Course Title: Dynamics
CRN: 20423
Credit: 3
Term: Spring 2015
Meeting Place: N241
Meeting Times: MWF 10:00 – 10:50 a.m.
Prerequisites: CE 201
Prerequisites by Topics:

1. Algebra and trigonometry
2. Differential and integral calculus
3. Statics: vector algebra, free-body diagrams, static equilibrium, friction
4. Basic physics: rectilinear and circular motion, conservation of momentum and energy

Instructor: Dr. James Aflaki, Ph. D.
Office: N 109
Office Hours:

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<tr>
<td>MWF</td>
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<tr>
<td>MWF</td>
<td>11:00 – 12:00</td>
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<td>MW</td>
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<td>T TH</td>
<td>8:30 – 9:30</td>
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Or:
by appointment

Office Phone (901) 321-3559
Email jaflaki@cbu.edu
Course Description:

This course covers kinematics and kinetics of particles and rigid bodies in two dimensions. Force-mass-acceleration, work-energy, and impulse-momentum methods will be covered.

Course Objectives

1. Develop thorough understanding of kinematics and dynamics of particles and rigid bodies
2. Develop ability to determine the relationship between applied forces and resulting loads and motion

Instructor's Educational Philosophy:

Education is helping students achieve their goals. Through education, students recognize and improve their learning skills and strengthen their capabilities to accomplish their life dreams.

Each student must be treated uniquely and a mutual respect must be developed between a student and an instructor. This is paramount in creating a suitable and pleasant learning environment.

Methods of Instruction:

The concepts covered in this course will be presented in a traditional lecture environment by developing new concepts and theories. Sample problems will be solved to demonstrate application of theories and concepts covered in this course.

Textbook: Available at CBU Bookstore


Author: R.C. Hibbeler

Publisher: Pearson


Publisher's website for this text: http://www.prenhall.com/hibbeler


Grading Policies

Your final grade will be determined based on the following table and your class participation. Feedback to students is provided through test scores administered in class as well as consultation with the instructor if that is required.

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<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Pop quiz</td>
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<td>(No makeup quiz)</td>
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<td>Exam 1</td>
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<td>Final Exam</td>
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Exam dates:

<table>
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<tr>
<th>Exam</th>
<th>Date</th>
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<tr>
<td>Exam 1</td>
<td>February 4, 2015</td>
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<td>Exam 2</td>
<td>March 4, 2015</td>
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<tr>
<td>Exam 3</td>
<td>April 15, 2015</td>
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<td>Final Exam</td>
<td>TBA</td>
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No makeup exam will be given. In case you have to miss an exam, you must inform the instructor prior to the exam time. If it is determined that you have a legitimate excuse, the average grade of the first exam that you have taken and the final exam will be substituted for your exam grade. Missing the final exam will result in failing the course.

Grading Scale: A 90-100 B 80-89

C 70-79 D 60-69 F 0-59

Bathroom Break:

Students cannot leave the classroom for using bathrooms during exams. If there is a justified medical case, student must discuss it with the instructor prior to exam.

Homework:

Homework is assigned regularly.

Students must try to solve all problems and submit them on the due date.

Late homework submission will result in 30% penalty for each class session after the due date.
Attendance: Students are expected to attend all classes and actively participate in class discussions.

For any reason, if a student misses a total of 9 (50-minute) classes or 6 (75-minute) classes, he/she will be given an F grade for the course.

Some of the topics presented in class may not be in your textbook. You are responsible for knowing these topics.

Cheating and Plagiarism

Students must always do their own work. Cheating of any kind will result in a reduction of student’s final grade by one letter grade. Cheating on an exam will result in an "F" grade for the course.

Computer Usage

During class time, students can only use computers to do the assigned in-class or homework projects. Students cannot use the computer for any other purposes. This includes, but is not limited to checking email, browsing the Internet, playing games or printing lecture notes or using the CBU intranet, etc. A student who violates this policy will be asked to leave the classroom. A repeat of a similar situation will reduce the student’s final grade by a letter grade.

Electronic Devices:

- All electronic devices must be turned off during the entire class period.
- The one and only electronic device allowed to be used in classroom is a calculator.
- Any other portable electronic devices must be turned off prior to the start of each class.

Academic Misconduct

Academic misconduct is a violation of the principles of the academic community and will not be tolerated at Christian Brothers University. The procedures outlined in Students’ Handbook under Academic Misconduct will be enforced.

Academic misconduct is any conduct which distracts from the teaching and learning process of faculty members and students. This includes, but is not limited to: inappropriate or abusive language, distracting or disorderly conduct, misuse of or damage to property, or conduct dangerous to others.

American Disability Act: It is the policy of Christian Brothers University to provide reasonable accommodations to qualified students with disabilities. Please see your instructor for proper procedures and arrangements.


Topics:

1. Kinematics of a particle

2. Kinetics of a particle
   a) Force and Acceleration
   b) Work and Energy
   c) Impulse and Momentum

3. Planar Kinematics of a Rigid Body

4. Planar Kinetics of a Rigid Body
   1. Force and Acceleration
   2. Work and Energy
   3. Impulse and Momentum