

School of Engineering Technology

www.coe.neu.edu/Depts/SET/set

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The programs in the School of Engineering Technology concentrate on the applications of technology and emphasize the rational processes involved in converting theories and ideas into practical techniques, procedures, and products. Fundamentals are related to current practice, providing a supportive “why” for the practical “how.” The study of the humanities and social sciences helps students gain a balanced, well-rounded education.

Engineering technologists work with professional engineers, scientists, medical doctors, supervisors, and craftspersons to develop techniques for converting scientific knowledge and craftsmanship into products. The curriculum helps students understand the scientific principles that govern current technology; apply technology to problem solving; communicate effectively the important implications of technological advances; and acquire the motivation for continued development of technical skills.

The school offers five-year cooperative education programs in mechanical engineering technology, electrical engineering technology, and computer engineering technology—all leading to the degree of Bachelor of Science in engineering technology. A firm choice of major may be delayed until the spring semester of the freshman year.

The electrical and mechanical engineering technology baccalaureate day programs and the part-time baccalaureate programs in mechanical and electrical engineering technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET). The part-time programs leading to an Associate of Science in engineering degree with majors in electrical and mechanical engineering technology are also accredited by TAC/ABET.

Part-Time Evening and Weekend Programs

The part-time programs include courses, certificates, and degree programs leading to the Associate in engineering (AE) and the Bachelor of Science in engineering technology (BSET). Certificates may be earned in computer engineering technology, C++/UNIX specialist, electronics technology, and engineering graphics technology. The AE degree may be earned in computer engineering technology, electrical engineering technology, or mechanical engineering technology.

Students may also earn the BSET in computer technology, mechanical engineering technology, or electrical engineering technology, with a concentration in manufacturing.

For more information on part-time programs, contact Northeastern University, Lowell Institute School, 120 Snell Engineering Center, Boston, MA 02115; call 617.373.2500

(voice), 617.373.8526 (TTY), 617.373.2501 (fax); e-mail lis-info@coe.neu.edu; or visit our Web site: www.coe.neu.edu/lis.

Academic Progression Standards

It is expected that full-time engineering technology students take four courses per semester with appropriate labs. Any exceptions to the course load requirement must be approved by the student's academic adviser, in writing, prior to the start of each semester.

Grade-Point Average (GPA) Requirements for Graduation

A minimum cumulative GPA requirement of 2.000 in major (department) courses is required for graduation. A minimum cumulative GPA requirement of 2.000 overall is required for graduation.

Criteria for Academic Probation

Full-time students in the School of Engineering Technology will be placed on academic probation effective for the following academic semester for any of the following reasons:

- Not maintaining an overall cumulative GPA of at least 1.800 at the end of the two semesters of the first-year curriculum, or
- Not maintaining an overall cumulative GPA of at least 2.000 at the end of each academic semester thereafter, or
- Not maintaining a GPA of at least 2.000 in the major at the end of the fourth academic semester of the curriculum and at the end of each semester thereafter, or
- Not maintaining satisfactory progress through the curriculum by:
 - Accumulating three outstanding course deficiencies (grades of F, I, W, NE, U,* or missing grades), or
 - Earning a current semester GPA of 1.600 or lower, or
 - Not following a program of study approved by the student's academic adviser.

A notation of the academic probation action will appear on the internal record, but not on the transcript.

Criteria for Academic Dismissal

Students who remain on probation for two semesters will be dismissed from the University. Notation of this academic dismissal action will appear on the transcript.

Graduation Requirement

Students transferring from another college or university are not eligible to receive the degree until they have completed at least one academic year at Northeastern immediately preceding their graduation.

For more information about programs and requirements, visit the School of Engineering Technology at 120 Snell Engineering Center.

Minors in Engineering Technology

We offer three minors in engineering technology: computer, electrical, and mechanical engineering technology.

To qualify for a minor, the student must complete the requirements listed under:

- Minor in computer engineering technology on page 197.
- Minor in electrical engineering technology on page 199.
- Minor in mechanical engineering technology on page 200.

To obtain credit for a minor in engineering technology, students must file a petition form with the School of Engineering Technology in 120 Snell Engineering Center. Interested students should confer with an adviser as soon as possible. The adviser is Mr. Roy Dalsheim, 120 Snell, 617.373.2500.

COMPUTER ENGINEERING TECHNOLOGY

www.coe.neu.edu/Depts/SET/set/ct-deg.html

RANDAL AUGUST, MS

Coordinator for Computer Engineering Technology

Computer engineering technology's major functions include programming the computer for engineering, scientific, and business applications; designing, engineering, and testing computers; and interfacing computers with various types of equipment to enhance automation.

The computer engineering technology program provides degree candidates with both academic and technical learning experience relevant to the hardware and software systems currently used in industry. Students also choose technical electives in their area of interest. High-level theory courses enable students to continue their educational and professional development beyond the baccalaureate level. Some students go on to pursue master's degrees in either business administration or information systems.

A typical sophomore's cooperative education responsibilities might include setting up and configuring various computer platforms, installing software packages, providing phone support for technical inquiries, and performing elementary network troubleshooting and some software research. Other typical positions explore the various aspects of manufacturing processes, including assembly and quality assurance.

As seniors, typical students have progressed to more sophisticated and challenging assignments. They may be assigned the responsibility of maintaining entire software applications as well as the databases for these programs, or they may be asked to convert old versions of application scripts to conform to new coding principles. Other assignments may include providing advanced technical software and hardware support for end users both on and off site.

Graduates of this program are equipped to play important roles on engineering support teams that implement engineering

design projects. They also work closely with engineers as members of research and production teams. See pages 240–242 for course descriptions.

BSET in Computer Engineering Technology

ENGLISH REQUIREMENT

Complete the following course:

ENG U111 College Writing 4 SH

and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

GENERAL EDUCATION REQUIREMENTS

Diversity

Complete one course from the list “Approved Courses: Diversity” on page 48.

Communications

Complete one course from the communication studies department.

Humanities and Social Science

Complete one course from the list “Approved Courses: Methods of Inquiry—Humanities Context” on page 47 or one course from the list “Approved Courses: Methods of Inquiry—Social World Context” on page 48.

Mathematics

Complete the following four courses:

MTH U110 College Algebra 4 SH

MTH U121 Precalculus 4 SH

MTH U241 Calculus 1 for Science and Engineering 4 SH

MTH U243 Calculus 2 for Engineering Technology 4 SH

Physics

Complete the following course:

PHY U141 General Physics 4 SH

SCHOOL OF ENGINEERING TECHNOLOGY REQUIRED COURSES

Breadth Courses

Complete the following four courses:

EET U201 Circuit Analysis 1 4 SH

GET U121 Computer Applications for Technology 4 SH

GET U131 Engineering Graphics 1 4 SH

MET U201 Statics 4 SH

Co-op Experience

Complete the following course:

GET U111 Engineering Technology Cooperative Education 1 SH

Capstone Project

Complete the following two courses:

GET U681 Capstone Preparation 2 SH

GET U683 Capstone Design Project 4 SH

COMPUTER ENGINEERING TECHNOLOGY MAJOR

Introductory and Intermediate Courses

Complete the following eight courses:

CET U201 Visual Basic Programming 4 SH

CET U301 Introduction to C++ Programming 4 SH

CET U306 C++/Data Structures 4 SH

CET U311 Computer Organization 4 SH

CET U321 Software Engineering 4 SH

CET U335 Numerical Methods 4 SH

CET U350 Embedded Microcomputer Systems 1 4 SH

EET U321 Digital Electronics 1 4 SH

Advanced Courses

Complete the following six courses:

CET U331 Assembly Language 4 SH

CET U521 Computer Architecture 4 SH

CET U531 Data Communications and Networks 4 SH

CET U536 Advanced Networking Concepts 4 SH

CET U551 Operating Systems 4 SH

CET U651 Advanced Computer Concepts 4 SH

Technical Electives

Complete three courses from the computer engineering technology department.

GPA REQUIREMENT

Minimum 2.000 GPA required in the major

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

UNIVERSITY-WIDE REQUIREMENTS

132 total semester hours required

Minimum 2.000 GPA required

Minor in Computer Engineering Technology

REQUIRED COURSES

Complete the following four courses:

CET U301 Intro to C++ Programming 4 SH

CET U306 C++/Data Structures 4 SH

CET U311 Computer Organization 4 SH

CET U551 Operating Systems 4 SH

GPA REQUIREMENT

2.000 GPA required in the minor

ELECTRICAL ENGINEERING TECHNOLOGY

www.coe.neu.edu/Depts/SET/set/eet-deg.html

LEONARD F. DOW, MS, PE

Coordinator for Electrical Engineering Technology

The focus of electrical engineering technology is the design, operation, and application of equipment and systems related to power, communications, data processing, and industrial electrical control. Its major functions include generating, transmitting, and distributing electrical energy for light and power purposes; developing and producing equipment for telephone, radio, television, radar, and communication; designing and constructing data-processing systems utilizing analog or

digital computers; and applying electrical and electronic devices in the control of automated processes related to manufacturing.

The program in electrical engineering technology offers theory courses at the upper end of the technology spectrum, and students may take technical electives in areas that interest them. A sophomore may be given the cooperative education assignment of creating and editing electrical blueprints, doing shell drawings, or providing ductwork drawings along with the appropriate heat-loading calculations for companies engaged in electrical construction. Other entry positions include assembly, breadboarding, inspection, and quality assurance.

Seniors typically have progressed to positions of much greater responsibility, such as installing and maintaining computer network systems, maintaining online base maps for public utility systems, and coordinating architectural and electrical plans with construction companies and suppliers. In addition, students may also work with systems integrators in the design and implementation of PLC and various alternate industrial control systems as applied to automated processes in manufacturing. Students have also had co-op positions in consulting engineering firms as analysts, telemarketers in sales engineering, and environmental safety compliance officers. See pages 279–282 for course descriptions.

BSET in Electrical Engineering Technology

ENGLISH REQUIREMENT

Complete the following course:

ENG U111	College Writing	4 SH
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and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

GENERAL EDUCATION REQUIREMENTS

Diversity

Complete one course from the list “Approved Courses: Diversity” on page 48.

Communications

Complete one course from the communication studies department.

Humanities and Social Sciences

Complete one course from the list “Approved Courses: Methods of Inquiry—Humanities Context” on page 47 or one course from the list “Approved Courses: Methods of Inquiry—Social World Context” on page 48.

Mathematics

Complete the following four courses:

MTH U110	College Algebra	4 SH
MTH U121	Precalculus	4 SH
MTH U241	Calculus 1 for Science and Engineering	4 SH
MTH U243	Calculus 2 for Engineering Technology	4 SH

Economics

Complete the following course:

ECN U115	Principles of Macroeconomics	4 SH
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Chemistry

Complete the following course (CHM U152 does not become a requirement until fall 2005):

CHM U151	General Chemistry for Engineers	4 SH
with CHM U152	Lab for CHM U151	1 SH

Physics

Complete the following course:

PHY U141	General Physics	4 SH
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SCHOOL OF ENGINEERING TECHNOLOGY REQUIRED COURSES

Breadth Courses

Complete the following four courses:

CET U201	Visual Basic Programming	4 SH
GET U121	Computer Applications for Technology	4 SH
GET U131	Engineering Graphics 1	4 SH
MET U201	Statics	4 SH

Co-op Experience

Complete the following course:

GET U111	Engineering Technology Cooperative Education	1 SH
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Capstone Project

Complete the following two courses:

GET U681	Capstone Preparation	2 SH
GET U683	Capstone Design Project	4 SH

ELECTRICAL ENGINEERING TECHNOLOGY MAJOR

Introductory Courses

Complete the following two courses:

EET U201	Circuit Analysis 1	4 SH
EET U301	Circuit Analysis 2	4 SH

Intermediate Courses

Complete the following seven courses:

CET U311	Computer Organization	4 SH
EET U311	Analog Electronics 1	4 SH
EET U316	Analog Electronics 2	4 SH
EET U321	Digital Electronics 1	4 SH
EET U331	Electrical Measurements	4 SH
EET U336	Engineering Analysis	4 SH
EET U341	Energy Conversion	4 SH

Advanced Courses

Complete the following four courses:

EET U558	Distributive Systems	4 SH
EET U561	Control Engineering	4 SH
EET U566	Industrial Control Systems 1	4 SH
EET U570	Industrial Control Systems 2	4 SH

Technical Electives

Complete two electrical engineering technology courses.

GPA REQUIREMENT

Minimum 2.000 GPA required in the major

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

134 total semester hours required
Minimum 2.000 GPA required

Minor in Electrical Engineering Technology**REQUIRED COURSES**

Complete the following four courses:

EET U201	Circuit Analysis 1	4 SH
EET U311	Analog Electronics 1	4 SH
EET U321	Digital Electronics 1	4 SH
EET U566	Industrial Control Systems 1	4 SH

GPA REQUIREMENT

2.000 GPA required in the minor

MECHANICAL ENGINEERING TECHNOLOGY

www.coe.neu.edu/Depts/SET/set/met-deg.html

FRANCIS A. DIBELLA, MS, PE

Coordinator for Mechanical Engineering Technology

As a technical field that deals with the use of machinery to harness power resources and perform useful work, mechanical engineering technology focuses on static forces, motion, and the kinetics of devices activated by hydraulic, electrical, mechanical, or thermodynamic forces.

Mechanical engineering technologists design and install machinery ranging from pocket watches to the largest energy-producing facilities. They help develop and produce engines and transport equipment such as automobiles, aircraft, ships, and railway cars. They also help construct and operate furnaces, boilers, and heating and air-conditioning equipment.

Students in mechanical engineering technology apply the principles of science and mathematics to their chosen fields and convert theories into practical techniques and processes. They learn how to communicate technical information effectively so they may become integral members of an engineer-technologist-technician design and operations team.

Sophomore mechanical engineering technology majors generally are referred to cooperative education positions such as technicians in facility or plant engineering departments, quality assurance positions in light and heavy manufacturing, and prototype development and design teams. A sophomore often will be given the responsibility of drawing mechanical designs and blueprints using various CAD software.

As seniors, these students have progressed to highly responsible positions in manufacturing and production, such as design and test technicians and field service engineers. See pages 342–344 for course descriptions.

BSET in Mechanical Engineering Technology**ENGLISH REQUIREMENT**

Complete the following course:

ENG U111	College Writing	4 SH
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and one approved Advanced Writing in the Disciplines course for the major. A grade of C or higher is required in both courses.

GENERAL EDUCATION REQUIREMENTS**Diversity**

Complete one course from the list “Approved Courses: Diversity” on page 48.

Communications

Complete one course from the communication studies department.

Humanities and Social Sciences

Complete two courses from the list “Approved Courses: Methods of Inquiry—Humanities Context” on page 47 or one course from the list “Approved Courses: Methods of Inquiry—Social World Context” on page 48.

Mathematics

Complete the following four courses:

MTH U110	College Algebra	4 SH
MTH U121	Precalculus	4 SH
MTH U241	Calculus 1 for Science and Engineering	4 SH
MTH U243	Calculus 2 for Engineering Technology	4 SH

Economics

Complete the following course:

MIM U512	Engineering Economy	4 SH
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Chemistry

Complete the following course (CHM U152 does not become a requirement until fall 2005):

CHM U151	General Chemistry for Engineers	4 SH
	with CHM U152 Lab for CHM U151	1 SH

Physics

Complete the following course:

PHY U141	General Physics	4 SH
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**SCHOOL OF ENGINEERING TECHNOLOGY
REQUIRED COURSES****Breadth Courses**

Complete the following five courses:

CET U201	Visual Basic Programming	4 SH
EET U201	Circuit Analysis 1	4 SH
GET U121	Computer Applications for Technology	4 SH
GET U131	Engineering Graphics 1	4 SH
GET U331	Engineering Graphics 2	4 SH

Co-op Experience

Complete the following course:

GET U111	Engineering Technology Cooperative Education	1 SH
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Capstone Project

Complete the following two courses:

GET U681	Capstone Preparation	2 SH
GET U683	Capstone Design Project	4 SH

MECHANICAL ENGINEERING TECHNOLOGY MAJOR*Introductory and Intermediate Courses*

Complete the following six courses:

MET U201	Statics	4 SH
MET U301	Dynamics	4 SH
MET U311	Stress Analysis	4 SH
MET U321	Thermodynamics	4 SH
MET U341	Materials	4 SH
MET U351	Measurement and Analysis	4 SH

Advanced Courses

Complete the following three courses:

MET U521	Heat Transfer	4 SH
MET U531	Fluid Mechanics	4 SH
MET U651	Mechanical Design	4 SH

Technical Requirements

Complete the following two courses:

MET U526	Heating, Ventilation, and Air Conditioning	4 SH
MET U551	Manufacturing Methods	4 SH

Technical Electives

Complete two courses from the mechanical engineering technology department.

GPA REQUIREMENT

Minimum 2.000 GPA required in the major

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION**UNIVERSITY-WIDE REQUIREMENTS**

132 total semester hours required

Minimum 2.000 GPA required

Minor in Mechanical Engineering Technology**REQUIRED COURSES**

Complete the following four courses:

MET U201	Statics	4 SH
MET U301	Dynamics	4 SH
MET U341	Materials	4 SH
MET U531	Fluid Mechanics	4 SH

GPA REQUIREMENT

2.000 GPA required in the minor