

WELDING ENGINEERING TECHNOLOGY (AS)

Program Overview Associate in Science Degree



The Associate in Science in Welding Engineering Technology program emphasizes the development of real-world, hands-on welding skills. Through a comprehensive academic and laboratory environment, students will understand the theory and best practices applied in today's welding industry. The program provides intensive training in oxy-acetylene and air carbon arc cutting, brazing, SMAW, GMAW, FCAW, and GTAW. In addition to welding and pipefitting, students will also take courses in industrial OSHA safety procedures and policy, metallurgy, structural design, blueprint reading, computer-aided design and drafting (CADD), nondestructive testing, and precision measurement. Students also prepare for future certifications through simulated welder qualification tests. While in the program, students are able to sit for the National Institute for Metalworking Skills (NIMS) exam in Measurement, Materials and Safety mid-way through the program; they may sit for the American Society for Quality (ASQ) Six Sigma Yellow Belt certification exam after their fifth term; they may earn their American Welding Society SENSE Level 1 certification after successfully completing WEL 216 AWS SENSE Level I; and their OSHA 10 card after successfully completing OSH 010 OSHA Construction Safety & Health.

Upon graduation, students will receive an Associate in Science Degree in Welding Engineering Technology. Graduates of the Welding Engineering Technology program are prepared for several types of industry positions including welding engineering technician, production welder, industrial engineering technician, quality control engineering technician, CADD designer, CADD technician, welding industry salesman, and materials testing technician.

Curriculum

Course	Title	Quarter Credit Hours
Term I		
ENG 118	Introduction to Engineering Technology and Lab	3

WEL 110	OFC/OAW, Electric Welding and Cutting	3
WEL 111	Interpreting Engineering Blueprints	3
WEL 151	Industrial Welding I (SMAW)	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	
Elective	100-200 Level Math/Science Core ¹	
Quarter Credit Hours		16-17

Term II		
WEL 152	Industrial Welding II (Advanced SMAW)	3
MCT 115	Computer-Aided Design I	4
OSH 010	OSHA Construction Safety & Health	2
MA 125	Technical Math I (MA/SCI Core) ¹	4
Quarter Credit Hours		13

Term III		
WEL 124	CAD with Weldments	4
WEL 153	Industrial Welding III (GMAW)	3
MCT 239	Quality	4
MA 210	Technical Math II (MA/SCI Core) ¹	4
PHY 200	Physics I & Lab (MA/SCI Core) ¹	4
Quarter Credit Hours		19

Term IV		
WEL 131	Materials & Manufacturing Processes	4
WEL 254	Industrial Welding IV (FCAW)	3
WEL 271	Pipe Welding I (SMAW)	3
PHY 300	Physics II & Lab (MA/SCI Core) ¹	4
EN 100	Introduction to College Writing (COM Core) ¹	4
Quarter Credit Hours		18

Term V		
WEL 216	AWS SENSE Level I	3
WEL 255	Industrial Welding V (GTAW)	3
WEL 260	Introduction to Robotic Welding	3
WEL 272	Pipe Welding II (SMAW/GMAW)	3
ABT 223	Structures I	3
EN 200	Workplace Communications (COM Core) ¹	4
Quarter Credit Hours		19

Term VI		
ABT 232	Structures II	3
Elective	100-200 Level Social Sciences Core ¹	4
Elective	100-200 Level Humanities Core ¹	4
Choose one of the following:		4

WEL 259	Capstone Design Project (MCT/BS)	
ENG 281	Engineering Internship	
Choose one of the following:		3-4

WEL 242	Destructive & Non-Destructive Testing	
MCT 235	Industrial Robotic Automation (MCT/BS)	
Quarter Credit Hours		18-19
Total Quarter Credit Hours		103-105

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 associate degree students are required to take 32 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. Students who place out of MA 105 Basic College Math with Lab/MA 110 Introduction to College Math must still take 32 credits of core courses.

Subject to change.

Program Mission, Goals, and Outcomes

Program Mission

The New England Institute of Technology's Associate in Science in Welding Engineering Technology program is designed to prepare an educated entry-level welding technician with the ability to apply theory and best practices in design, welding, and fabrication.

Program Educational Objectives

Graduates from the Associate in Science Degree in Welding Engineering Technology:

1. Will have gained the knowledge, problem-solving abilities, and hands-on skills to succeed in a career in the manufacturing, design, specification, installation, testing, operation, maintenance, sales, or documentation of welded structures and products.
2. Will be able to employ communication and teamwork skills to effectively bridge the gap between professional engineers and skilled production workers.
3. Will be able to apply knowledge and a propensity for learning to continuously develop new skills and to learn about new areas needed for long-term career development, including science, engineering, and technology knowledge and communication and teamwork skills.
4. Will achieve professional employment within the broad field of welding technology or related disciplines.

Program Outcomes

Upon completion of their degree, graduates of the Welding Engineering Technology degree program will be able to:

1. Apply welding theory and best practices to the analysis, design, fabrication and testing of welded metal structures and products.
2. Apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology.
3. Apply creativity to the design of welded metal structures and products.
4. Identify, analyze and solve technical problems.
5. Commit to quality, timeliness, and continuous improvement.

6. Be competent in the use of the computer as a design, problem solving and communications tool.

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 associate degree, you will take a total of approximately eight liberal arts courses, which will be scheduled around your technical 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 College 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. I have not earned my high school diploma or GED: can I enroll in an Associate Degree Program?

A candidate for admission to an associate degree program must have a high school diploma, have earned a recognized equivalency diploma (GED), or meet the federal home school requirements.

6. 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 six-term curriculum, a student may complete the requirements in as little as 18 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.

7. 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.

8. 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.

9. 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. An 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.

10. 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 College 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.

11. 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.

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

No licensing is required for any of the careers which you will be preparing to enter.

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

You will be qualified to obtain entry-level positions such as:

- Welding Engineering Technician
- Industrial Engineering Technician
- Quality Control Engineering Technician
- CADD Designer
- CADD Technician
- Welding Industry Salesman
- Materials Testing Technician
- Production Welder

16. How much time will I spend on Computer Assisted Drafting (CAD)?

You will receive approximately 60 hours of formal training on CAD during the first term of your program.

17. Are there any additional costs/activities associated with this program?

New England Tech supplies tools and materials, but students are required to buy protective clothing to ensure their safety in the lab.

Technical Standards

These technical standards set forth by the Welding 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.
- 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.
- Ability to perform learned skills, independently, with accuracy and completeness within reasonable time frames in accordance with procedures.

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

Welding Engineering Technology - AS

Degree Progress Checklists

- For students entering October 2024 or later
- For students entering October 2023 to September 2024
- For students entering October 2021 to September 2023
- For students entering October 2017 to September 2021