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NAVAL/MECHANICAL ENGINEERING – ENERGY SPECIALTY

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Program Officer

Joe Keller, CDR, USN
 Code 74, Watkins Hall, Room 107A
 (831) 656-2033, DSN 756-2033
jjkeller@nps.edu

Academic Associate

Joshua H. Gordis, Ph.D.
 Code ME/Go, Watkins Hall, Room 313
 (831) 656-2866, DSN 756-2866
jgordis@nps.edu

Brief Overview

The objective of this program is to provide graduate education, primarily in the field of Naval/Mechanical Engineering with a focus on Energy, including production, storage, and use. This program is designed to produce graduates with the technical competence to operate and maintain modern warships and naval 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, material science, energy production, storage and usage. The graduate will be able to participate in technical aspects of naval systems acquisition for technological advances in naval ships and systems, particularly as they apply to energy. Through emphasis on the design aspect within the program, the graduate will be well prepared to apply these advances in technology to the warships of the future. An original research project focusing on either Energy, Power and Propulsion Systems or Energy Materials resulting in a satisfactory thesis is an integral part of the curriculum.

Requirements for Entry

A baccalaureate degree or its equivalent is required, preferably in an engineering discipline. A minimum academic profile code (APC) of 323 is required (334 with one quarter refresher). This equates to a minimum grade point average of 2.20, with mathematics through differential and integral calculus and one year of calculus-based physics as non-waiverable requirements. The program is open to naval officers in the rank of LTJG through LCDR and equivalent grade officers of other U.S. services and qualified foreign military officers. DoD civilian employees and DoD Contractors are also eligible.

Entry Date

Naval/Mechanical Engineering (Energy Specialty) is typically an eight-quarter program with preferred entry dates in March or September. For further information contact the Program Officer or the Academic Associate

Degree

Requirements for the Master of Science in Mechanical Engineering degree, which is an ABET accredited degree are met as a milestone en route to satisfying the educational skill requirements of the curricular program.

Subspecialty

Completion of this curriculum qualifies an officer as a Naval/Mechanical Engineering Specialist with a subspecialty code of 5603P. The curriculum sponsors are Naval Sea Systems Command and Navy Energy Coordination Office.

Typical Course of Study – Mechanical Engineering Energy Track

Quarter 0

MA1113	(4-0)	Single Variable Calculus I
MA1114	(4-0)	Single Variable Calculus I w/Matrix Algebra
ME2501	(4-0)	Engineering Statics
AE2440	(3-2)	MATLAB

EN3000	(2-0)	Defense Energy Seminar
Quarter 1		
MA1115	(4-0)	Multivariable Calculus
MA1116	(3-0)	Vector Calculus
ME2502	(5-0)	Engineering Dynamics
ME2101	(4-2)	Thermodynamics
NW3230	(4-0)	Maritime and Joint Strategic Planning
EN3000	(2-0)	Defense Energy Seminar
Quarter 2		
MA2043	(4-0)	Linear Algebra
MA2121	(4-0)	Differential Equations
ME2601	(4-1)	Mechanics of Solids I
MS2201	(3-2)	Materials Science
EN3000	(2-0)	Defense Energy Seminar
Quarter 3		
MA3132	(4-0)	Partial Differential Equations
MA3232	(4-0)	Numerical Analysis
ME3611	(4-0)	Mechanics of Solids II
ME2201	(3-2)	Fluid Mechanics I
PH3700	(4-0)	Fundamentals of Energy Technology
EN3000	(2-0)	Defense Energy Seminar
Quarter 4		
EO2102	(4-2)	Intro to Circuit & Power Systems Analysis
ME3521	(3-2)	Mechanical Vibrations
ME3201	(4-1)	Applied Fluid Mechanics
ME3150	(4-1)	Heat Transfer
OS3007	(4-0)	Operations Research for Energy Systems Analysis
EN3000	(2-0)	Defense Energy Seminar
Quarter 5		
ME2801	(3-2)	System Dynamics
ME3450	(3-2)	Computational Methods in Mechanical Engineering
ME3711	(4-1)	Machine Design
MS3202	(3-2)	Failure Analysis and Prevention
EN3000	(2-0)	Defense Energy Seminar
Quarter 6		
ME3240	(4-2)	Marine Power and Propulsion
ME3712	(4-2)	Systems Design
ME3801	(3-2)	Dynamics and Control of Marine and Autonomous Vehicles I
ME4XXX	(V-V)	Energy Specialization Elective
EN3000	(2-0)	Defense Energy Seminar
Quarter 7		
ME0810	(0-8)	Thesis Research (Energy)
ME0810	(0-8)	Thesis Research (Energy)
ME4XXX	(V-V)	Energy Specialization Elective
MS3304	(3-2)	Corrosion
- OR -		
MS3606	(3-2)	Welding
EN3000	(2-0)	Defense Energy Seminar
Quarter 8		
ME0810	(0-8)	Thesis Research
ME0810	(0-8)	Thesis Research
TS3001	(3-2)	Naval Architecture
ME4XXX	(V-V)	Energy Specialization Elective
EN3000	(2-0)	Defense Energy Seminar

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