design, Survey of Engineering Graphics,
3D Modeling & Analysis

ELECTIVES

4 Units

*Students planning to attend most post-secondary institutions must take 2 units of the same modern language.

TOTAL UNITS REQUIRED

23 Units

PERSONAL APTITUDES

ACTIVITIES THAT DESCRIBE WHAT I LIKE TO DO:

- Interpret formulas.
- Work in a laboratory.
- Figure out how things work & investigate new things.
- Explore new technology.
- Experiment to find the best way to do something.
- Pay attention to details & help things be precise while finding answers to questions.



PERSONAL QUALITIES THAT DESCRIBE ME:

- Detail oriented
- Inquisitive
- Objective
- Methodical
- Mechanically inclined

WANT MORE INFORMATION ON YOU?

YouScience is the science of YOU – how your mind is wired, what makes you tick, the skills and knowledge that set you apart. You have talent and there's a path that's right for you – we can help you find it.



Login to Infinite Campus and locate the SLDS Portal link on the left. Once logged in, click on "My Career Plan" then choose "Go to YouScience".

WHAT YOU LEARN IN SCHOOL MATTERS

You're learning skills and knowledge that can make you a qualified candidate for in-demand careers. Industry-recognized certifications, available to all pathway students, are great signals to employers that you have the skills they're looking for. Certifications help validate what you know, so other people know, that you know it.

QUESTIONS?

Contact your CTAE teacher, WBL Coordinator or School Counselor

PATHWAY TO FUTURE CAREER OPTIONS

HIGH SCHOOL

Pathway Courses

Intro to Drafting & Design
Survey of Engineering Graphics
3D Modeling & Analysis

Capstone

WBL Internship
Dual Enrollment

POST-SECONDARY

Technical College

Certificate
Diploma Program
Degree Program

4 Year College/University

Bachelor Degree
Masters Degree
Graduate Studies