

OCEN 362 - HYDROMECHANICS

COURSE SYLLABUS

Course Information	Hydromechanics - OCEN 362 Spring 2016						
Course Instructor	Masoud Hayatdavoodi, Ph.D. Instructional Assistant Professor Maritime Systems Engineering Department	Office: PMEC 117 E-mail: masoud@tamu.edu Website:http://people.tamu.edu/~masoud/					
CLASS SCHEDULE	• Lecture: Monday, Wednesday, Friday 10:00AM - 10:50AM at PMEC 146						
Office Hours	Monday: 03:00PM-04:00PM, Wednesday: 03:00PM-04:00PM, Friday: 03:00PM-04:00PM.						
	And by appointments.						
Grading	Assignments30%Midterm Exam30%Final Exam40%						
Grading Scale	$\begin{array}{lll} A & \geq 90\% \\ B & \geq 75\% \\ C & \geq 60\% \\ D & \geq 50\% \\ F & < 50\% \end{array}$						
Τεχτβοοκ	 Required: Newman, John N. (1977), Marine Hydrodyn 0262140263. Kundu, Pijush K., Cohen, Ira M., Dowling, I Press; 5 edition, 920 pp., ISBN: 978-0123821 Alternative Reference Books: Chakrabarti, S.K. (2003), Hydrodynamics of tational Mechanics, 464 pp., ISBN: 978-0905 	amics, The MIT Press, 432 pp., ISBN: 978- David R. (2011), Fluid Mechanics, Academic 1003. f Offshore Structures, WIT Press / Compu- 5451664.					
	Sarpkaya, Turgut and Isaacson, Michael (1981), Mechanics of Wave Forces on Off- shore 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) sity of Technology, First Edition, 570 pp., av http://www.shipmotions.nl/DUT/Lecture), Offshore Hydromechanics, Delft Univer- vailable online at Notes/OffshoreHydromechanics.pdf.					

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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 incompress- ible 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 18th	1	20th	2	22nd	3
		Course Introduction		Preliminaries	
25th	4	27th	ĸ	20th	6
Droliminarios	4	27011 Droliminarios	9	Dimonsional Analysis	0
1 Temmaries		1 Tenninaries		Dimensional Analysis	
Feb 1st	7	3rd	8	5th	9
Dimensional Analysis		Dimensional Analysis		Dimensional Analysis	
8th	10	10th	11	19th	10
Viscous Fluid Motion	10	Viscous Fluid Motion	11	12011 Viscous Fluid Motion	14
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15th	13	17th	14	19th	15
Viscous Fluid Motion		Viscous Fluid Motion		Viscous Fluid Motion	
22nd	16	24th	17	26th	18
Viscous Fluid Motion		Viscous Fluid Motion		Viscous Fluid Motion	
29th	19	Mar 2nd	20	4th	21
Viscous Fluid Motion	-	Viscous Fluid Motion	-	Mid-term Review	
$7 \mathrm{th}$	22	$9\mathrm{th}$	23	11th	24
Mid-Term Exam		Ideal Fluid Motion		Ideal Fluid Motion	
14th	25	16th	26	18th	27
SPRING BREAK		SPRING BREAK		SPRING BREAK	
21st	28	23rd	29	25th	30
Ideal Fluid Motion		Ideal Fluid Motion		Reading Day; No Clas	\mathbf{s}
28th	31	30th	32	Apr 1st	33
Ideal Fluid Motion		Ideal Fluid Motion		Ideal Fluid Motion	
4th	34	6th	35	8th	36
Wave Diffraction		Wave Diffraction		Wave Diffraction	
1141	07	1941		1 841	90
IIth	37	13th	38	15th	39
Wave Diffraction		wave Diffraction		wave Diffraction	
18th	40	20th	41	22nd	42
Wave Loads		Wave Loads		Wave Loads	
25th	43	27th	44	29th	45
Floating Bodies		Floating Bodies		Floating Bodies	
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May 2nd	46	4th	47	6th	48
Final Exam Review		Reading Day; No Class	5		

Midterm Exam: Monday, March 07, 2016, 10:00AM to 11:30AM. **Final Exam:** Thursday, May 05, 2016, 08:00AM to 10:00AM.