TEXAS A&M UNIVERSITY
GALVESTON CAMPUS.

OCEN 362 - HYDROMECHANICS *COURSE SYLLABUS*

Course Information

Hydromechanics - OCEN 362
Spring 2015

Course Instructor

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Class Schedule

- **Lecture:** Monday, Wednesday, Friday 10:00AM - 10:50AM at SAGC 409

Office Hours

Monday: 03:00PM-05:00PM,
Wednesday: 03:00PM-05:00PM,
Friday: 03:00PM-05:00PM.

And by appointments.

Grading

Assignments	30%
Midterm Exam	30%
Final Exam	40%

Grading Scale

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

Textbook

- **Required:**
  Newman, John N. (1977), Marine Hydrodynamics, The MIT Press, 432 pp., ISBN: 978-0262140263.

- **Alternative Reference Books:**
  Kundu, Pijush K., Cohen, Ira M., Dowling, David R. (2011), Fluid Mechanics, Academic Press; 5 edition, 920 pp., ISBN: 978-0123821003.

  Chakrabarti, S.K. (2003), Hydrodynamics of Offshore Structures, WIT Press / Computational Mechanics, 464 pp., ISBN: 978-0905451664.

  Sarpkaya, Turgut and Isaacson, Michael (1981), Mechanics of Wave Forces on Offshore Structures, Van Nostrand Reinhold Company; First edition, 651 pp., ISBN: 978-0442254025.

  Lamb, Sir Horace (1945), Hydrodynamics, Dover Publications; 6 edition, 768 pp., ISBN: 978-0486602561.

  Journe, J.M.J. and Massie, W.W. (2001), Offshore Hydromechanics, Delft University of Technology, First Edition, 570 pp., available online at
  http://www.shipmotions.nl/DUT/LectureNotes/OffshoreHydromechanics.pdf.

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 (AS IN CATALOG)	Kinematics of fluids, incompressible, irrotational and turbulent flow. Navier-Stokes equations, flow of viscous fluids.
LEARNING OUTCOMES	The course in intended to familiarize students with kinematics and dynamics of incompressible fluids. Governing equations of real and ideal fluids will be discussed and examples will be solved. Upon completion of the course, students should be able to discuss fundamental concepts of effect of viscosity, formation of the boundary layer and wake region, laminar and turbulent flows, diffraction of linear water waves by a fixed or a freely floating rigid body and estimate the wave-induced loads on simple geometric shapes and find the equations of motions of floating structures.
PREREQUISITES	CVEN 311 and MATH 308. Junior or senior classification or approval of instructor.
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
Jan 19th **1**	21st **2** Course Introduction	23rd **3** Preliminaries
26th **4** Preliminaries	28th **5** Preliminaries	30th **6** Dimensional Analysis
Feb 2nd **7** Dimensional Analysis	4th **8** Dimensional Analysis	6th **9** Dimensional Analysis
9th **10** Viscous Fluid Motion	11th **11** Viscous Fluid Motion	13th **12** Viscous Fluid Motion
16th **13** Viscous Fluid Motion	18th **14** Viscous Fluid Motion	20th **15** Viscous Fluid Motion
23rd **16** Viscous Fluid Motion	25th **17** Mid-term Review	27th **18** **Mid-Term Exam**
Mar 2nd **19** Ideal Fluid Motion	4th **20** Ideal Fluid Motion	6th **21** Ideal Fluid Motion
9th **22** Ideal Fluid Motion	11th **23** Ideal Fluid Motion	13th **24** Ideal Fluid Motion
16th **25** **SPRING BREAK**	18th **26** **SPRING BREAK**	20th **27** **SPRING BREAK**
23rd **28** Ideal Fluid Motion	25th **29** Ideal Fluid Motion	27th **30** Ideal Fluid Motion
30th **31** Wave Diffraction	Apr 1st **32** Wave Diffraction	3rd **33** Reading Day; No Class
6th **34** Wave Diffraction	8th **35** Wave Diffraction	10th **36** Wave Diffraction
13th **37** Wave Loads	15th **38** Wave Loads	17th **39** Wave Loads
20th **40** Wave Loads	22nd **41** Wave Loads	24th **42** Wave Loads
27th **43** Floating Bodies	29th **44** Floating Bodies	May 1st **45** Floating Bodies
4th **46** **Final Exam Review**	6th **47** Reading Day; No Class	8th **48**

Midterm Exam: Friday, February 27, 2015, 10:00AM to 11:30AM.
Final Exam: Wednesday, May 13, 2015, 08:00AM to 10:00AM.