



## TEXAS A&M UNIVERSITY GALVESTON CAMPUS.

### MASE 485 - Directed Studies: Technical Elective

### COURSE SYLLABUS

COURSE INFORMATION      **Directed Studies - MASE 485  
Summer 2015**

COURSE INSTRUCTOR      Masoud Hayatdavoodi, Ph.D.      *Office:* PMEC 117  
Instructional Assistant Professor      *E-mail:* masoud@tamu.edu  
Maritime Systems Engineering Department      *Website:* <http://people.tamu.edu/~masoud/>

CLASS SCHEDULE      TBA

OFFICE HOURS      Tuesday:      03:00PM-05:00PM,  
Thursday:      03:00PM-05:00PM,  
And by appointments.

GRADING      Items **a-e** of the attached Content Syllabus      70%  
Items **f-j** of the attached Content Syllabus      30%  
The course cannot be considered complete without a satisfactory delivery of item e. The completeness of the tasks will be assessed by the course instructor.

GRADING SCALE      A ≥ 90%  
B ≥ 75%  
C ≥ 60%  
D ≥ 50%  
F < 50%

TEXTBOOK      • **Suggested Reference Books:**  
Gillmer, Thomas C. and Johnson, Bruce (1982), "Introduction to Naval Architecture," Naval Institute Press, Annapolis, Maryland, ISBN: 978-0870213182, 324 pp.  
  
Letcher, John, Edth. Paulling, J. Randolph (2010) "Principles of Naval Architecture Series: The Geometry of Ships," SNAME, ISBN: 978-0939773671, 58 pp.

COURSE COMMUNICATIONS	Course-related material, along with class communications, are held on <i>eCampus</i> through <i>Howdy</i> portal. Students are expected to check and use the course webpage on regular basis.
COURSE DESCRIPTION	<ul style="list-style-type: none"><li>• Design and analysis of a General Cargo ship, presented in the form of a concise report, exceeding the level of a MASE 319 design project.</li><li>• Assistance in design, installation, execution and documentation of an instrumentation system for the departmental wave flume located in the Fluid Mechanics Laboratory.</li></ul>
LEARNING OUTCOMES	<p>The course is intended to familiarize students with hydrostatics, hydrodynamics and structural analysis of ships, offshore platforms and submarines. Students will practice hull line drawing, read design standards of classification societies, will use DNV Sesam software, and will write a concise report on the steps in design of a ship by use of DNV Sesam software. This course supports ABET criteria a-e, g-k, and criteria 4, 7 and 9.</p> <p>In addition, students will be involved and become familiar with design, installation, execution and documentation of laboratory systems and instruments, related to generation and measurements of water waves in a wave tank.</p>
PREREQUISITES	MASE 319 and OCEN 300. Junior or Senior classification or approval of instructor.
ATTENDANCE AND MAKE-UP POLICES	<p>Information concerning absences is contained in the University Student Rules Section 7 <a href="http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf">http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf</a>.</p> <p>The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. Late arrivals count as absences. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines as well as student grievance procedures (Part III, Section 45). If the absence is excused, the student will be provided an opportunity to make up any quiz, exam or other work that contributes to the final grade. The evaluation method will be decided by the instructor. The evaluation date is agreed upon by the student and instructor.</p>
ACADEMIC INTEGRITY	<p><i>An Aggie does not lie, cheat or steal, or tolerate those who do.</i></p> <p>For additional information visit: <a href="http://www.tamug.edu/HonorSystem">http://www.tamug.edu/HonorSystem</a>.</p>
AMERICANS WITH DISABILITIES ACT (ADA)	<p>The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Counseling Office, Seibel Student Center, or call (409)740-4587. For additional information visit: <a href="http://www.tamug.edu/counsel/Disabilities.html">http://www.tamug.edu/counsel/Disabilities.html</a>.</p>

TENTATIVE a. Design of the hull, and primary, secondary, and tertiary structural elements of a General  
CONTENT SYLLABUS Cargo Ship by use of the DNV GeniE software.

b. Hydrostatic and hydrodynamic analysis of the ship model by use of the DNV HydroD software.

c. Structural analysis of the ship model by use of the DNV Sestra software.

d. If time allows, analysis of wave loads on the ship model with forward speed by use of the DNV Wasim software; and further analysis of the ship model with the existing software and modules, to be determined by the course instructor.

e. A concise report outlining results and in-detail steps taken to accomplish the above items a-d. One should be able to follow the report and recreate the results without the need to do further research.

f. Assistance in preparing the existing wave flume in the Fluid Mechanics Laboratory. This includes design, installation, execution and documentation of the necessary equipment (wave gauges, velocimeters, pressure gauges etc). Full completion of the task is pending further action by the department in ordering the equipment.

g. Design of an appropriate data transferring and acquisition system between the instruments and a computer, with the goal of reading and recording the measured data by a data-processing software (e.g., LabVIEW). Full completion of the task is pending further action by the department in completing item f above.

h. Design and installation of a sponge wave absorber for the wave flume.

i. Design, construction and installation of removable vertical walls to be placed at different locations in the tank for the purpose of studying standing waves.

j. If time and resources allow, running a series of test cases in the wave flume and presenting the data in a report.