

MECHANICAL ENGINEERING TECHNOLOGY (BS)

Program Overview Bachelor of Science Degree

Manufacturing in the United States had its start in New England, where it has been the cornerstone of the economy. Today, New England has many new small manufacturing companies creating a job market for today's engineers and designers.

The Bachelor of Science in Mechanical Engineering Technology, which focuses on product and process design, addresses today's job market emphasizing product design, tool and machine design, and manufacturing methods, as well as supporting engineering professions such as development engineers, application engineers, CAD engineering specialties, and basic engineering problem-solvers. Students begin by studying the design of products by learning design principles, sketching, problem-solving, and how both the engineering materials and manufacturing processes and machines are selected and scheduled. Students gain a wide background of knowledge in such areas as electricity and electronics, metrology and the measurements of products, manufacturing processes, and tool design. Higher-level courses allow students to link the design aspect of product development to the production phase and facilitate delivery to the customer. Students learn the theory and application of hydraulics, pneumatics, dynamics, instrumentation, thermodynamics and heat transfer, and machine design. Additionally, students gain knowledge in mechatronics, materials and inventory control, and plastics design.

Near the end of the program, students are required to complete a capstone course, which provides an excellent opportunity to tie the coursework together into a comprehensive senior project.

Graduates are well prepared for employment opportunities in research and development, as well as the design and problem-solving professions in manufacturing and design departments. The opportunities for design professionals are diverse and they are needed for virtually every conceivable type of manufactured product, including those less obvious process-intensive product types such as clothing and foodstuffs. Product design offers exceptional opportunities for those especially creative individuals in such fields as machine design, specialized or customized product design, packing or container design, and toy design. Graduates are also prepared for employment opportunities as technologists in the area of production, quality, processes, automation, and tooling.

Upon completion of this program, students may also choose to continue into the NEIT Master of Science in Engineering Management degree program.

Accreditation Status

The Bachelor of Science Degree program in Mechanical Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, <http://www.abet.org>.



Curriculum

Course	Title	Quarter Credit Hours
Term I		
ENG 118	Introduction to Engineering Technology and Lab	3
MCT 115	Computer-Aided Design I	4
MCT 212	Metrology	3
Choose one of the following (depending upon Math Placement):		4-5
MA 105	Basic College Math with Lab (MA/SCI Core)	1
MA 110	Introduction to College Math (MA/SCI Core)	1
MA 125	Technical Math I (MA/SCI Core)	1
Quarter Credit Hours		14-15
Term II		
MCT 124	Computer-Aided Design II	4
MCT 125	Manufacturing Processes	4
EN 100	Introduction to College Writing (COM Core)	4
Choose one of the following (depending upon Term I):		4
MA 125	Technical Math I (MA/SCI Core)	1
MA 210	Technical Math II (MA/SCI Core)	1
Quarter Credit Hours		16
Term III		
MCT 113	Design Principles	3
MCT 134	Computer-Aided Design III	4
PHY 200	Physics I & Lab (MA/SCI Core)	4

Choose one of the following (depending upon Term II):	4
MA 210 Technical Math II (MA/SCI Core) ¹	
Elective 100-200 Level Math/Science Core ¹	

Quarter Credit Hours 15

Term IV

MCT 130 Engineering Materials	4
MCT 215 Statics	4
ERD 110 Fundamentals of Electronics	5
EN 200 Workplace Communications (COM Core) ¹	4

Quarter Credit Hours 17

Term V

MCT 224 Mechanics of Materials	4
MCT 239 Quality	4
ERD 246 Data Acquisition Systems	4
PHY 300 Physics II & Lab (MA/SCI Core) ¹	4

Quarter Credit Hours 16

Term VI

MCT 235 Industrial Robotic Automation	4
MCT 237 Capstone Project	4
Elective 100-200 Level Humanities, Social Sciences or Arts/Foreign Language Core ¹	4

Choose one of the following: 3-4

ENG 281 Engineering Internship	
MCT 221 AutoCAD Essentials	
MCT 240 Manufacturing Planning	
MGM 133 Principles of Management	
MGM 233 Planning Your Financial Future	
MGM 243 Career Development	
MGM 277 Leadership in Action	
WEL 110 OFC/OAW, Electric Welding and Cutting	

Quarter Credit Hours 15-16

Term VII

MCT 300 Applications of Kinematics	4
MCT 314 Mechatronics	4
EN 322 Argumentative Research Writing (COM Core) ¹	4
MA 310 Calculus I (MA/SCI Core) ¹	4

Quarter Credit Hours 16

Term VIII

MCT 310 Programmable Automation Controller Essentials	4
MCT 322 Fluid Power	4
EN 421 Technical Communications (COM Core) ¹	4
MA 320 Calculus II (MA/SCI Core) ¹	4

Quarter Credit Hours 16

Term IX

MCT 317 CAD/CAM Design & Manufacturing	4
MCT 336 Dynamics	4
MCT 422 Manufacturing Processes II	4
SS 311 The Global Economy	4

Quarter Credit Hours 16

Term X

MCT 418 Advance Computer Applications	3
MCT 424 Design with Plastics	4
MCT 431 Machine Design	4
ELT 475 Automation and Process Control & Lab	4

Quarter Credit Hours 15

Term XI

MCT 324 Design for Manufacture and Assembly	4
ENG 400 Microsoft Applications for Engineers	3
ENG 489 Introduction to Senior Capstone	2
MGM 340 Engineering Finance	3
CHM 300 Chemistry I and Lab (MA/SCI Core) ¹	4

Quarter Credit Hours 16

Term XII

MCT 433 Thermal Energy Analysis	4
ENG 499 Senior Capstone	5

Choose one of the following: 4

HU 315 Cultural Competence in the Workplace (HU Core) ¹	
HU 331 Ethics and Technology (HU Core) ¹	
SS 303 Communication in the Global Workplace (SS Core) ¹	

Choose one of the following: 3-4

MCT 416 Operations Management	
ABT 124 Construction Methods & Materials	
ENG 259 Commercial Drone / UAV Certification	
ENG 263 Commercial Utilization of Drones / UAVs	
ENG 481 Senior Engineering Internship	
ERD 115 Computer and Networking Fundamentals for Engineering	
IT 374 IT Project Management	
MCT 221 AutoCAD Essentials	
MGM 310 Product and Service Marketing	
MGM 313 Human Resource Management	
MGM 332 Customer Relations and Sales	
MGM 333 Organizational Behavior	
MGM 445 Negotiation	
MGM 450 Career Leadership	
MGM 467 Entrepreneurship	
WEL 110 OFC/OAW, Electric Welding and Cutting	
WEL 151 Industrial Welding I (SMAW)	

Quarter Credit Hours 16-17

Total Quarter Credit Hours 188-191

¹ Liberal Arts Core.

Legend

C = Number of lecture hours per week

L = Number of laboratory hours per week

T = Total Quarter Credit Hours where each lecture hour per week is one credit, every 2-4 laboratory hours are one credit depending on the expected amount of pre- or post-lab work.

All bachelor's degree students are required to take 28 credits of liberal arts and math/science courses as selected from the liberal arts core. See the course descriptions section of this catalog for a list of the core area courses.

Subject to change.

Program Mission, Goals, and Outcomes

Program Mission

The mission of the Bachelor of Science in Mechanical Engineering Technology is to provide students to link the design aspect of product development to the production phase and facilitate delivery to the customer. The program, which focuses on product and process design, addresses today's job market emphasizing product design, tool and machine design, and manufacturing methods, as well as supporting engineering professions such as development engineers, application engineers, CAD engineering specialties, and basic engineering problem solvers. Students learn the theory and application of hydraulics, pneumatics, dynamics, instrumentation, thermodynamics, heat transfer, and machine design. Additionally, students gain knowledge in mechatronics, materials and inventory control, and plastics design.

Program Educational Objectives

1. Graduates will assume responsibilities for training through involvement in professional organizations, formal educational opportunities, employer-based training programs, or other training that enhances their ability to be productive in their place of employment.
2. Graduates will solve problems using the modern tools of the discipline.
3. Graduates will be effective communicators capable of working as professionals in cross-functional teams.
4. Graduates respect professional, ethical, and social issues as well as a commitment to quality and dependability in their profession.

Student Outcomes

Students will develop:

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
5. an ability to function effectively as a member as well as a leader on technical teams.

Q&A and Technical Standards

Questions & Answers

1. When do my classes meet?

Day Classes: Technical classes normally meet for at least three hours a day for up to five days a week. Classes normally begin in the early morning (7:45 a.m.), late morning (usually 11:25 a.m.), or mid-afternoon. The time slot for your program may vary from term to term.

Evening Classes: Technical classes meet on the average of three nights a week, although there may be times when they will meet four nights a week. Classes normally begin at 5:45 p.m.

In addition, to achieve your bachelor's degree, you will take a total of approximately fifteen liberal arts courses, which will be scheduled around your program schedule over the course of your entire program. Each liberal arts course meets approximately four hours per week. Liberal arts courses are offered days, evenings, and Saturdays.

At the beginning of each term you will receive a detailed schedule giving the exact time and location of all your classes. The university requires that all students be prepared to take classes and receive services at any of NEIT's locations where the appropriate classes and services are offered.

When a regularly scheduled class falls on a day which is an NEIT observed holiday (Columbus Day, Veterans Day, Martin Luther King, Jr. Day, and Memorial Day), an alternate class will be scheduled as a make up for that class. The make up class may fall on a Friday. It is the student's responsibility to take note of when and where classes are offered.

2. How large will my classes be?

The average size for a class is about 20 to 25 students; however, larger and smaller classes occur from time to time.

3. How much time will I spend in lab?

Almost half of your technical courses consist of laboratory work. In order for you to get the most out of your laboratory experiences, you will first receive a thorough explanation of the theory behind your lab work.

4. Where do my classes meet?

Students should be prepared to attend classes at any of NEIT's classroom facilities: either at the Post Road, Access Road, or East Greenwich campus.

5. How long should it take me to complete my program?

To complete your degree requirements in the shortest possible time, you should take the courses outlined in the prescribed curriculum. For a typical twelve-term curriculum, a student may complete the requirements in as little as 36 months.

To complete all your degree requirements in the shortest time, you should take at least one liberal arts course each term.

Students may also elect to complete some of their liberal arts requirements during Intersession (except for EN courses), a five-week term scheduled between Spring and Summer Terms. Students will not be assessed any additional tuition for liberal arts courses taken during the Intersession but may be assessed applicable fees.

Students wishing to extend the number of terms needed to complete the required technical courses in their curriculum will be assessed additional tuition and fees.

6. Is NEIT accredited?

NEIT is accredited by the New England Commission of Higher Education. Accreditation by NECHE is recognized by the federal government and entitles NEIT to participate in federal financial aid programs. Some academic departments have specialized professional accreditations in addition to accreditation by NECHE. For more information on accreditation, see NEIT's catalog.

7. Can I transfer the credits that I earn at NEIT to another college?

The transferability of a course is always up to the institution to which the student is transferring. Students interested in the transferability of their credits should contact the Office of Teaching and Learning for further information.

8. Can I transfer credits earned at another college to NEIT?

Transfer credit for appropriate courses taken at an accredited institution will be considered upon receipt of an official transcript for any program, biology, science, and mathematics courses in which the student has earned a "C" or above within the past three years and for English or humanities courses in which the student has earned a "C" or above within the last ten years. Official transcript from the other institution must be received before the end of the first week of the term for transfer credit to be granted for courses to be taken during that term. Students will receive a tuition reduction for the approved technical courses based on the program rate and will be applied against the final technical term of the curriculum's tuition amount. No tuition credit is provided for courses which are not a part of the technical curriculum.

9. What is the "Feinstein Enriching America" Program?

New England Institute of Technology is the proud recipient of a grant from the Feinstein Foundation. To satisfy the terms of the grant, the university has developed a one-credit community enrichment course which includes hands-on community enrichment projects. The course can be taken for a few hours per term, spread over several terms. Students who are already engaged in community enrichment on their own may be able to count that service towards course credit.

10. How many credits do I need to acquire my Financial Aid?

In order to be eligible for the maximum financial aid award, you need to maintain at least 12 credits per academic term.

11. What does my program cost?

The cost of your program will be as outlined in your enrollment agreement, along with your cost for books and other course materials. Students who decide to take more terms than the enrollment agreement describes to complete the technical courses in their curriculum will be subject to additional fees and possible additional tuition costs. Students who elect to take the technical portion of the degree requirements at a rate faster than the rate prescribed in the curriculum and the enrollment agreement will be assessed additional tuition.

Students who require prerequisite courses will incur additional tuition and fees above those outlined in their enrollment agreement.

If a student elects to take a course(s) outside of the prescribed curriculum, additional tuition and fees will be assessed.

Remember, students who withdraw and re-enter, one time only, pay the tuition rate that was in effect for them at the time of their last day of attendance for up to one year from their last day of attendance. Second

re-entries and beyond pay the tuition rate in effect at the time they re-enter. The most economical way for you to complete your college degree is to begin your program now and continue your studies straight through for the six terms necessary to complete your degree requirements.

12. What kind of employment assistance does NEIT offer?

The Career Services Office assists NEIT students and graduates in all aspects of the job search, including resume writing, interviewing skills, and developing a job search strategy. Upon completion of their program, graduates may submit a resume to the Career Services Office to be circulated to employers for employment opportunities in their fields. Employers regularly contact us about our graduates. In addition, our Career Services Office contacts employers to develop job leads. A strong relationship with employers exists as a result of our training students to meet the needs of industry for over fifty years. No school can, and NEIT does not, guarantee to its graduates employment or a specific starting salary.

13. Where will job opportunities exist?

Graduates have obtained employment in the local area. However, one of the most exciting aspects of this program is the ability to look nationally for employment opportunities.

14. Is this degree program accredited?

The Bachelor of Science degree program in Mechanical Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>.

15. Is there any state or federal licensing required in my field?

Under existing (1996) Rhode Island law no license is required for any of the careers which you will be preparing to enter. Because of the complex nature of licensing requirements and because these requirements change periodically, we cannot list all the requirements for all the types of licenses available in all the states. NEIT IS NOT RESPONSIBLE FOR ANY CHANGES IN LICENSING REQUIREMENTS THAT ANY STATE LEGISLATURE, INCLUDING RI'S, MAY IMPLEMENT AT ANY TIME. Each student should take personal responsibility for determining the licensing requirements in the specific trade and state in which he or she plans to work. Your instructor or department chair can give you help as needed.

16. What kind of jobs will I be qualified to look for?

Generally, jobs will exist in research and design and manufacturing firms. These jobs include:

- Manufacturing Engineer Project Engineer
- Engineering Technician
- Applications Engineer
- Engineering Associates
- Mechanical Engineer
- CAD Mechanical Designer
- Production Management
- Process Engineer
- Automation Engineer

- Production Engineer

- Ability to perform learned skills, independently, with accuracy and completeness within reasonable time frames in accordance with procedures.

Technical Standards

These technical standards set forth by the Mechanical Engineering Technology Department, establishes the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills and competencies to enter these fields. The successful student must possess the following skills and abilities or be able to demonstrate that they can complete the requirements of the program with or without reasonable accommodation, using some other combination of skills and abilities.

Cognitive Ability

- Ability to concentrate for long periods of time and retain information on intricate details of component theory and analysis of engineering design and operation of computers and machinery.
- Ability to deal with materials and problems such as organizing or reorganizing information.
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- Ability to use abstractions in specific concrete situations.
- Ability to break information into its component parts.
- Ability to understand spatial relationships.
- Possession of basic math skills through addition, subtraction, multiplication and division of whole numbers and fractions using both the U.S. and Metric systems of measurement.
- Ability to perform tasks by observing demonstrations.
- Ability to perform tasks by following written instructions.
- Ability to perform tasks following verbal instructions.

Communications Skills

- Ability to communicate effectively with faculty and students.
- Ability to demonstrate and use the knowledge acquired during the classroom training process and in the lab setting.

Adaptive Ability

- Ability to maintain emotional stability and the maturity necessary to interact with other members of the faculty and students in a responsible manner.

Physical Ability

- An ability to work in a standing, sitting, squatting, kneeling, or lying position.
- An ability to lift, lower, push, and pull using both arms and legs.
- Ability to lift objects weighing up to 35 pounds.
- Ability to stand on a hard surface, usually concrete, for 4-6 hours at a time.
- Sufficient upper body strength to carry 20 pounds.
- Sufficient strength and agility to lift equipment and move large pieces of equipment independently.
- Sufficient strength and agility to grasp and maintain tension for long periods of time.
- Ability to wear and tolerate ear plugs, safety glasses and other protective equipment.

Manual Ability

- Ability to manipulate wrenches, screwdrivers, and other tools.
- Sufficient motor function and sensory abilities to participate effectively in the classroom laboratory.
- Sufficient manual dexterity and motor coordination to coordinate hands, eyes and fingers in the operation of tools and other equipment.

Sensory Ability

Visual

- Visual ability, with or without correction, to enable the student to differentiate tools and instruments, wires, and components.
- Acute enough to read dials, and position of control settings of measurement and industrial equipment.
- Acute enough to read small print.
- Acute enough to read small numbers on precision measuring instruments.

Auditory

- Acute enough to hear and understand words spoken by others in an environment with a high level of noise in the background.

Degree Progress Checklist Mechanical Engineering Technology - BS

Degree Progress Checklists

- For students entering October 2024 or later
- For students entering October 2023 to September 2024
- For students entering October 2022 to September 2023
- For students entering July 2022 to September 2022
- For students entering October 2021 to June 2022
- For students entering April 2021 to September 2021
- For students entering October 2020 to March 2021