



“The Naval Postgraduate School is unique. There are many institutions that solve problems and create new capabilities. NPS solves our Navy’s most vexing problems and creates our critical capabilities. In doing so, students also exchange ideas with the future leaders of the Armed Services of our allies and partners. This makes NPS, its faculty, and its students a national strategic jewel in our nations crown.”

Admiral John Richardson



NAVAL
POSTGRADUATE
SCHOOL

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DEPARTMENT OF
MECHANICAL AND AEROSPACE
ENGINEERING

**MASTER OF
SCIENCE**

**ENGINEERING
SCIENCE
(MECHANICAL ENGINEERING)
CURRICULUM 572**

Distance Learning Program
for
Nuclear Trained Officers



NAVAL
POSTGRADUATE
SCHOOL

PROGRAM OBJECTIVE

The Master of Science in Engineering Science (Mechanical Engineering) MSES-ME provides students with scientific and technical



knowledge of mechanical engineering. Students will gain an understand-

ing of the role that engineering and technology have in the military operations environment. Emphasis is on naval engineering and its applications to surface vessels, submarines, and spacecraft.

The DL MSES-ME program brings the core of the on-campus courses together with proven DL technology and faculty expertise to deliver a unique curriculum focused on mechanical engineering.

CURRICULUM

ME3201 Applied Fluid Mechanics

Fluid properties, fluid statics and stability, equations of motion, potential flow, introduction to boundary layers, fluid forces and moments on bodies, and an introduction to 1-D compressible flow.

ME4220 Viscous Flow

Development of continuity and Navier-Stokes equations. Exact solutions of steady and unsteady viscous flow problems. Development of the boundary-layer equations.

ME3150 Heat Transfer

Introduction to the various modes of heat transfer and their engineering applications. Steady and unsteady conduction involving the use of thermal circuit analogs, analytical, and numerical techniques. Introduction to conservation of mass, momentum and energy.

ME4162 Convection Heat Transfer

Fundamental principles of forced and free convection. Laminar and turbulent duct flows and external flows. Dimensionless correlations. Heat transfer during phase changes.

ME4420 Advanced Power and Propulsion

This course presents an advanced treatment of power and propulsion topics, primarily for naval application.

ME0810 Term Paper

Non-thesis research project.



Program Format

The MSES (ME) program is a nominal 24-month, off-duty program. Students generally take one course at a time, and should complete each within six months

The primary mode of course delivery is "asynchronous". CD/DVD lectures and course materials are provided to the student who proceeds at his/her own pace, communicating with the course professor in Monterey via email/telephone. This method affords maximum flexibility for the nuclear trained officer on sea, shore or overseas assignment.

Eligibility

To be eligible for this program, you must:

- be a successful graduate of the Navy Nuclear Power School officer curriculum (28.5 graduate credits granted)
- obtain a favorable command endorsement
- have a B.S. in Engineering (or closely related field)

Obligated Service

This program is considered "fully funded graduate education" and requires 2 years of obligated service. The OBLISERV is concurrent with any other obligations and commences upon completion of (or withdrawal from) the program.