FLORIDA ATLANTIC UNIVERSITY

NEW/CHANGE PROGRAM REQUEST
Undergraduate Programs

UUPC Approval 3-24-25
UFS Approval _____
Banner Posted _____
Catalog _____

Department Ocean & Mechanical Engineering

College COECS

Program Name
Ocean Engineering

☐ **New Program**
☑ **Change Program**

Effective Date
(TERM & YEAR)
Fall 2025

Please explain the requested change(s) and offer rationale below or on an attachment

Proposed changes in the requirements for the OE UG certificates (Naval Architecture, Underwater Acoustics, and Marine Materials and Offshore Engineering). For each certificate, we propose to reduce the credit hours requirement from 15 to 12; to provide equivalent 6000 level courses and include more elective courses so that OE students can pursue BS/MS and satisfy one or more of the OE UG certificate requirements without requiring taking additional courses.

Proposed Changes in the OE Junior Tech Elective requirements by adding EGN 5908, EOC 4620, and EOC 6625 to the current list so the OE students can pursue BS/MS and satisfy one or more of the OE UG certificate requirements

Faculty Contact/Email/Phone
Dr. P. Edgar An/pan@fau.edu/561-297-2792

Consult and list departments that may be affected by the change(s) and attach documentation

Approved by	***Date***
Department Chair Pierre Philippe Beaujean	3/12/2025
College Curriculum Chair Galan Liu	3/13/25
College Dean	3/13/25
UUPC Chair Korey Sorge	3-24-25
Undergraduate Studies Dean Dan Meeroff	3-24-25
UFS President	
Provost	

Email this form and attachments to mjenning@fau.edu one week before the UUPC meeting so that materials may be viewed on the UUPC website prior to the meeting.

NAVAL ARCHITECTURE
UNDERGRADUATE CERTIFICATE

This undergraduate certificate in Naval Architecture, offered by the Ocean and Mechanical Engineering Department, is designed to combine broad engineering disciplines with knowledge of engineering principles specific to naval architecture. This ~~15~~- **12** credit program supports the preparation of students to work at ocean engineering/maritime companies and governmental agencies that specialize in ship design and naval architecture.

To earn this certificate, a student must successfully complete the following ~~15~~- **12** credits:

Curriculum
To earn this certificate, a student must successfully complete the following:

~~Ocean Wave Mechanics~~	~~EOC 4422~~	~~3~~
Two courses (6 credits) in the field of naval architecture from the following list		
Ship Hydrodynamics	EOC 4124	3 **or**
Hydrodynamic Aspects of Ship Design	EOC 6515	3
Ocean Structures	EOC 4412	3 **or**
Offshore Structures	EOC 6431	3
~~Introduction to Ship Structural Design~~	~~EOC 4510~~	~~3 or~~
~~Ship Structural Design~~	~~EOC 6516~~	~~3~~
One course (3 credits) from the following list		
Professional Internship (in a related area)	IDS 3949	3
Finite Element Analysis in Engineering Design	EGM 4350	3
Directed Independent Research in Engineering and Computer Science	EGN 4915	3 **or**
Honors Directed Independent Study	EGN 5908	3
Introduction to Ocean Instrumentation	EOC 4620	3 **or**
Ocean Instrumentation	EOC 6625	3
A faculty-mentored design/research project with elements of naval architecture (3 credits)		
RI: Ocean Engineering Systems Control and Design	EOC 4804	3

UNDERWATER ACOUSTICS
UNDERGRADUATE CERTIFICATE

The undergraduate certificate in Underwater Acoustics, offered by the Ocean and Mechanical Engineering Department, is designed to combine broad engineering disciplines with knowledge of engineering principles specific to underwater acoustics. The program supports the preparation of students to work at companies and governmental agencies that specialize in underwater acoustics.

To earn this certificate, a student must successfully complete the following ~~15~~ **12** credits:

Two courses (6 credits) in the field of underwater acoustics		
Acoustics for Ocean Engineers	EOC 3306	3
Underwater Acoustics	EOC 4307C	3 **or**
Ocean and Seabed Acoustics	EOC 6312	3
~~**One course (3 credits) from the following list**~~	~~-~~	~~-~~
~~Ship Hydrodynamics~~	~~EOC 4124~~	~~3 or~~
~~Hydrodynamic Aspects of Ship Design~~	~~EOC 6515~~	~~3~~
~~Ocean Structures~~	~~EOC 4412~~	~~3 or~~
~~Offshore Structures~~	~~EOC 6431~~	~~3~~
One course (3 credits) from the following list		
Professional Internship	IDS 3949	3
Finite Element Analysis in Engineering Design	EGM 4350	3
Directed Independent Research in Engineering and Computer Science	EGN 4915	3 **or**
Honors Directed Independent Study	EGN 5908	3
Introduction to Ocean Instrumentation	EOC 4620	3 **or**
Ocean Instrumentation	EOC 6625	3
Vibration Synthesis and Analysis	EGN 4323	3
A faculty-mentored design/research project with elements of underwater acoustics (3 credits)		
RI: Ocean Engineering Systems Control and Design	EOC 4804	3

MARINE MATERIALS AND OFFSHORE ENGINEERING
UNDERGRADUATE CERTIFICATE

The undergraduate certificate in Marine Materials and Offshore Engineering, offered by the Ocean and Mechanical Engineering Department, is designed to combine broad engineering disciplines with knowledge of engineering principles specific to materials and structures. This ~~15~~- **12**-credit program supports the preparation of students to work at ocean engineering/maritime companies and governmental agencies that specialize in marine materials and offshore structures.

To earn this certificate, a student must successfully complete the following:

	~~Strength of Materials~~	~~EGN 3331~~	~~3~~
	Two courses (6 credits) in the field of engineering materials and structures		
	Marine Materials and Corrosion Special Topics in Ocean Engineering	EOC 4201C or EOC 5934	3
	Ocean Structures	EOC 4412	3 **or**
	Offshore Structures	EOC 6431	3
	One course (3 credits) from the following list		
	Professional Internship (in a related area)	IDS 3949	3
	Finite Element Analysis for Engineering Design	EGM 4350	3
	Directed Independent Research in Engineering and Computer Science	EGN 4915	3 **or**
	Honors Directed Independent Study	EGN 5908	3
	Introduction to Ocean Instrumentation	EOC 4620	3 **or**
	Ocean Instrumentation	EOC 6625	3
	A faculty-mentored design/research project with elements of marine materials and offshore engineering (3 credits)		
	RI: Ocean Engineering Systems Control and Design	EOC 4804	3

Proposed Changes in the OE Junior Tech Elective Requirements

We propose to add EGN 5908 (DIR), EOC 4620 (Intro to Ocean Instrumentation), and EOC 6625 (Ocean Instrumentation) to the list for the OE Junior Tech Elective Courses. In doing so, OE students who are interested in pursuing BS/MS degree programs can transfer credit hours of EGN 5908 to the master's degree requirements.

The proposed courses to be added for the OE Junior Tech Elective Courses is shown in red below.

OCEAN ENGINEERING
BACHELOR OF SCIENCE (B.S.)

Ocean Engineering Core		
C for Engineers	EEL 2161	3
Electro-Mechanical Devices	EGM 4045	3
Fundamentals of Engineering	EGN 1002	3
Statics	EGN 3311	3
Dynamics	EGN 3321	3
Strength of Materials	EGN 3331	3
Engineering Thermodynamics	EGN 3343	3
Engineering Materials 1	EGN 3365	3
Vibration Synthesis and Analysis	EGN 4323	3
Dynamic Systems	EGN 4432	3
Fabrication of OE Systems	EOC 2801	1

Ocean Engineering Fluid Mechanics	EOC 3123	4
Ocean Engineering Lab	EOC 3130L	3
Materials 1 – Marine Topics	EOC 3213	1
Acoustics for Ocean Engineers	EOC 3306	3
Structural Analysis	EOC 3410C	3
Ocean Thermal Systems	EOC 4193	3
Ocean Wave Mechanics	EOC 4422	3
Ocean and Environmental Data Analysis	EOC 4631C	3
RI: Ocean Engineering Systems Control and Design	EOC 4804	3
RI: Ocean Engineering Systems Control and Design Laboratory	EOC 4804L	4
Choose one of the following four junior elective courses:		
Innovative Sensing and Actuation Technology	EGN 4670C	3
Directed Independent Research in Engineering and Computer Science	EGN 4915	3
Finite Element Analysis for Engineering Design	EGM 4350	3
Professional Internship	IDS 3949	3
Honors Directed Independent Research	EGN 5908	3
Introduction to Ocean Instrumentation	EOC 4620	3
Ocean Instrumentation	EOC 6625	3