KENNESAW STATE UNIVERSITY
DEPARTMENT OF MECHANICAL ENGINEERING

COURSE SYLLABUS

ENGINEERING MECHANICS: DYNAMICS

Semester: Spring 2015
Instructor: Dr. M. Loraine Lowder
Course number: ENGR 3122
Course registration number: 2549

Course Start Date: Tuesday, Jan. 6th
Room Number: Q106
Meeting Days: TR
Meeting Times: 10:00 AM – 11:15 AM

Instructor Contact Information:
Office: Q129
Telephone: (678)915-3425
Email: llowder@spsu.edu
Office Hours:
Monday and Wednesday: 10:00 AM – 11:00 AM
Tuesday and Thursday: 8:30 AM – 9:45 AM
(Additional office hours are available by appointment.
For appointments, please contact Cindy Knight at cknight@spsu.edu)

Credit Hours: 3

Prerequisite(s): ENGR 2214: Statics
MATH 2254: Calculus II

The Instructor may remove a student at any time during the term if it is noted that these requirements have not been met. The student will receive a W or F as appropriate.

Course Description
A study of the mechanics of particles and rigid bodies. Topics covered include: kinematics and kinetics of particles; work and kinetic energy; impulse and momentum; rigid body motions; relative motion; and moving coordinate systems.

Required Textbooks and Additional Materials
Textbook: *Engineering Mechanics: Dynamics*, 13th Edition (2013), Hibbeler
Essentials: Scientific Calculator, Engineering Paper

Learning Outcomes:

1. Work particle kinematics and kinetics problems in Cartesian, normal-tangential, and cylindrical coordinates, applying calculus,
2. Analyze dependent motion of particles,
3. Apply the principle of work and energy to particles,
4. Apply the principle of conservation of momentum, and of impulse and momentum to particles,
5. Work kinematics problems of rigid bodies in planar motion, and use instantaneous centers of zero velocity to solve velocity problems,
6. Solve problems involving impact of particles, and
7. Find centroids and mass moments of inertia of rigid bodies using calculus, and apply to problems involving planar kinetics of rigid bodies.

Course Topics:

1. Kinematics of a Particle: Force and Acceleration; Work and Energy; Impulse and Momentum
2. Planar Kinematics of a Rigid Body: Force and Acceleration

Important Dates

Spring Break: Monday, March 1st – Saturday, March 7th
Last Day to Withdraw: Wednesday, February 25th
Last Day of Class: Thursday, April 23rd
Commencement: Saturday, May 9th
All Grades Posted: Monday, May 11th

ADA Compliance Statement

If you have a documented disability as described by the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) that may require you to need assistance attaining accessibility to instructional content to meet course requirements, we recommend that you contact the ATTIC at (678)915-7361 as soon as possible. It is then your responsibility to contact and meet with your instructor. The ATTIC can assist you and the instructor in formulating a reasonable accommodation plan and provide support in developing appropriate accommodations for your disability. Course requirements will not be waived but accommodations will be made, when appropriate, to assist you to meet the requirements.

Course Delivery Method

This course will use a variety of instructional strategies and techniques including, but not limited to, face-to-face lectures, demonstrations, problem solving sessions, and small group discussions. Some lecture sessions may be replaced by assignments (such as research on special topics on engineering materials), videos, industrial tours or professional lectures, all of which are aimed at providing the students with a broader, contemporary knowledge of engineering.

Class Policies:

Attendance Policy:

- Students are expected to attend every class and be on time. Students are responsible for material covered in class, as well as all assignments, even if they are absent or tardy. Tardiness to (or leaving early from) two classes is considered one unexcused absence. Five unexcused absences may result in a student's final course grade being lowered by one full letter grade.
- Excused absences require documentation:

Reason	**Required Documentation**
Illness	Original hard copy of doctor's excuse on letterhead
Death in the family	Obituary or death certificate
Sponsored SPSU event	Program with student's name printed on it

Make-up Policy:

- Assignments are due at the BEGINNING of class on the due date. Late assignments will **not** be accepted except in the case of an excused absence.
- Make-up assessments will **not** be allowed except in the case of an excused absence.

Emergency Policies:

- In the event of an emergency that forces the college to close for an extended period, students must contact the instructor of this class within 48 hours using the contact information (e.g., email address, or Desire2Learn) on the syllabus to obtain directions for continuing the course. The instructor will provide directions for the transmission and submission of course assignments and course assessments, including due dates.
- If the instructor for the course cannot be reached within the specified period of time (within 2 business days), the chair of the department responsible for the course can be reached at the email address posted on the university's website.

Academic Honesty:

- Consistent with the university's policy, cheating of any kind on **any** assignment will not be tolerated and will be punished by academic and/or disciplinary sanctions. Cheating will result in severe penalties including a zero for the assignment, failure in the course, and/or expulsion.

  Honor Code information and provisions are available at:
  http://www.spsu.edu/honorcode/

Methods of Assessment:

- **Exams**
  There will be THREE EXAMS. Each exam will cover the material presented in the lecture, reading assignments, and homework assignments.

- **Quizzes**
  There will be FOUR QUIZZES.

- **Homework**
  Homework will be assigned for the purpose of strengthening of the concepts covered in lectures. While students are expected to complete all of the problems that have been assigned, only select homework problems will be collected and graded.

- **Final Exam**
  THE FINAL EXAMINATION WILL BE COMPREHENSIVE.

Evaluation:

Your grade will be assigned on the following basis of an overall score, derived as follows:

Three Exams:	40%	Homework:	15%
Four Quizzes	25%	Final Exam:	20%

Letter grades will be awarded using the following guidelines:

A	90 – 100%	D	60 – 69%
B	80 – 89%	F	59% or below
C	70 – 79%		

Problems related to grading should be first brought to the attention of the professor for the course. However, a resolution of unsettled problems or concerns may be pursued by following the procedures outlined in the SPSU Catalog.

Course Schedule:

Week	Day	Date	Topic	Quiz/Exam
1	Tuesday	1/6/2015	Chapter 12	
1	Thursday	1/8/2015	Chapter 12	
2	Tuesday	1/13/2015	Chapter 12	Quiz 1
2	Thursday	1/15/2015	Chapter 12	
3	Tuesday	1/20/2015	Chapter 12	
3	Thursday	1/22/2015	Chapter 12	
4	Tuesday	1/27/2015		Exam 1
4	Thursday	1/29/2015	Chapter 13	
5	Tuesday	2/3/2015	Chapter 13	
5	Thursday	2/5/2015	Chapter 14	
6	Tuesday	2/10/2015	Chapter 14	Quiz 2
6	Thursday	2/12/2015	Chapter 14	
7	Tuesday	2/17/2015	Chapter 14	
7	Thursday	2/19/2015	Chapter 15	
8	Tuesday	2/24/2015		Exam 2
8	Thursday	2/26/2015	Chapter 15	
9	Tuesday	3/3/2015	Spring Break	
9	Thursday	3/5/2015	Spring Break	
10	Tuesday	3/10/2015	Chapter 15	
10	Thursday	3/12/2015	Chapter 15	
11	Tuesday	3/17/2015	Chapter 15	Quiz 3
11	Thursday	3/19/2015	Chapter 15	
12	Tuesday	3/24/2015	Chapter 16	
12	Thursday	3/26/2015	Chapter 16	
13	Tuesday	3/31/2015		Exam 3
13	Thursday	4/2/2015	Chapter 16	
14	Tuesday	4/7/2015	Chapter 16	
14	Thursday	4/9/2015	Chapter 16	
15	Tuesday	4/14/2015	Chapter 16	Quiz 4
15	Thursday	4/16/2015	Chapter 17	
16	Tuesday	4/21/2015	Chapter 17	
16	Thursday	4/23/2015	Chapter 17	

This schedule is tentative and may be revised.