DYNAMICS
School of Engineering and Computing Sciences
Fall 2016

A. COURSE INFORMATION

Course number/section: ENGR-2326.001
Class meeting time: MWF 11:00 a.m. – 11:50 a.m.
Class location: EN 316
Course Website: Blackboard

B. INSTRUCTOR INFORMATION

Instructor: Dr. Hua Zhang
Office location: EN 312
Office hours: MW 1:30 p.m. – 4:00 p.m. (additional times are available by appointment)
Telephone: (361) 825-2467
e-mail: hua.zhang@tamucc.edu
Appointments: By email

C. COURSE DESCRIPTION

Catalog Course Description
Theory of engineering mechanics involving the motion of particles, rigid bodies and systems of particles; Newton’s Laws; work and energy relationships; principles of impulse and momentum; applications of kinetics and kinematics to the solution of engineering problems.

D. PREREQUISITES AND COREQUISITES

Prerequisites
1. MATH 2414 – Calculus II
2. ENGR 2325 – Statics

Corequisites
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Optional Textbook(s) or Other References
None.

Supplies
Calculator, engineering paper, ruler, and protractor.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is
essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:
1. Understand the kinematics of a particle;
2. Understand the kinetics of a particle;
3. Understand the planar kinematics of a rigid body;
4. Understand the planar kinetics of a rigid body; and
5. Apply theories of kinematics and kinetics to solve engineering problems.

G. INSTRUCTIONAL METHODS AND ACTICITIES
Lectures, homework, quizzes, and exams.

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>35</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>30</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15</td>
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<tr>
<td>Homework</td>
<td>15</td>
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<tr>
<td>Attendance &amp; Course Folder</td>
<td>5</td>
</tr>
</tbody>
</table>

Grading scales: A, 90-100; B, 80-89; C, 70-79; D, 60-69; and F, below 60.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>TOPIC</th>
<th>CHAPTER</th>
<th>HOMEWORK</th>
<th>EXAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/24 – 8/26</td>
<td>Kinematics of a Particle</td>
<td>12.1 – 12.6</td>
<td>Homework #1</td>
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<tr>
<td>2</td>
<td>8/29 – 9/2</td>
<td>Kinematics of a Particle</td>
<td>12.7 – 12.9</td>
<td>Homework #2</td>
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<td>3</td>
<td>9/5 – 9/9</td>
<td>Kinematics of a Particle: Force and Acceleration</td>
<td>13.1 – 13.4</td>
<td>Homework #3</td>
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<tr>
<td>4</td>
<td>9/12 – 9/16</td>
<td>Kinetics of a Particle: Force and Acceleration</td>
<td>13.15 – 13.6</td>
<td>Homework #4</td>
<td></td>
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<tr>
<td>5</td>
<td>9/19 – 9/23</td>
<td>Kinetics of a Particle: Work and Energy</td>
<td>14.1 – 14.4</td>
<td>Homework #5</td>
<td></td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Sections</td>
<td>Assignment</td>
<td></td>
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<tr>
<td>6</td>
<td>9/26 – 9/30</td>
<td>Kinetics of a Particle: Work and Energy; Impulse and Momentum</td>
<td>14.5 – 14.6, 15.1 – 15.3</td>
<td>Homework #6</td>
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<tr>
<td>7</td>
<td>10/3 – 10/7</td>
<td>Kinetics of a Particle: Impulse and Momentum</td>
<td>15.4 – 15.7</td>
<td>Homework #7</td>
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<tr>
<td>8</td>
<td>10/10 – 10/14</td>
<td>Review</td>
<td>12-15</td>
<td>Midterm 1</td>
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<tr>
<td>9</td>
<td>10/17 – 10/21</td>
<td>Planar Kinematics of a Rigid Body</td>
<td>16.1 – 16.4</td>
<td>Homework #8</td>
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<tr>
<td>10</td>
<td>10/24 – 10/28</td>
<td>Planar Kinematics of a Rigid Body</td>
<td>16.5 – 16.7</td>
<td>Homework #9</td>
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<tr>
<td>12</td>
<td>11/7 – 11/11</td>
<td>Planar Kinetics of a Rigid Body: Force and Acceleration</td>
<td>17.4 – 17.5</td>
<td>Midterm 2</td>
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<tr>
<td>15</td>
<td>11/28 – 12/2</td>
<td>Review</td>
<td>12 – 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>12/5 – 12/6</td>
<td>Review</td>
<td>12 – 19</td>
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**Final Exam: December 9, Friday, 11:00 a.m. – 1:30 p.m.**

**Important Dates:**

- **August 31**  Last day to late register or add a class
- **September 5**  Labor Day Holiday
- **November 11**  Last day to drop a class
- **November 24-25**  Thanksgiving Holidays
- **December 6**  Last day of classes
- **December 7**  Reading Day

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

**J. COURSE POLICIES**

**Exams**
Instructions and date of each midterm exam will be given one week in advance. No makeup exam is allowed by the Instructor unless for extreme situations with sufficient proof.

**Homework**

**Format**

1) Use ENGINEERING PAPERS and have them properly stapled. If you use square papers, they must be exact same size as engineering papers and without torn sides or ends.
2) Write a STATEMENT of the problem as it appears in textbook.
3) Draw the given diagram to the best of your capacity. You may photocopy and paste/glue the given diagram.
4) State what is GIVEN.
5) State what we need to FIND.
6) Work problem in an orderly fashion (i.e. top/down).
7) BOX results to highlight solved variables with proper engineering units and format.

Submission – Homework assignments are due one week later at the beginning of class unless otherwise stated. Late submission is not accepted. Your will receive a zero on assignments turned in after the due date unless permission is secured from the Instructor prior to the due date. Assignments may be turned in before the due date. If the class is missed, you may leave your assignments in the wall pocket outside the Instructor’s office and send an email notice.

Attendance/Tardiness
You must attend all lectures. You are responsible for any materials covered or handed out or announcements made in your absence. Records of your attendance will be maintained. Tardiness without prior consent of the Instructor is not accepted and will be penalized. Being tardy consistently can be basis to be removed from classroom or not be permitted to enter classroom. For more than two absences, a deduction from your final grade will apply.

Course Folder
Course folder should be a two-pocket folder that contains all homework assignments, quizzes and midterm exams for the semester. For each category, materials should be in order based on their time of submission. Include homework on the left and the rest on the right. The course folder must be turned in on the day of final exam.

Cell Phone Use
Cell phones and beepers must be turned off or set on silent/vibrate mode during lectures, quizzes and exams. During midterm and final exams, cell phones and beepers must be put in your backpack or in the front of the classroom.

Food in Class
Food is prohibited in classroom.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under
Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
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 call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**

*This syllabus is subject to change.* I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.