

Electrical Engineering Technology

In today's world, the great majority of all products, systems, and services include electrical or electronic aspects. Teams of trained people are needed to conceive, design, develop, and produce new answers to modern technical problems.

The roles of the team members may vary, but the electrical engineering technologist generally uses the hands-on, application-oriented approach. Although technologists have knowledge of theoretical issues, they tend to focus on using current, state-of-the-art and emerging technologies to solve practical design and application problems.

The Program

Electrical engineering technology students can tailor their program to meet their needs by selecting specific technical electives to fill individual interests or career plans. The areas of concentration are:

- Communication Systems
- Control Systems
- Microprocessors & Digital Systems

The B.S. Degree with a major in Electrical Engineering Technology is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering & Technology.

B.S. Degree Requirements

To earn a Bachelor of Science (B.S.) degree in electrical engineering technology, a student must complete a minimum of 128 credit hours and fulfill the following requirements:

Arts & Science - 60 credits

Liberal Arts

Oral Communications
Written Communications
Upper-Division Writing

Humanities*

Social Science*

American History*

Western Civilization*

Non-Western Civilization*

Fine Arts*

Foreign Language*

* Complete course work in at least five out of the above seven categories.

24 Credits

Mathematics and Science - 24 credits

Physics with lab & Basic Science with a lab (Biology, Chemistry, Physics, or Environmental Science)

Mathematics, including the following:

Differential Calculus (MAT 121)
Integral Calculus (MAT 122)
Differential Equations (MAT 230)

Math/Science Elective for balance of 24 credits

24 Credits

Computer Programming Language 2 credits
Liberal Arts, Math and Science, C.S. Electives 10 credits

Technical Courses - 54 Credits

Required Core

QC and Workplace Issues (ETC 299)	2 Credits
Control Systems/Communications	4 Credits
Digital Systems/Microprocessors	4 Credits
Senior Level courses (ETC 4xx courses)	8 Credits
Capstone Course (ETC 423, 435, 445, or 483)	4 credits
Technical Elective (ETC courses)	32 Credits
	54 Credits

Unrestricted Electives

**Balance of 128 Credits
Total Credits 128**

EET students who have an EET associate's degree may not enroll for credit in ETC 101, 102, 103, 203, 210, or equivalent.

A residency of 24 hours in the major is required to graduate.

Areas of Concentration*

Communications

ETC 316— Communication Transmission Techniques
ETC 391— Fiber Optics
ETC 416— Data Communications & Computer Network Technology
ETC 419— Satellite Communication
ETC 421— Wireless Communication Systems
ETC 475— Data Compression and Multimedia Technology
ETC 483— Optical Communications
ETC 490— Special Topics: Communication Techniques
ETC 437— Digital Filters

Control Systems

ETC 331— Control Systems
ETC 356— Programmable Controllers
ETC 433— Automatic Control Systems
ETC 435— Digital Control and Robotics

Microprocessors

ETC 265— Digital Systems II
ETC 342— Microprocessor and Embedded Systems Programming & Design
ETC 423— Microprocessor Interfacing
ETC 429— Microprocessor/Microprogramming & Computer Architecture
ETC 444— Special Topics: Digital/Microprocessors
Recent Topics: RISC Processors, IBM PC Assembly Programming
ETC 445— Microcontrollers
ETC 446— Programmable Logic Devices

Miscellaneous Electives

ETC 300— Tools in Technology
ETC 360— Advanced Circuit Analysis
ETC 391— Fiber Optics
ETC 455— VLSI Design
ETC 480— Electrical Technology Senior Project I
ETC 481— Electrical Technology Senior Project II
ETC 491— Independent Study
ETC 494— Co-Op

* Students are not required to complete a concentration.

Laboratories

The Electrical Engineering Technology Department has 10 laboratories dedicated to support of EET and CET laboratory courses, projects, and hands-on experience. Many of the labs are open beyond scheduled lab periods so students can investigate more extensively concepts developed in their courses.

Communications, Controls, Digital and Microprocessor labs are equipped with a variety of instrumentation described below. Much of the instrumentation in these labs is state-of-the-art equipment of the type that students will encounter in industrial settings, including meters, oscilloscopes, plotters, signal generators, frequency counters, spectrum analyzers, data and protocol analyzers, OTDRs, etc.

The department has established a multi-purpose EET lab equipped with sixteen stations. These computers are used for CAD, general purpose report writing using Microsoft Office and for support of EET, ECE and CET lab courses. Application software supporting a range of courses includes Electrical CAD software PCAD2007 for Schematic Capture and PCB layout, assemblers and general purpose tools such as Micro Sims Schematic and Pspice A/D and Basics, Circuit Analysis software, Electronics Workbench, and MATLAB by the MathWorks supporting Controls and Communications courses; and SILO software supporting digital design and OptSim, LAN Planner solo and MIDE software packages; The department continues to add applications software to provide easy access on these high performance computers for EET and CET coursework.

Controls: The control systems laboratory is equipped with EMMA II microprocessor control systems for speed and position control of dc/stepper motors. Six stations of in-house designed DC and Stepper Motor trainers have been added to the control system lab. The laboratory also has two Feedback Robot arm and PLC workcell conveyer. Siemens and Gould Modicon PLCs are also housed in this laboratory.

Communications: Labs are equipped with Microwave trainer systems, Mobile communication trainer, Doppler radar trainer systems, PC based analog and digital communication systems, wireless LAN, an FDDILAN, HP protocol analyzers, spectrum analyzers, RF field strength analyzers and Emona communication modules for digital and wireless communica-

tions. An experimental lab running multi protocol network with TCP/IP is used for ETC416 and is equipped with a Cisco Router.

The fiber optics lab is equipped with optical time domain reflectometers (OTDR), fusion splicers, optoscope, power meters, optical spectral analyzers, couplers and Erbium doped fiber amplifier, light sources in addition to infrared viewers, cameras, coherent fiber optics, fiber optic telecommunication links and plastic and glass fibers. This lab is also equipped with various splicing, connectorizing, cleaving and polishing kits and tool accessories necessary to provide students with hands-on experience.

Digital: The digital systems design laboratories are fully equipped with equipment which can handle systems based on the Intel architecture.

Microprocessor: Microprocessor laboratories supporting microprocessor courses include: EPROM and PLD programmers; 68HC12 microcontroller trainers; MicroChip PIC trainers and programmers; Tektronix 308 8-channel logic analyzers; Tektronix 338 32-channel logic analyzers and PC Windows-based 40-channel logic analyzers.

Electrical Engineering Technology Employers

SUNYIT's EET graduates have been hired by hundreds of local and national companies and organizations across the spectrum of the field. Listed is a sampling of those companies.

Acu-Rite, Air Force Research Lab, Anaren Corp, BAE Systems, Bartell Machinery Systems Corp., Boeing, ConMed, Cond Edison of NY, Eastman Kodak Co., Eaton Corp. Powerware Division, ESPN, Fiber Instrument Sales, Hamilton College, Hiptronics, IBM, Interetek Eti Senko, Lockheed Martin Corp., Lucent Technology, Marquart Switches, Mohawk Valley Community College, Motorola, National Grid, NY Power Authority, NYSTEC; Orion Bus, PAR Microsystems, PAR Technology, Remington Arms Corp., Sensis, Special Metals, SUNY Health Science Center, Syracuse Research, Tektronix, Time Warner, Toshiba, Verizon, Virtual Medical Sales, Welch Allyn, Xerox Corp.

