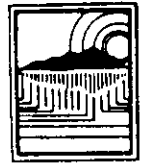


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COAST NOTES



A Virgin Islands Marine Advisory Services Publication

VIMAS is a branch of

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Marine Careers Series

Careers in Ocean Engineering

From increases in fishing to oil and mineral extraction and explorations of the deepest point in the ocean some seven miles below the surface, we are constantly expanding our use of the ocean. More and more often, solutions to problems incurred while working and studying in marine environments must be developed by ocean engineers. Ocean engineering is one of the most rapidly growing marine-related career fields.

What do ocean engineers do?

Ocean engineers design equipment and tools for exploring and working in marine and coastal environments. The items they design may be subject to great pressures, extreme temperatures, corrosive elements and other physical and chemical forces. The engineering considerations needed for the design of such

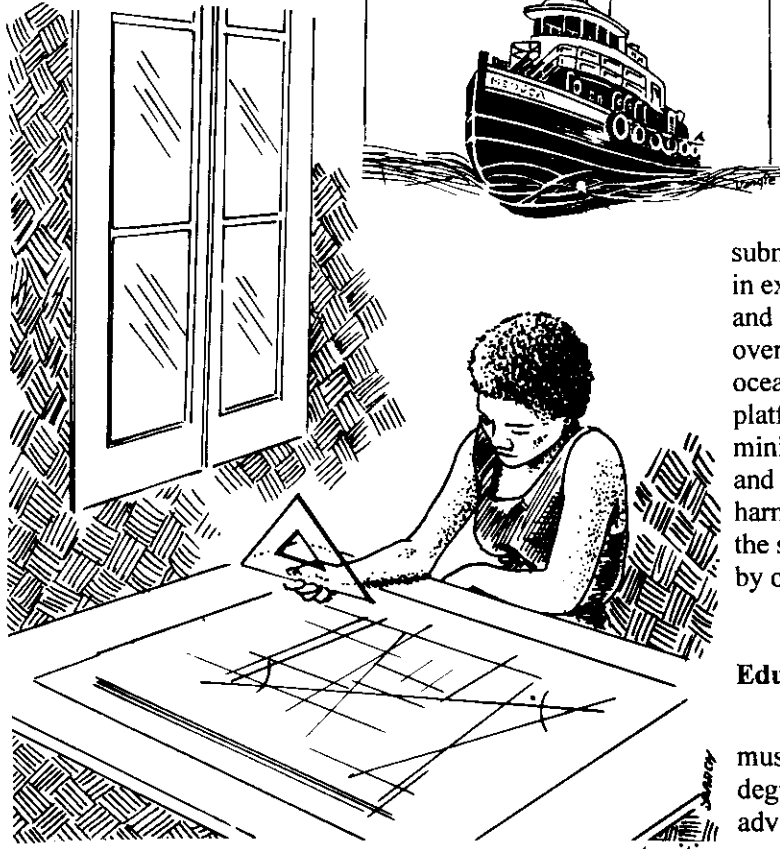
items are very different from those needed to

design equipment used on land. New materials and designs are continuously being developed to improve our access to the depths and limits of the sea.

Ocean engineers also design the ships, submersibles and submarines that are used in exploring, traveling and transporting goods over and under the oceans. Stationary platforms for drilling and mining seabed minerals, and technologies for harnessing energy from the sea are also designed by ocean engineers.

Education

Ocean engineers must have an engineering degree. The more advanced the degree, the more career opportunities are available.



High school students can prepare for a career in ocean engineering by completing as many math and science courses as possible, including calculus, chemistry, and physics. Computer courses are essential.

Financial aid, work study and scholarships are often available to help pay the cost of completing the bachelor's degree. Check with the college or university of your choice for more details. Most universities have scholarships, fellowships and assistantships or internships for marine engineering studies at the graduate level.

Careers in Ocean Engineering

Acoustical engineer - designs and builds sound systems used in the marine environment. These may be used for remote sensing (sonar), underwater communications, and locating gas and oil deposits, for example.

Civil engineer - plans, designs, supervises and inspects the construction and maintenance of coastal structures such as bridges, tunnels, ports and pipelines.

Coastal and ocean engineer - studies beach erosion, sand drift and the effects of tides, currents and weather on the stability of coastal features; helps determine the placement of dikes, pilings, drilling rigs, breakwaters, etc.; studies the physical forces that affect harbor, inlet and waterway maintenance; researches and develops materials to be used in and near salt water.

Electronics engineer - designs highly sensitive electronic instruments for all phases of oceanic research, including sonar, radar, ship-to-shore communication equipment, and a wide range of biological, physical and chemical monitoring systems.

Environmental engineer - applies engineering principles and practices to oceanic environmental problems in order to improve or protect living conditions in coastal communities; helps to limit the destruction of natural resources and to wisely develop and manage coastal areas.

Fisheries engineer - designs and operates a wide range of fishing gear including pumps, engines,

fishing tackle and dock-side facilities for fish handling.

Hydrologist - studies and forecasts floods and their effects; analyzes river flow; studies the hydrological cycle (the movement of water between the earth, ocean and atmosphere); conducts storm research.

Mechanical engineer - designs, develops and builds tools; designs and tests the reliability of manufactured parts; works on marine engines, generators, steering mechanisms, castings, pumps, hydraulic systems, plumbing and hardware.

Oceanographic equipment engineer - designs and builds systems and instruments for oceanographic research and operation; lays cables; supervises underwater construction; locates and recovers sunken vessels and their cargo.

Plastics engineer - studies the properties and structure of plastic and fiberglass materials; studies, develops and performs processes such as extrusion, dye casting and vacuum forming.

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This is one of a series of Coast Notes on marine careers. The series includes Careers in Marine Biology; Physical and Chemical Oceanography; Ocean Engineering; Medicine and Health; Planning Management and Legal Professions; and Technical Careers.