

2019-2020 EDUCATIONAL SKILL REQUIREMENTS
Ocean Engineering
1103 Subspecialty
472 Curriculum

1. Curriculum Number: 472 (Ocean Engineering).
2. Curriculum taught at Civilian Institutions:

Florida Atlantic University
University of Hawaii
Oregon State University
University of Rhode Island
University of Delaware
University of North Florida
Texas A&M University
University of New Hampshire
3. Students are Fully Funded.
4. Curriculum Length in Months: 15-18 Months.
5. APC Required: N/A.
6. CEC Community Manager has agreed to allow billets to be coded for Facilities Engineering/1101 and officers to be educated for this curriculum.

Designator	Officer Community Manager	Approval Date
5100	LCDR Henry Suter	1 August 2018

7. The officer must understand the fundamental concepts and be familiar with the basic functional areas of Ocean Engineering within the Department of the Navy (DON) and the Department of Defense (DoD) including:
 - a. Ability to measure and apply the environmental loading effects of wind, currents, waves, and, if available, seismic activity to the design of flexible and rigid structures. **(Environmental Loading)**
 - b. Working knowledge of seafloor sediment and rock, including types and properties, sampling and testing, and ability to use this knowledge to determine facility foundation and anchoring requirements. **(Geotechnical course preferably including marine applications)**
 - c. Understanding of the types of marine materials, their engineering properties, principles of corrosion, and the techniques of cathodic protection for ocean facilities. **(Marine Materials Design)**

d. Working knowledge of physical oceanography, including a thorough understanding of seawater properties, currents, tides, and meteorological conditions, and ability to predict operational and extreme environmental conditions through the application of advanced probability analysis of wave spectra and classical wave theories. **(Physical Oceanography Course)**

e. Understanding of coastal processes, storm surge, tides, and other physical factors that affect the static and dynamic coastal geomorphology and sediment transport. Ability to determine the effects on structures, shorelines, and harbors. **(Coastal Processes and/or Coastal Engineering Course)**

f. Understanding of hydrodynamics including fluid flow behavior, resistance determination, and modeling of facility behavior under scaled conditions. **(Hydrodynamics or Advanced Fluid Mechanics Course)**

g. Working knowledge of design methodologies for ocean structures, including finite element and difference models, modal analysis, and general quasi-static analysis. Application of the principles of fatigue and fracture mechanics to the design of ocean facilities. **(Numerical Modeling)**

h. Basic knowledge of ocean construction practices including methods and limitations of working in the offshore environment on fixed and floating facilities, pipelines, cables, and mooring systems. **(Design Course - with ocean project as chosen design)**

i. Knowledge of the principles and application of one (1) of the following topics:

(1) Underwater acoustics.

(2) Naval architecture.

(3) Marine engineering.

(4) Project/Program management and systems engineering.

(5) Hyperbaric design.

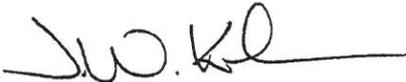
(6) Instrumentation.

j. Knowledge of problems meeting the growing energy demand. Selection of energy sources and their corresponding advantages and disadvantages. **(Energy Demand and Sources)**

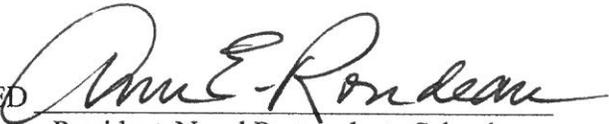
k. Proficiency in oral and written communications and ability to identify, research, and recommend alternatives to various engineering problems for presentation to both technical and non-technical managers. **(Communications)**

1. A thesis or major report is required for the degree. The topic selected must be applicable to the type of ocean engineering problems typically found in the Navy, or extends knowledge in a particular technical engineering area. POC for coordination of thesis topic is Deputy OFP Director, (805) 982-5871. **(Thesis/Project)**

2019-2020 EDUCATIONAL SKILL REQUIREMENTS
Facilities Engineering
1103 Subspecialty
472 Curriculum

APPROVED 
Chief of Civil Engineers

23 FEB 19
(Date)

APPROVED 
President, Naval Postgraduate School

20 MAR 2019
(Date)

APPROVED 
Director, TFMTE (OPNAV N12)

10 JUN 15 2015
(Date)