

UNITED STATES
NAVAL ACADEMY

DIVISION OF ENGINEERING & WEAPONS
ANNAPOLIS, MARYLAND

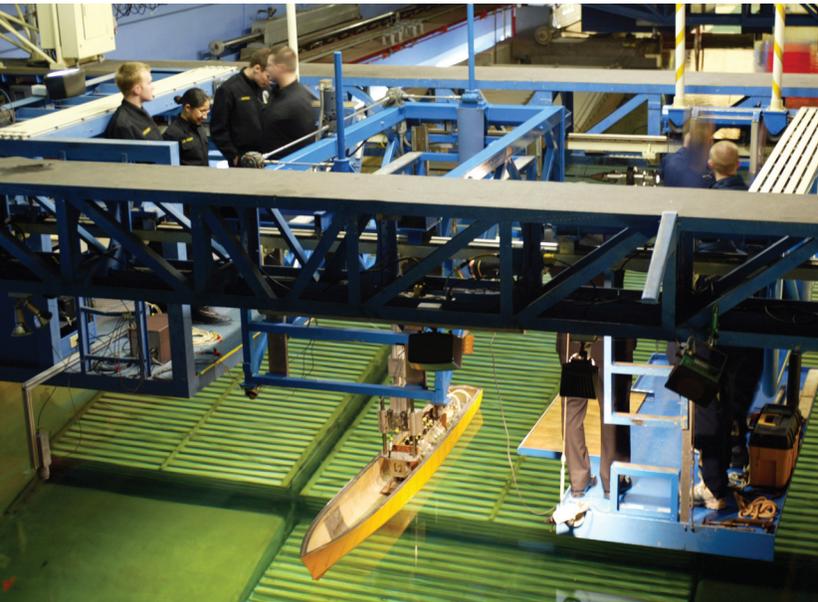
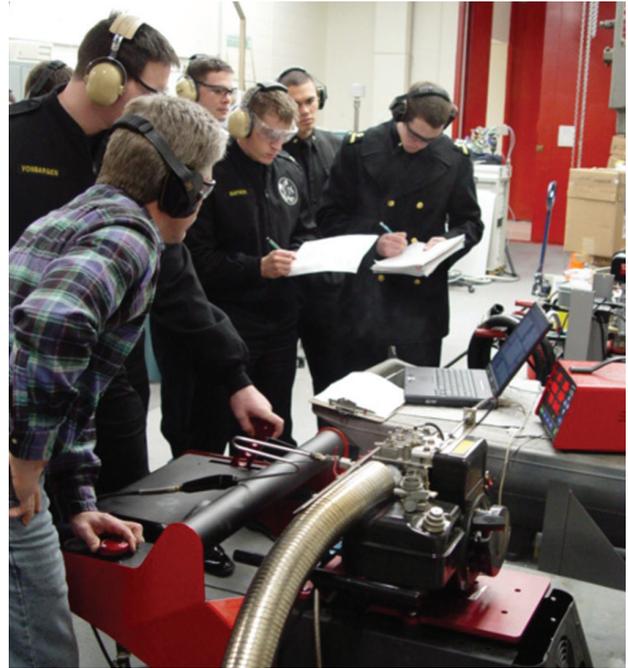


Photo courtesy of NASA

Within the Division of Engineering and Weapons at the United States Naval Academy, students may pursue the following majors and specialty tracks:

- ★ Aerospace Engineering: Aeronautics Engineering and Astronautics Engineering;
 - ★ Electrical and Computer Engineering: Communications;
 - ★ NAOE: Naval Architecture and Ocean Engineering: Civil Engineering and Underwater Engineering;
 - ★ Mechanical Engineering: Energy Systems, Materials Engineering, Engineering Mechanics, Nuclear Engineering and Marine Propulsion;
- and
- ★ Weapons and Systems Engineering: Systems Engineering, Environmental Engineering, Information Systems Control Systems and Robotics Engineering.

Each department offers great opportunities for cutting-edge research and intense study of the latest trends in engineering.



Naval Architecture and Ocean Engineering

Naval Architects combine imagination, artistic instincts, scientific principles, and engineering considerations, in designing future means of ocean transportation. Building on a foundation of basic engineering topics such as fluid mechanics and material science, the naval architecture student learns modern techniques of marine vehicle performance and design analysis.

Ocean engineering is one of the most varied engineering disciplines. Ocean engineering applies basic engineering concepts to solve the myriad number of open-ended engineering problems associated with the ocean environment. Different tracks of study include offshore and civil engineering, underwater technology, environmental engineering and coastal engineering.

STATE OF THE ART FACILITIES

The Division is supported by an array of sophisticated laboratory facilities, with state of the art equipment, including:

- ★an aerodynamics laboratory including a supersonic wind tunnel capable of Mach 4.2;
- ★a full-size helicopter rotor test cell, and a propulsion cell supporting turbine, reciprocating and rocket engines;
- ★a hydrodynamics laboratory including a 380-foot towing tank, several smaller tanks, and a circulating water channel to test propeller and rudder design.
- ★Computer Aided Design (CAD) laboratories with individual high-performance workstations;
- ★a satellite ground station capable of communicating with orbital spacecraft, including the Space Shuttle and the International Space Station;
- ★an advanced materials laboratory with a Scanning Electron Microscope (SEM) with X-ray microanalysis capabilities; and
- ★specialized electrical engineering laboratories supporting studies in signal processing, fiber optics and communications.



MECHANICAL ENGINEERING

Mechanical engineers study subjects that are applicable to all engineering disciplines and problems. Students may concentrate in any of the following specialty “tracks”: Energy Systems Engineering, Mechanical Engineering, Marine Propulsion, Materials Engineering and Nuclear Engineering. This major offers one of the most diversified engineering programs available at the Naval Academy. A mechanical engineer’s sub-specialty billets include: ship and aircraft design, propulsion systems, environmental systems, advanced engineering education, major project management and weapons systems acquisition.



AEROSPACE ENGINEERING

Aerospace engineering is structured to prepare naval officers to serve at the forefront in the inception, development and employment of Navy air and space assets. In addition to fundamental engineering courses, the department offers tracks of study concentrating on aeronautics or astronautics topics.

SYSTEMS ENGINEERING

Systems engineering is an interdisciplinary major whose primary objective is to provide an overall understanding of the analysis and design of complete engineering systems. The emphasis is on mathematical modeling, analysis, synthesis and control of such systems and on their simulation using the department’s extensive computing facilities. Systems Engineering majors may elect to specialize in control systems, information systems, computer engineering or robotics.



ELECTRICAL AND COMPUTER ENGINEERING

Electrical engineering prepares students to lead fleet forces and manage the sophisticated systems used in combat and combat support. Various elective tracks include microcomputer digital design and interfacing, communication systems, microwave systems, and fiber optic communications.

FACULTY

The Division of Engineering and Weapons faculty is an integrated group of highly dedicated and motivated professional officers and civilians in approximately equal numbers. All of the civilian faculty have earned doctorate degrees. The professional scholarship and teaching experience of the civilian faculty, combined with the operational experience of the officers, provides a faculty uniquely qualified to educate and motivate midshipmen for a career in the United States Navy and Marine Corps.



USNI Photo Archive

Admiral Hyman G. Rickover, father of the nuclear navy

DEGREE

Midshipmen who successfully complete all graduation requirements for an engineering degree are awarded a Bachelor of Science degree which is accredited by the Accreditation Board for Engineering Technology (ABET).

*For more information:
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RESEARCH AND DESIGN

All engineering majors offer opportunities in research and design. The midshipmen are competitive participants in many nationwide engineering organizations. These include design projects such as ASME FIRST Robot, the SAE Formula One Car, the Aerospace Design, Build, Fly Project, and the Underwater Autonomous Vehicle.

