Department of Mechanical & Aerospace Engineering

DL Degree & Certificate Options

NAVAL POSTGRADUATE SCHOOL

Degrees Available via Distance Learning

The Department's Aerospace Engineering and Mechanical Engineering degree programs are accredited and designed to meet the specific educational needs of the non-resident U.S. Military, government/DoD civilians, and DoD Contractors (Lockheed-Martin, Boeing, General Dynamics, Raytheon, etc.), as well as international partners by producing critical thinking engineers who are capable of solving complex technical problems.

Candidates who have majored in aerospace or mechanical engineering (or similar engineering field) may enter a program leading to the degree of Master of Science in Aerospace Engineering (MSAE) or Master of Science in Mechanical Engineering (MSME).

Aerospace Engineering — Curric. #608

Master of Science in Aerospace Engineering
M.S. Engineering Science (Aerospace Engineering)

The Aerospace Engineering program is designed to provide broad-based graduate education in the areas of advanced aerodynamics, flight mechanics, stability and control, propulsion, flight structures, and systems integration with a focus on missile design, autonomous systems, fixed-wing and rotary aircraft, and air vehicle survivability. Additionally, students may receive graduate level instruction in specific aircraft/missile design and aero-computer science.

Mechanical Engineering — Curric. #569

Master of Science in Mechanical Engineering
M.S. Engineering Science (Mechanical Engineering)

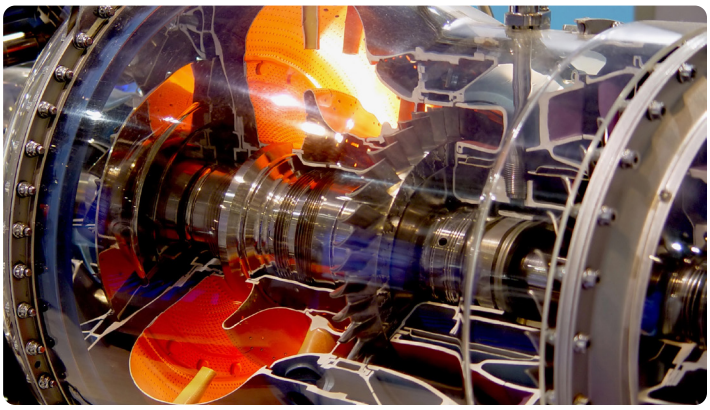
The Mechanical Engineering program is designed to provide graduate education, with an emphasis in the field of Naval Mechanical Engineering, to produce graduates with the technical competence to operate and maintain modern warships and military combat systems. It establishes a broad background of basic engineering knowledge leading to advanced studies in heat transfer, fluid mechanics, control systems, solid mechanics and vibrations, and material science.

Coursework & The Thesis

Typically, students may stack certificates to complete the coursework requirement of either 8 or 10 courses. Visit nps.edu/web/mae/stacking-certificates for more information.

The Department of Mechanical and Aerospace Engineering offers 4-course graduate certificates via Distance Learning. Details on these certificates can be found on the reverse of this sheet.

While the course work lays the foundation by providing analytical methods and tools, it is the thesis that provides you with the opportunity to use this knowledge in a creative manner. You will be able to consolidate what you have learned, and to use this body of knowledge to address an original problem.



EARN A DEGREE

A degree may be earned by completing either:

8 courses and a **Thesis** or **10 courses** and a **Capstone project**

Because a thesis is a significantly more time-consuming task than a capstone project, many students opt for the second method.

Department of Mechanical & Aerospace Engineering

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NAVAL POSTGRADUATE SCHOOL

Graduate Certificates Available via Distance Learning

Aerospace Engineering

Program Length: 1 Year
Starts: Quarterly

Curric. #118

Program Overview

Focuses on relevant topics in aerospace engineering, including fixed wing, rotary wing, and missile propulsion engines, as well as analyzing the performance of rocket motors through knowledge of the behavior and design characteristics of their individual components.

Curriculum

Student must take four of these six courses:

1. ME3611 Mechanics of Solids II
2. ME3205 Missile Aerodynamics
3. ME4751 Aircraft Combat Survivability
4. AE4452 Advanced Missile Propulsion
5. ME4703 Missile Flight and Control
6. ME4704 Missile Design

CONTACT

Christopher Adams
Associate Chair
Department of Mechanical and Aerospace Engineering
caadams@nps.edu

For distance learning students, applications are handled through the Office of Admissions. Apply now at nps.edu/Admissions/AMS/

More information:
nps.edu/web/mae/

Mechanical Engineering - Structures

Program Length: 1 Year
Starts: Quarterly

Curric. #122

Program Overview

Provides personnel with the conceptual knowledge and practical applications of structural mechanics, including quasi-static and dynamic structural responses to multiple load types, strengthening mechanisms to support material selection, and finite element theory and software implementation.

Curriculum

1. ME3521 Mechanical Vibrations (Fall)
2. ME4613 Finite Element Methods (Winter)
3. ME3611 Mechanics of Solids II (Spring)
4. MS4811 Mechanical Behavior of Eng Materials or ME4731 Eng Design Optimization (Summer)

Robotics Engineering

Program Length: 1 Year
Starts: Summer/Winter

Curric. #223

Program Overview

Helps DoD professionals advance their careers and become leaders in the emerging fields of unmanned vehicles (UxVs), robotics, and autonomous systems. Students are provided the technical concepts and skills necessary to understand, design, and operate robotic systems through faculty-led instruction plus hands-on (lab and collaborative) activities.

Curriculum

Foundations Sequence

1. ME3420 Computational Foundations for Robotics
2. EC4310 Fundamentals of Robotics

Applications Sequence

3. ME4828 Fundamental GNC Algorithms of Autonomous Robotics
4. ME4800 Machine Learning for Autonomous Operations

Mech. Engineering – Thermo/Fluids

Program Length: 1 Year
Starts: Quarterly

Curric. #123

Program Overview

Provides personnel with the conceptual knowledge and practical applications in fluid mechanics, heat transfer, thermodynamics, and power and propulsion systems common in Naval Mechanical Engineering. The Thermo/Fluids Certificate is for working engineers in mechanical, chemical, or a closely related field of engineering.

Curriculum

1. ME4220 Viscous Flow (Fall)
2. ME3201 Applied Fluid Mechanics (Winter)
3. ME4101 Advanced Thermodynamics (Spring)
4. ME4420 Advanced Power & Propulsion (Summer)

Applied Trajectory Optimization

Program Length: 1 Year
Starts: Spring

Curric. #299

Program Overview

Prepares DoD professionals to develop, analyze, and deploy advanced guidance and motion planning concepts for mission design and operation of autonomous aerospace systems including unmanned vehicles, tactical missile systems and sensor platforms. Students will gain hands-on experience in modeling, simulation and solving practical trajectory optimization problems.

Curriculum

Foundations Sequence

1. AE3830 Aerospace Guidance and Control
2. AE3820 Aerospace System Dynamics

Applications Sequence

3. AE4850 Applied Dynamic Optimization
4. AE4881 Aerospace Trajectory Planning and Guidance

These certificates can be stacked to complete the coursework required for a degree; details can be found on the reverse of this sheet.