TEXAS A&M UNIVERSITY
GALVESTON CAMPUS.

MASE 319 - Fundamentals of Naval Architecture Design I *COURSE SYLLABUS*

Course Information

Fundamentals of Naval Architecture Design I - MASE 319
Fall 2015

Course Instructor

Masoud Hayatdavoodi, Ph.D.
Instructional Assistant Professor
Ocean Engineering Department

Office: PMEC 117
E-mail: masoud@tamu.edu
Website: http://people.tamu.edu/~masoud/

Class Schedule

- **Lecture:** Monday, Wednesday 10:00 AM to 10:50 AM at PMEC 148
- **Laboratory:** Friday, 8:00 AM - 10:50 AM at PMEC 148 and PMEC 172

Office Hours

Monday, Wednesday, Friday: 02:00PM-03:00PM,
And by appointment.

Grading

Assignments	15%
Midterm Exam	20%
Project*	35%
Final Exam	30%

* Project will be graded based on the presentations, reports and participation.

Grading Scale*

A $\geq 90\%$
B $\geq 75\%$
C $\geq 60\%$
D $\geq 50\%$
F $< 50\%$

* Students must obtain minimum 50% of the project grade to pass the course.

Textbook

- **Required:**
  Gillmer, Thomas C. and Johnson, Bruce (1982), "Introduction to Naval Architecture," Naval Institute Press, Annapolis, Maryland, ISBN: 978-0870213182, 324 pp.
- **Alternative Reference Books:**
  Zubaly, Robert B. (1996), "Applied Naval Architecture," Cornell Maritime Press, Inc., ISBN: 978-0870334757, 360 pp.

  Lester, Alan Robert (1985), "Merchant Ship Stability," Butterworths, ISBN: 978-0408014489, 314 pp.

  Tupper, Eric C. (2013), "Introduction to Naval Architecture," Fifth Edition, Butterworth-Heinemann, ISBN: 978-0080982373, 496 pp.

  Letcher, John, Edth. Paulling, J. Randolph (2010) "Principles of Naval Architecture Series: The Geometry of Ships," SNAME, ISBN: 978-0939773671, 58 pp.

  Moore, Colin S., Edth. Paulling, J. Randolph (2010) "Principles of Naval Architecture Series: Intact Stability," SNAME, ISBN: 978-0939773749, 82 pp.

  Kerwin, Justin E. and Hadler, Jacques B. (2010) "Principles of Naval Architecture Series: Propulsion," SNAME, ISBN: 978-0939773831, 208 pp.

  Larsson, Lars and Raven, Hoyte C. (2010) "Principles of Naval Architecture: Ship Resistance & Flow," SNAME, ISBN: 978-0939773763, 223 pp.

  David F. Beer, David A. McMurrey (2013) "A Guide to Writing as an Engineer," Wiley; 4 edition, ISBN: 978-1118300275, 288 pp.

Course Communications	Course-related material, along with class communications, are held on *eCampus* through *Howdy* portal. Students are expected to check and use the course webpage on regular basis.
Course Description	Introduction to Naval Architecture. Terminology. Hydrostatics and Hydrostatic Stability. Processes of the design of ships, semi-submersibles and underwater vehicles including layout, arrangements, construction and construction techniques. Hull design of ships, underwater vehicles and mobile offshore drilling units (MODUS).
Learning Outcomes	The course is intended to familiarize students with hydrostatics, hydrodynamics and some structural considerations of ships, offshore platforms and submarines. Upon completion of this course, students should be able to discuss ship geometry, Buoyancy and Stability, Damage Stability, Ship Resistance, Ship Strength and Structure and Ship Powering. Students will practice hull line drawing, read design standards of classification societies, will use Sesam software, and will conduct laboratory experiments on ship hydrostatics and hydrodynamics. Students will experience prototype-scale experiments through multiple field trips. This course supports ABET criteria a-e, g-k, and criteria 4, 7 and 9.
Prerequisites	CVEN311, CVEN345, ENGR221, MASE214. Junior or Senior Classification or approval of instructor. Enrollment in OCSE Major Degree Sequence.
Attendance and Make-up Polices	Information concerning absences is contained in the University Student Rules Section 7 `http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf`. 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.
Academic Integrity	*An Aggie does not lie, cheat or steal, or tolerate those who do.* For additional information visit: `http://www.tamug.edu/HonorSystem`.
Americans with Disabilities Act (ADA)	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: `http://www.tamug.edu/counsel/Disabilities.html`.

TENTATIVE SCHEDULE

MONDAY	WEDNESDAY	FRIDAY
Aug 31st **1** Course Introduction	Sep 2nd **2** Preliminaries	4th **3** Hull Line Drawing
7th **4** Hydrostatics	9th **5** Hydrostatics	11th **6** Introduction to Sesam
14th **7** Ship Geometry	16th **8** Irregular Shapes and Numerical Methods	18th **9** Writing Lab Review; Pontoon Test
21st **10** Buoyancy and Stability	23rd **11** Buoyancy and Stability	25th **12** Project Introduction; Stability Test
28th **13** Buoyancy and Stability	30th **14** Stability at Large Angles	Oct 2nd **15** Project Revision; Field Trip: Ship Visit
5th **16** Longitudinal Stability	7th **17** Longitudinal Stability	9th **18** Project Revision; Field Trip: Ship Visit
12th **19** Damage Stability	14th **20** **Midterm Review**	16th **21** **Midterm Exam**
19th **22** Damage Stability	21st **23** Ship Strength and Structure	23rd **24** Project Revision; Field Trip: West Gulf Marine
26th **25** Ship Strength and Structure	28th **26** Ship Strength and Structure	30th **27** **Project Midterm Presentation**; Field Trip: Gulf Copper
Nov 2nd **28** Classification Societies	4th **29** Dimensional Analysis and Model Testing	6th **30** Project Revision; Field Trips: Southwest Shipyard & Rolls Royce
9th **31** Ship Resistance	11th **32** Ship Resistance	13th **33** Project Revision; Field Trip: Ship Visit
16th **34** Ship Resistance	18th **35** Ship Powering	20th **36** Ship Resistance Field Experiment
23rd **37** Ship Powering	25th **38** Propellers and Propulsion Systems	27th **Thanksgiving Holiday**
30th **39** Propellers and Propulsion Systems	Dec 2nd **40** Project Revision	4th **41** Project Revision
7th **42** **Project Presentation**	9th **43** **Final Exam Review**	11th **44** **Final Exam**

Final Exam: Friday, December 11, 2015, 8:00 AM to 10:00 AM, PMEC 148.