

Career Clusters & Pathways



Focusing Education on the Future!

Preparing for Success in Science, Technology, Engineering & Mathematics





- Learners who pursue this field will be involved in planning, managing and providing scientific research and professional and technical services, including laboratory and testing services, and research and development services.
- More scientists, technologists and engineers will be needed to meet environmental regulations and to develop methods of cleaning up existing hazards.

Necessary Skills and Traits

- Solid background in math, science, communications, and technical skills
- Knowledgeable in their subject
- Ability to communicate with others
- Ability to inspire trust and confidence



Preparing for Success in Science, Technology, Engineering & Mathematics

**Engineering and Technology
Science and Mathematics**



Career Cluster Area: Science, Technology, Engineering & Mathematics
Career Pathway: **Engineering & Technology**

Pathway Major Courses

3 + 1

To complete a pathway, one must take **THREE Pathway Required Concentration Courses and ONE additional Pathway Elective Course.**

■ Pathway Concentration Courses (3)

- Engineering Applications
- Engineering Concepts
- Engineering Concepts & Drawings
- Foundations of Engineering and Technology
- Introduction to Engineering Drawing
(Required)
- Introduction to Manufacturing/Engineering
Sciences
- Solid Modeling and Design

Career Cluster Area: Science, Technology, Engineering & Mathematics
Career Pathway: **Engineering & Technology**

Pathway Major Courses

3 + 1

To complete a pathway, one must take THREE Pathway Required Concentration Courses and ONE additional Pathway Elective Course.

■ Pathway Elective Courses (1)

- Apprenticeship/Internship
- Civil Engineering Drawing
- Drafting Technology: Introduction
- Electrical Systems I
- Mechanical Electrical Systems I*
- Occupational Safety & Fundamentals
- Structural Detailing*
- Technical Manufacturing Concepts and Drawings
- Other Pathway Concentration Course

Other Recommended Electives

Engineering & Technology

- AP or IB Chemistry
- AP Environmental Science
- AP Calculus
- AP or IB Physics
- IB Environmental Systems
- Trigonometry

Post-Secondary Degrees, Diplomas & Certificates Engineering & Technology

■ Technical Colleges

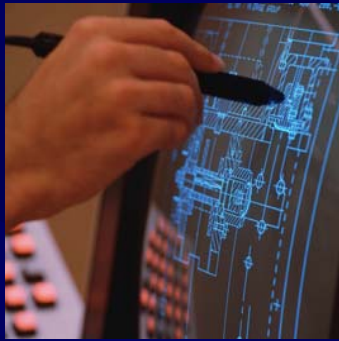
- Computer Service & Electronics Technician
- Cysco Technician
- Drafting
- Electronics Fundamentals/Basic
- Electronics Technology
- Industrial Technology
- Information Systems/Technology

■ Colleges/Universities

- Aerospace Engineering
- Civil Engineering
- Computer Science/Technology
- Computer Information Systems
- Engineering
- Engineering Science
- Mechanical Engineering

Careers in Engineering & Technology

- Aerospace Engineer
- Automotive Engineer
- Computer Programmer
- Network Technician
- Packaging Engineer
- Petroleum Engineer
- Computer Hardware Engineer
- Biomedical Engineer
- Marine Engineer
- Nuclear Engineer
- Packaging Technician
- Structural Engineer
- Civil Engineer
- Naval Engineer
- Electrician
- Ocean Engineer
- Textile Engineer
- Researcher
- Computer Software Engineer
- Architectural Engineer
- Computer Science Technician
- Operations Research Engineer
- Pharmaceutical Engineer
- Survey Technician



Employment Outlook Engineering & Technology

- The job outlook for engineers and technologists continues to look promising because competitive pressures and advancing technology will force companies to improve and update product designs and to optimize their manufacturing processes.
- Also, additional engineers and technologists will be needed to improve or build new roads, bridges, water and pollution control systems, as well as other public facilities.

Preparing for Success in Science, Technology, Engineering & Mathematics

Engineering and Technology



Preparing for Success in Science, Technology, Engineering & Mathematics

Science and Mathematics



Career Cluster Area: Science, Technology, Engineering & Mathematics
Career Pathway: **Science and Mathematics**

Pathway Major Courses

3 + 1

To complete a pathway, one must take THREE Pathway Required Concentration Courses and ONE additional Pathway Elective Course.

- Pathway Concentration Courses (3)
 - Algebra III or Advanced Algebra/Trigonometry
 - AP Environmental Science
 - AP or IB Physics
 - Biology II (Honors) or AP or IB Biology
 - Calculus or AP Calculus
 - Chemistry II (Honors) or AP or IB Chemistry
 - IB Environmental Systems
 - Pre Calculus (Honors)
 - Statistics or AP Statistics
- Pathway Elective Course (1)
 - AP Calculus AB or BC
 - Apprenticeship/Internship/Mentorship
 - Discrete Mathematics
 - Forensic Science
 - Other Pathway Concentration Course

Other Recommended Electives

Science and Mathematics

- Agriscience Principles & Technology
- Anthropology
- Civil Engineering Drawing
- Computer Science
- Engineering Concepts & Drawing
- Examining the Teaching Profession
- Modern Language
- Research & Design

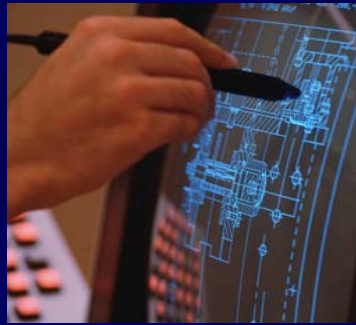
Post-Secondary Degrees, Diplomas & Certificates Science and Mathematics

Colleges/Universities

- Anthropology
- Biochemistry
- Biology
- Cellular Biology
- Cognitive Science
- Ecology
- Environmental Science
- Geology
- Hydrogeology
- Marine Biology
- Mathematical Sciences
- Mathematics
- Microbiology
- Molecular Biology
- Physics & Astronomy
- Research, Measurement & Statistics
- Science

Careers in Science and Mathematics

- Analytical Chemist
- Astronomer
- Botanist
- Nuclear Chemist
- Crystallographer
- Environmental Scientist
- Geneticist
- Materials Analyst
- Anthropologist
- Astrophysicist
- CAD Operator
- Conservation Scientist
- Demographer
- Marine Scientist
- Geologist
- Numerical Analyst
- Applied Mathematician
- Atmospheric Scientist
- Communication Technologist
- Research Chemist
- Research Technician
- Expert Systems Scientist
- Geophysicist
- Protein Scientist
- Archeologist
- Biologist
- Cartographer
- Cryptographer
- Ecologist
- Economist
- Geoscientist
- Cosmologist
- Physicist
- Programmer
- Technologist
- Dye Chemist
- Teacher
- Statistician
- Zoologist
- Toxicologist



Employment Outlook

Science and Mathematics

- Job opportunities are expected to be best for qualified graduates of science and mathematics training programs or applied science and mathematics programs who are trained on equipment used in industrial/government laboratories and production facilities
- As the instrumentation and techniques used in industrial research, development and production become increasingly more complex, employers are seeking well-trained individuals with highly developed technical and communication skills

Preparing for Success in Science, Technology, Engineering & Mathematics



HALL CAREER COUNTY CLUSTERS

Focusing Education on the Future!

