ENGINEERING

B.S. DEGREES

Marine Systems Engineering,
License Track (5-year)*
Marine Systems Engineering,
Non-License Track (4-year)

PROGRAMS OVERVIEW

If you are interested in how the world around you works or if you have ideas on how to improve the tools, appliances, and machines we use, you already have the qualities needed to become an outstanding engineer. As an engineer you'll be faced with significant and rewarding challenges such as taking charge of the controls, finding and fixing problems, or working to create new and better products. Not only will you learn to meet these challenges at Maine Maritime Academy, you will practice on real equipment, bringing theory to life.

Marine Systems Engineering (MSE)*

Two degree options:
MSE License Track (5-year)*
MSE Non-License Track (4-year)

These math-intensive programs enable you to work as a design or research engineer, engineering consultant, or manager in maritime, industrial, or general technical fields. The major incorporates a higher level of science, mathematics, engineering science, and power plant technologies. Graduates of this program combine extensive hands-on experience with rigorous analytical and design skills.

The Marine Systems Engineering (MSE) programs (Non-License and License Tracks) are accredited by the Engineering Accreditation Commission of ABET (EAC of ABET), www.abet.org.

Compare the Options

MSE License Track (5-year)*

- 5-year B.S. degree
- USCG license
- Regiment required
- 1 co-op (maritime or non-maritime)
- 3 training cruises
- Career options in merchant seafaring or in maritime and mechanical engineering
- Excellent preparation for graduate school

MSE Non-License Track (4-year)

- 4-year B.S. degree
- Emphasis on naval architecture
- Regiment required first year only; subsequent years are optional
- 2 industrial co-ops, (1 maritime related)
- 1 cruise required at the completion of the first year
- Shoreside career options in maritime and mechanical engineering fields
- Excellent preparation for graduate school

* *This major leads to a U.S. Coast Guard engineering license and requires participation in the Maine Maritime Academy Regiment of Midshipmen.*

SEA TIME AND CO-OP TRAINING

All candidates seeking a 3rd Assistant Engineer license from the U.S. Coast Guard are required to complete 180 sea days of training. Sea time is accomplished through specialized laboratories, simulation, and three distinct training cruises. The Marine Systems Engineering License Track (5-yr) major is impacted by this training requirement.

Students enrolled in the Marine Systems Engineering Non-License Track (4-yr) major are required to participate in one training cruise at the end of their first year. This requirement is designed to provide valuable hands-on experience with working marine systems and is not intended to provide eligibility to sit for a USCG 3rd Assistant Engineer license.

Training Cruises: At the conclusion of the first year, students in both tracks gain sea experience aboard the college's Training Ship *State of Maine*. MSE License Track (5-yr) students also participate in a second training cruise at the completion of their third year of study. Scheduled during May and June for at least 60 days, training cruises typically include four domestic or foreign ports of call. Designed to develop practical skills required of a licensed seafaring officer, cruise activities directly involve students in the operation and direct maintenance of the ship.

Cadet Shipping: The second cruise experience for MSE License Track (5-yr) students is completed at the conclusion of the second year. It will place you aboard a commercial merchant ship, tanker, bulk carrier, container ship, or cruise liner. A vital element of your undergraduate education, this 60-day Cadet Shipping experience immerses you in this dynamic industry, giving you a chance to test your knowledge, learn from professional seafaring officers, and see the world.

Co-ops: MSE Non-License Track (4-yr) students gain hands-on training in summer cooperative work experiences at engineering work sites which can include large industrial settings nationwide at the conclusion of their second and third years. At least one co-op must be maritime related. MSE License Track (5-yr) students will complete a similar experience after their fourth year of study.

HANDS-ON OPPORTUNITIES

At MMA, a typical day on the path to becoming competent, well-rounded engineers and engineering technologists is packed with exciting classes involving hands-on lab work, high-tech training, and stimulating classroom discussion.

Academic Activities:

- A Computer-Aided Drafting (CAD) project that produces engineering drawings of several machine parts
- Work in the Machine Tool Laboratory using lathes to manufacture a valve stem
- Non-Destructive Testing (NDT) on welds that students have prepared in the welding laboratory

High-Tech, On-Campus Labs:

- Small-Scale Operating Steam Plant
- 1,200-hp Diesel Engine
- Power Plant Simulator
- Machine Tool Lab
- Welding and Testing Lab
- Control Room Simulator (Diesel Power)
- Electrical Power Lab
- 500-foot Training Ship *State of Maine*

CAREER CHOICES

Professional engineering careers encompass a wide variety of jobs, offering many opportunities and excellent pay, world-wide. Some recent graduates have taken on dynamic positions such as:

- Design Engineers developing new public utility power plants
- Operating Engineers on ocean going ships or in land-based electrical generation facilities
- Power Brokers controlling the supply and distribution of electricity for the world's largest entertainment complex, involving the purchase and sale of millions of dollars worth of electricity annually
- Field Service Engineers
- Research and Development
- Technical Operators
- Naval Architects
- Project Engineers

ENGINEERING AND TECHNOLOGY

It's a whole new language in the engineering world. The terms may seem abstract, but the differences between engineers and engineering technologists are clear.

Engineers design and develop technology: Your role as an engineer begins with the most basic instructions and requirements: improve the fuel efficiency of this engine, develop an appliance that stabilizes a boat in rough seas, design a toaster that heats evenly. Compared to the courses of an engineering technology student, an engineer prepares for the demands of this career by taking more design, systems, analysis, math, and science courses.

Engineering technologists test and operate technology: Engineering technologists work with products that have been designed and fine-tuned by engineers. Your job as an engineering technologist is to integrate and operate the often complicated systems—hydraulic, electrical, power-generation—these machines rely upon to run. You must thoroughly understand each system and its fundamentals in order to test products for safety and endurance. You are responsible for recognizing operating problems, inefficiencies, and potential breakdown. Moreover, you must be comfortable troubleshooting and repairing complex systems. Compared to the courses of an engineering student, an engineering technology student prepares for the demands of this career by taking fewer math and science courses; more lab, and application of machines and devices courses.

PROFESSIONAL CREDENTIALS

Successful completion of requirements in each of the engineering majors offered at MMA leads to potential professional licensing opportunities.

Marine Systems Engineering – License Track (5-year)

- USCG 3rd Assistant Engineer License, Unlimited Horsepower, Steam or Motor, Any Ocean
- Eligible to sit for State of Maine 3rd Class Engineer License (Stationary Plant)
- Eligible to sit for Fundamentals of Engineering Exam

Marine Systems Engineering – Non-License Track (4-yr)

- Eligible to sit for Fundamentals of Engineering Exam

LEARN MORE

Visit *www.mainemaritime.edu* for helpful information on all aspects of Maine Maritime Academy academics, student life and admissions. Admissions counselors are always available to speak with you—simply give us a call. Our online catalog is regularly updated and should be referred to for complete programming.