

**MINOR IN NAVAL ENGINEERING (NAVE)**

**Department of Aerospace and Ocean Engineering**

**College of Engineering**

Check sheet for students graduating in calendar year 2019

Naval Engineering is defined as a field of study and expertise that includes all engineering and sciences as applied in the research, development, design, construction, operation, maintenance and logistic support of surface and subsurface ships, craft, aircraft, and vehicles (manned and autonomous) used by the Navy for the Nation's defense. It inherently includes multiple engineering disciplines, and hence it is open to all students in the College of Engineering who meet the following requirements.

A minor in Naval Engineering consists of not less than 18 semester credit hours. For successful completion of the Minor, students must maintain a 2.0 in-Minor GPA with a minimum grade of C- or better in all courses that the student counts towards the minor.

**Required:**

<b>AOE</b>	<b>2204</b>	<b>Introduction to Ocean Engineering</b>	
<b>or AOE</b>	<b>3204</b>	<b>Naval Architecture</b>	<b>3</b>
<b>AOE</b>	<b>4264</b>	<b>Principles of Naval Engineering (NAVE1)</b>	<b>3</b>
<b>AOE</b>	<b>4265</b>	<b>Ship Design (with approved NE focus)</b>	<b>3</b>
<b>or AOE</b>	<b>4994</b>	<b>Undergraduate Research</b>	
<b>or xxx</b>	<b>4994</b>	<b>Undergraduate Research with approved NE focus</b>	
		<b>Total Credits from Required Courses</b>	<b>9</b>
		<b>Credits Remaining from Below</b>	<b>9</b>
		<b>Total Required Credits</b>	<b>18</b>

Choose a minimum of nine additional credit hours from the following courses. The broad range and large number of these courses reflects the multiple engineering disciplines inherent in Naval Engineering.

<b>XXX</b>	<b>4xxx</b>	<b>Capstone Design Course with approved NE focus; SE, Team and Project Mgmt components</b>	<b>3</b>
<b>XXX</b>	<b>4994</b>	<b>Undergraduate Research w/NE focus (6 w/above)</b>	<b>3</b>
<b>AOE</b>	<b>3204</b>	<b>Naval Architecture</b>	<b>3</b>
<b>AOE</b>	<b>4244</b>	<b>Marine Engineering**</b>	<b>3</b>
<b>AOE</b>	<b>5314</b>	<b>Naval Ship System Design (NAVE2)</b>	<b>3</b>
<b>AOE</b>	<b>3264</b>	<b>Resistance and Propulsion of Ships**</b>	<b>3</b>
<b>AOE</b>	<b>3104</b>	<b>Aircraft Performance**</b>	<b>3</b>
<b>AOE</b>	<b>3134</b>	<b>Stability and Control**</b>	<b>3</b>

AOE	4234	Aerospace Propulsion Systems**	3
AOE	4140	Spacecraft Dynamics and Control**	3
CEE	3104	Introduction to Environmental Engineering	3
CEE	3304	Fluid Mechanics for CEE	3
CHE	2164	Chemical Engineering Thermodynamics	3
CHE	3044	Heat Transfer	2
CHE	3184	Chemical Reactor Analysis and Design**	3
CHE	4134	Chemical Process Modeling**	2
CS	3724	Introduction to Human-Computer Interaction**	3
CS	3114	Data Structures and Algorithms**	3
CS	3204	Operating Systems**	3
CS	3304	Comparative Languages**	3
ECE	3054	Electrical Theory**	3
ECE	3304	Introduction to Power Systems**	3
ECE	4224	Power Electronics**	3
ECE	3574	Applied Software Engineering**	3
ECE	2704	Signals and Systems	3
ECE	3504	Digital Design I**	4
ECE	2500	Computer Organization & Architecture	3
ESM	2204	Mechanics of Deformable Bodies	3
ESM	3015	Fluid Mechanics I, II	3
ESM	3054/3064	Mechanical Behavior of Materials	3
ESM	4044	Mechanics of Composite Materials**	3
ESM	4734 (AOE 4024)	An Introduction To The Finite Element Method**	3
ISE	3614	Intro to Human Factors Engineering	3
ISE	2014	Engineering Economy	2
ISE	2404	Deterministic Operations Research	3
ISE	3414	Probabilistic Operations Research**	3
ISE	3624	Industrial Ergonomics	3
ISE	4005	Project Management and System Design**	3
ME	3124	Thermodynamics	3
ME	3304	Heat and Mass Transfer	3
ME	3404	Fluid Mechanics	3
ME	3514	System Dynamics	3
ME	4124	CAD of Fluid-Thermal Systems**	3
MSE	4164	Principles of Materials Corrosion	3
MSE	4034	Thermodynamics of Materials**	3
MSE	3054/3064	Mechanical Behavior of Materials	2
MSE	4354	Strength and Fracture**	1

\*\* Prerequisites may apply – see your advisor

This minor supports the requirements of the Naval Engineering Education Consortium (NEEC) in which students may also participate. The consortium provides opportunities for industry and US Navy mentors, projects, internships, co-ops and job opportunities.