Syllabus for PS160, Physics II for Engineers

Lectures:  MWF 11:30 am -12:30 pm in B58-106  
Final Exam: 12:30 – 2:30 pm, Wednesday, April 29, 2015 in B58-106  

Course website: http://mercury.pr.erau.edu/~greta9a1/students/classes.html. Click on the link for PS160. Any syllabus corrections will be noted on the course website. You are responsible for checking the course website regularly and keeping up with work assigned there. All course assignments will be posted to the website.

Office Hours*:  MWF 9:40 am – 11:20 am in AC1-254 (Office)  
TTh 1:00-3:30 in B61-101 (Modern Physics & Optics Lab)  
*Any changes to this schedule will be noted on Dr. Gretarsson’s calendar at http://mercury.pr.erau.edu/~greta9a1/calendar.html.

Instructor:  Dr. Andri M. Gretarsson,  
Office location: Building 77 (AC1), Rm 254  
Phone: 777-6800  
Email: greta9a1@erau.edu

Course Description (from catalog)  
This is a calculus-based study of the fundamental principles of classical mechanics and topics include, rotational motion, simple harmonic motion, waves, fluid, heat, kinetic energy, and thermodynamics.

Course Goals  
1. Define: General Properties of Matter, Simple Harmonic Motion, Postulates of kinetic theory, the first and second law of thermodynamics, entropy, basic temperature scales, specific heats at constant pressure and at constant volume, and Laws of Reflection and Refraction.  
2. Solve problems involving: Oscillatory motions involving small linear or rotational displacement, Bernoulli's equation for laminar flow, standing and traveling waves, Doppler shifts, constructive and destructive interference, entropy, first and second law of thermodynamics, one and two dimensional thermal expansion for isotropic and non-isotropic materials, and calorimetry.  
3. Analyze efficiencies of heat engines that utilize different cycles such the Carnot cycle, Sterling cycle, etc.  
4. Calculate \( V_{rms} \) for gases using kinetic theory, the average momentum for particles of such gases and the temperature of these gases.  
5. Explain the differences between kinetic theory and thermodynamics.  
6. Discuss the application of the kinetic theory leading to the equipartition of energy and to the ratio of specific heats of monatomic, diatomic and polyatomic gases and of solids.

Attendance  
"Regular attendance and punctuality according to the class schedule are expected at all times" . . .  
Don't miss class! - It's surprisingly easy to fall behind and very difficult to recover. The same goes for assigned work and reading. Discipline yourself to do them the week they are due. Putting them off simply does not work. Students who need to be absent from class for University-sanctioned reasons (e.g. athletic team travel, official ROTC events, etc.), must inform the professor in advance and provide documentation is in fact sanctioned by the University (e.g. a note or email from a coach or commander). For medical absences, please have your physician’s office, or the ERAU health clinic, send a note to the instructor as soon as possible. In all cases, the note must include a phone number where the relevant university staff member or physician can be reached. If you do have a university-sanctioned absence or a medical absence, it is your responsibility to arrange a time with the instructor to perform any missed work.
Homework
Homework is our main learning tool. Homework will be assigned every week and a random subset of the questions will be graded. Please discipline yourself to do the homework by the due date, no matter how busy you are. Homework cannot generally be accepted late.

Students with Disabilities
ERAU is committed to the success of all students. It is a University policy to provide reasonable accommodations to students with disabilities who qualify for services. If you would like to discuss and/or request accommodations please contact Disability Support Services, tel: 928-777-6750. All discussions are confidential.

Academic Honesty
Academic honesty is a requirement for passing this course. In other words, students who cheat on any coursework will receive a failing grade for the entire course. Cheating includes (but is not limited to): Copying homework, exchanging any information with another student during exams, using any materials on a test other than a pen and/or pencil. In addition, students who cheat will be reported to the University Administration and/or Student Judiciary Committee so that appropriate University-level sanctions can be applied in accordance with the “Student Rights and Responsibilities” section of the Student Services Handbook.

Weights towards course grade

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<tr>
<th></th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
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<tr>
<td>Midterm Exam</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
<td>45%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Meaning of letter grades

- **A** = 90 - 100%
- **B** = 80 - 90%
- **C** = 70 - 80%
- **D** = 60 - 70%