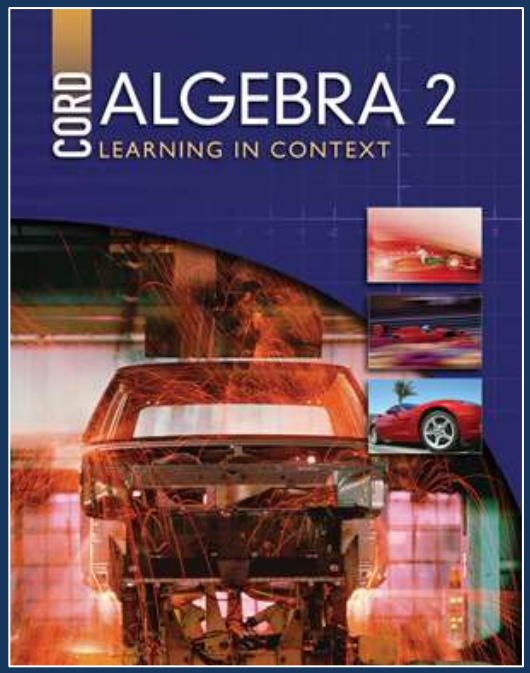
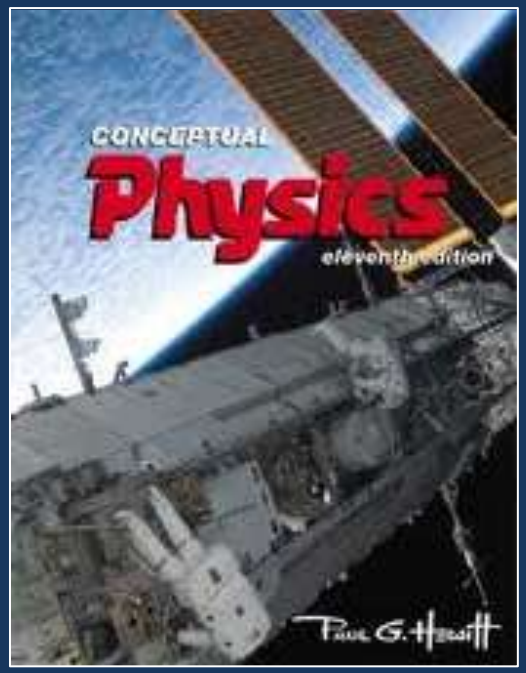
DEVELOPING A CURRICULUM…

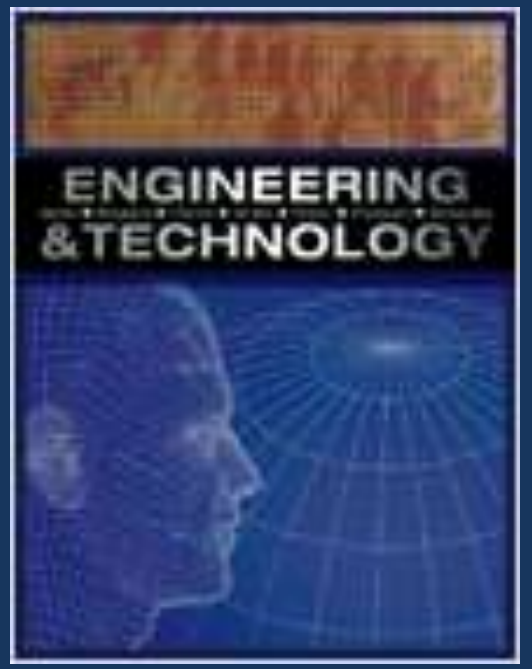
Designed for 11th and 12th grade students, the ET + (Engineering and Technology +) program combines rigorous academics with significant design projects.

Students earn 15 college credits in math, physics and semiconductor manufacturing.

Books used:







ET+ First Year

- Orientation to the ET Program (12 hrs)
- Career Planning - CFM II (10 hrs)
- Safety Plan
- Drawing & Design for Production - DDP (6 hrs)
- Introduction to Digital Spreadsheets
- Measurements, Units & Conversions
- Engineering, Technology, Society & the Environment (30 hrs)
- Business & Economic Systems – CFM I (12 hrs)
- Informed Design (20 hrs)
- Abilities for a Technological World (24 hrs)
- Describing Motion in Our Universe (36 hrs)
- Forces & Motion: Newton's Framework (24 hrs)
- Materials & Materials Processing (34 hrs)
- Gravitation & Space Technology (40 hrs)
- Literacy
- Manufacturing (28 hrs)
- Construction Technology (28 hrs)
- Energy & Power (28 hrs)
- Transportation (20 hrs)
- Rational Expressions (14 hrs)
- Roots & Radicals (12 hrs)
- Conservation of Momentum (12 hrs)
- Rotational Motion (12 hrs)
- Final Project

ENGINEERING TECHNOLOGY +

Successful program graduates shall earn 15 articulated FMCC credits for the following courses:

- **MAT 151 Intermediate Algebra (4 credits)**
- **ESC 125 Intro. to Engineering (2 credits)**
- **SCI 161 Intro. to Physics I (3 credits)**
- **SCI 162 Intro. to Physics II (3 credits)**
- **ELT 129 Semiconductor & Fiber Optics Tech. (3 credits)**

Students will learn to:

- **apply informed engineering design interactively to complete a project.**
- **use computer-aided engineering design to address challenges.**
- **describe the fabrication process involved in producing integrated circuits, semiconductor devices, & fiber optic components.**
- **work in small groups & interact effectively with others to accomplish goals.**
- **solve engineering technology problems, applying relevant principles of mechanics, structure of matter, heat/thermodynamics, electricity/magnetism, & sound/electromagnetic waves.**
- **apply algebra & trigonometry to solve problems in physics & technology.**
- **describe how engineering/technological fields impact individuals, society, & the environment.**
- **cite, describe, & plan career pathways in STEM fields.**

The development of 21st Century Skills is an important component of this course. Each student will:

- **demonstrate learned technical & soft skills in a 2-week business internship aligned with career interests.**
- **be prepared to attend a 2 or 4 year college to pursue an engineering technology degree.**
- **become qualified as a technician in a wide range of employment opportunities, many of which are new to our area.**

ET + is a 2-year advanced program with 800 hours of STEM instruction and rigorous project-based learning featuring individual & collaborative hands-on activities. Units of instruction are aligned with the NYS Learning Standards in MST (Math, Science, Technology), ELA (English Language Arts), & CDOS (Career Development & Occupational Studies), as well as with ITEA Technological Literacy Standards. College-level texts are used in instruction.

ET+ Program Second Year

Orientation CTC/FMCC ATE II (4 hrs)

Electricity & Electronics (28 hrs)

Computers & Computer Architecture (28 hrs)

ESC 125 Intro to Engineering (4 hrs)

ESC 125 Fields of Engineering

ESC 125 Engineering Design Process (4 hrs)

ESC 125 Electrical Engineering (4 hrs)

ESC 125 Professional Engineering Reg's (4 hrs)

ELT 129 Information Transmission (4 hrs)

ELT 129 Fiber Communications (4 hrs)

ELT 129 Light (4 hrs)

ELT 129 Optical Fiber (4 hrs)

ELT 129 Fiber Characteristics (4 hrs)

Electronic Communication (28 hrs)

ESC 125 Transfer to Engineering Programs (4 hrs)

ESC 125 Computer Engineering (4 hrs)

ESC 125 Intro to Final Project (4 hrs)

ESC 125 Final Project Development

ELT 129 Cables, Sources, Detectors (4 hrs)

ELT 129 Connectors & Splices (4 hrs)

ELT 129 IC Development (4 hrs)

ELT 129 IC Fabrication (4 hrs)

ELT 129 Semiconductor Basics (4 hrs)

SCI 162 Vibrations & Waves (6 hrs)

SCI 162 Heat & Thermodynamics (24 hrs)

Biotechnology (28 hrs)

Chemical technology (28 hrs)

ELT 129 Wafer Manufacturing (4 hrs)

ELT 129 Photolithography (4 hrs)

ELT 129 Nanotechnology (4 hrs)

ELT 129 Field Trips (4 hrs)

Agricultural Technology (16 hrs)

Medical Technology (18 hrs)

SCI 162 Vibrations & Waves (12 hrs)

SCI 162 Electrostatics (6 hrs)

SCI 162 Electric Current & Magnetism

SCI 162 Electromagnetic Induction (6 hrs)

Technology in the Future (12 hrs)