Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

1. This request is submitted by the Department of Civil Engineering

2. Course prefix, number and complete title of course: OCEN 671 Ocean Wave Mechanics

3. Change requested
   a. Prerequisite(s): From: OCEN 462 or equivalent To: CVEN 311 or equivalent
   b. Withdrawal (reason):
   c. Cross-list with: [Cross-listed courses require the signature of both department heads.]
   d. Change in course title and description. Enter complete current course title and current course description in item 4; enter proposed course title and proposed course description in item 5.
   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 6. Attach a course syllabus.

4. Complete current course title and current course description:

5. Complete proposed course title and proposed course description (not to exceed 50 words):

6. a. As currently in course inventory:

   Prefix | Course # | Title (excluding pronunciation)
   -------|----------|---------------------------------
   OCEN   | 671      | OCEAN WAVE MECHANICS

   Ext. | Lab | SCH | CIP and Fund Code
   0   | 0   | 1   | 24  | 01  | 00  | 06  | 06  | 03  | 00  | 36  | 32  | 6

   b. Change to:

   Prefix | Course # | Title (excluding pronunciation)

   Ext. | Lab | SCH | CIP and Fund Code

   Approval recommended by: [Signature]
   Head of Department
   Date

   Chair, College Review Committee
   Date

   Dean of College
   Date

   Submitted to Coordinating Board by:

   [Signature]
   Associate Director, Curricular Services
   Date

   Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 10/08
Supporting statements for requested prerequisite changes:

OCEN 671: Listed prerequisite of OCEN 462 is a mistake; actual prerequisite is our undergraduate fluid mechanics course - CVEN 311.

OCEN 678: Listed prerequisite of CVEN 462 does not exist; actual prerequisite is our undergraduate fluid mechanics course - CVEN 311.

OCEN 682: Faculty feel material covered in OCEN 671 is required for proper understanding of material in this course. We want to make this information clear to the students, rather than simply requiring approval of instructor.

OCEN 683: Faculty feel material covered in OCEN 678 is required for proper understanding of material in this course. We want to make this information clear to the students, rather than simply requiring approval of instructor.
Course title and number  OCEN671 Ocean Wave Mechanics
Term (e.g., Fall 200X)  FALL 2008
Meeting times and location  MWF 9:10-10:00 CE203

Course Description and Prerequisites
Wave theory and applications to engineering problems; linear and nonlinear theories of regular gravity waves; wave properties and transformation in shoaling water; spectral analysis of irregular waves; forecasting, hindcasting and theoretical spectra. Prerequisite: OCEN462 or equivalent

Learning Outcomes or Course Objectives
The student will be able to: determine relevant wave properties in varying water depths; determine nearshore and shallow water properties of waves given deepwater information; determine properties of long waves (tidal waves, harbor seiches, storm surge); determine mass and momentum transport due to waves; calculate properties of nonlinear waves.

Instructor Information
Name  Dr. James M. Kaihatu
Telephone number  979-862-3511
Email address  jkaihatu@civil.tamu.edu
Office hours  MW 2-4pm
Office location  CE/TTI Rm 808D

Textbook and/or Resource Material

Grading Policies
Homework: 30%
Mid-term exam: 30%
Final exam: 40%

Grading Scale:
85-100: A
70-84.99: B
60-69.99: C
50-59.99: D
Below 50: F

Homework will be assigned at the end of each chapter and must be handed in by the due date before the end of each class. Late homework will not be accepted unless you have a University excuse (http://student-rules.tamu.edu/rule7.htm) and then only with advance notice where possible (with the exception of emergencies).
## Course Topics, Calendar of Activities, Major Assignment Dates


**Final Exam:** Take-home exam distributed Dec. 5, 2008 and collected Dec. 8, 2008

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
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<tbody>
<tr>
<td>Aug. 25-29</td>
<td>Introduction, Review of Relevant Fluid Mechanics and Mathematics</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>Sept. 1-5</td>
<td>Potential Function, Stream Function, Bernoulli Equation, Kinematic and Dynamic Boundary Conditions</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>Sept. 8-12</td>
<td>Formulation and Solution of the Linear Boundary Value Problem for Water Waves; Waves on Uniform Current</td>
<td>Chapter 3</td>
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<tr>
<td>Sept. 15-19</td>
<td>Kinematics, Dynamics and Pressure Field under Progressive and Standing Surface Waves</td>
<td>Chapter 4</td>
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<tr>
<td>Sept. 22-26</td>
<td>Wave Energy, Wave Refraction, Wave Breaking, Wave Diffraction</td>
<td>Chapter 4</td>
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<tr>
<td>Oct. 6-10</td>
<td>Reflection and Transmission, Seiching, Long Waves with Bottom Friction, Storm Surge</td>
<td>Chapter 5</td>
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<tr>
<td>Oct. 13-17</td>
<td>Wavemaker Theory: Piston and Flap. Directional Wavemakers. <strong>Take Home Exam Distributed; Take Home Exam Collected</strong></td>
<td>Chapter 6</td>
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<tr>
<td>Oct. 20-24</td>
<td>Waveheight Distributions, Wave Spectra</td>
<td>Chapter 7</td>
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<tr>
<td>Oct. 27-31</td>
<td>Time Series Analysis, Parameterized Spectra</td>
<td>Chapter 7</td>
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<tr>
<td>Nov. 3-7</td>
<td>Nonlinear Properties of Linear Waves; Mass Transport</td>
<td>Chapter 10</td>
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<td>Nov. 10-14</td>
<td>Momentum flux, Radiation Stress, Wave Setdown and Setup</td>
<td>Chapter 10</td>
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<td>Nov. 17-21</td>
<td>Perturbation Theory, Second Order Stokes Waves</td>
<td>Chapter 11</td>
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<tr>
<td>Nov. 24-28</td>
<td>Finite Amplitude Waves in Shallow Water, Solitary Waves, <strong>Thanksgiving Holiday</strong></td>
<td>Chapter 11</td>
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Dec. 1-5 – Review, **Take Home Final Distributed**

### Other Pertinent Course Information

#### Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation 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 Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

#### Academic Integrity

For additional information please visit: [http://www.tamu.edu/aggiehonor](http://www.tamu.edu/aggiehonor)

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”