

University Of California, Berkeley
Department of Mechanical Engineering

ME 164: Marine Statics and Structures (3units)

Undergraduate Elective

Syllabus

CATALOG DESCRIPTION

Terminology and definition of hull forms, conditions of static equilibrium and stability of floating submerged bodies. Effects of damage on stability. Structural loads and response. Box girder theory. Isotropic and orthotropic plate bending and buckling. Also listed as Ocean Engineering C164.

COURSE PREREQUISITES

CEE 130 or consent of instructor

TEXTBOOK(S) AND/OR OTHER REQUIRED MATERIAL

Principles of Naval Architecture, Vol. I, II, and III, edited by E.V. Lewis, SNAME, 1988.
Ship Design and Construction, edited by R. Taggart, SNAME 1980.

COURSE OBJECTIVES

This course is intended to introduce the students to commonly used concepts and terminology related to the hydrostatics and design of floating structures.

DESIRED COURSE OUTCOMES

Approach to conceptual and preliminary design of ships, offshore platforms and other marine structures.

TOPICS COVERED

Terminology and definitions; hydrostatic equilibrium and stability; effect of free surface on stability; stability at large angles of heel; effect of damage on stability; structural loads; box girder analysis; isotropic and orthotropic plate theory; design considerations.

CLASS/LABORATORY SCHEDULE

Three hours of lecture per week.

CONTRIBUTION OF THE COURSE TO MEETING THE PROFESSIONAL COMPONENT

This course content is approximately 33% design and 67% analysis.

RELATIONSHIP OF THE COURSE TO ABET PROGRAM OUTCOMES

An ability to apply knowledge of mathematics, science, and engineering. An ability to identify, formulate, and solve engineering problems. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

ASSESSMENT OF STUDENT PROGRESS TOWARD COURSE OBJECTIVES

Exams, homework.

PERSON(S) WHO PREPARED THIS DESCRIPTION:

[Alaa Mansour](#)