

TuTh 11-12:30, 3105 Etcheverry CC #55725

Pre-requisite: ME106 or CEE100

Outline and Tentative Schedule

<u>Week of (Tuesday)</u>	<u>Topics</u>	<u>Reading Assigned</u>
8/27	Dimensional analysis; special examples	[A: §1-3]
9/1	Boundary layers, form drag; Geometry of hulls	Lectures
9/8	Froude's hypothesis, model-testing theory	[A: §4-§5.9, §8]
9/15	Resistance prediction, wave drag, hull design implications	[A: 6.1-6.6, 6.7-8 (skim)]
9/22	Oscillatory loads, drag and inertia coefficients	lectures
10/6	2D Lifting flow, Actuator-disk theory,	[B, §1-2.3, 4.1-4.3]
10/6	<u>Towing resistance - RFS Laboratory Experiment</u>	Lectures -
10/13	Geometry of propeller, Midterm Quiz	Lectures
10/20	Flow into propeller, Propeller testing	[B: §7]
10/27	Cavitation, Propeller design from series data	[B: §8]
11/3	"Parallelism" to Tidal Turbines	Lectures
11/10	Simple harmonic waves, wave properties	[V2: VIII, §1-2.5]
11/17	Orbital motions, Wave superposition, group velocity	[2.6-2.11]
11/24	Floating-body Dynamics - Hydrostatics & Response	[3.1-4] [3.5-3.7]
12/1	Ocean-wave energy-extraction devices / Thanksgiving	Lectures
12/8	RRR Week – Review & Discussions	Lectures
12/16(Wed)	Final Exam - 08:00-11:00 AM	

Text: Principles of Naval Architecture Series, ed. J. R Paulling, The Society of Naval Architects & Marine Engineers Publisher, 2010

Book **A:** Ship Resistance and Flow, L. Larsson & H. Raven, designated as **A**

Book **B:** Propulsion by J. E. Kerwin & J. A. Hadler, designated as **B**

Principles of Naval Architecture, ed. E. V. Lewis, The Society of Naval Architects & Marine Engineers

Publisher: 1988, **vol. II**, Seakeeping and Maneuvering, designated as **V2** in reading list

R. W. Yeung - Lectures Notes of ME165 -

Supplementary Information:

Randall, R. E., Elements of Ocean Engineering, The Society of Naval Architects & Marine Engineers Publisher, 1997.

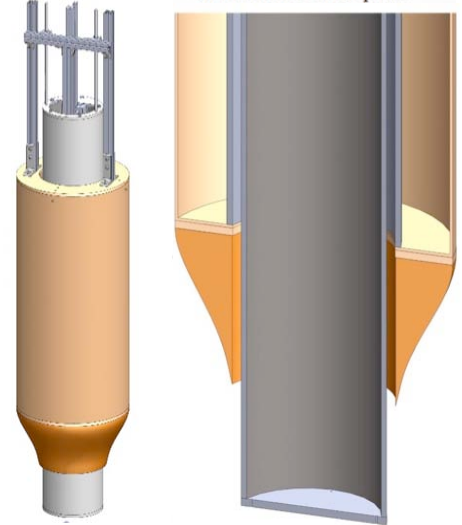
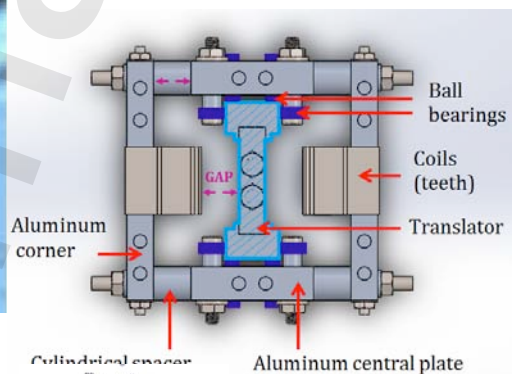
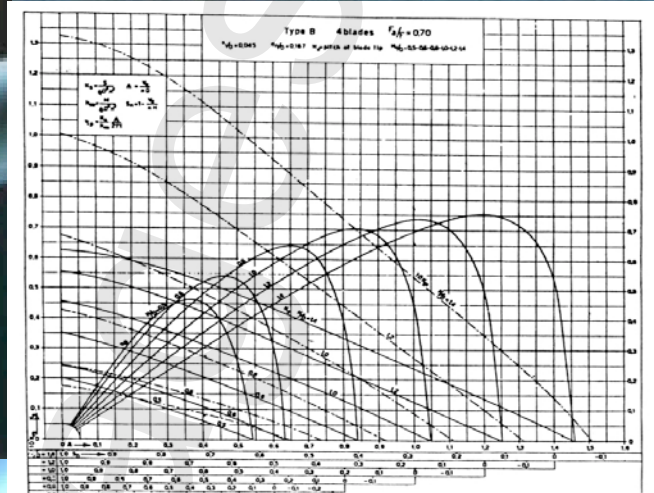
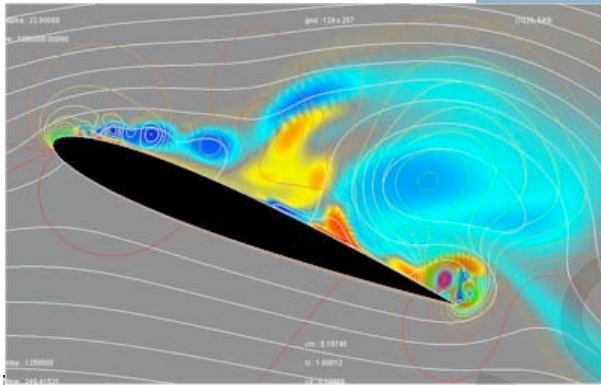
R. G. Dean & R. A. Dalrymple, Water Wave Mechanics for Engineers and Scientists, World Scientific Publishing, 1991 [Chapt. 3; Chapt. 7].

Grading System:

Homework (45%) Midterm Quiz (15%) Final Exam (40%)

Note: Depending on the dominant student interest, an alternate module is sometimes presented to replace material in the period marked II so as to cover the following topics:

Macroscopic conservation laws of the oceans, Geostrophic flows of the oceans, Combined horizontal and vertical motion due to wind shear.



2014/03/07