1. Catalog Description
Dynamics of particles and rigid bodies for rectilinear translation, curvilinear motion, rotation and plane motion. Principles of work and energy, also impulse and momentum. (2 credits)

2. Pre-requisites and Co-requisites
EGM 2511 (or EGM 2500) and MAC 2313

3. Course Objectives
This course aims at providing basic coverage of particle and rigid body dynamics to undergraduate engineering students. The material covered is a foundation for many other courses and is used frequently by most engineers. Students are expected to learn the application of work/energy and of impulse/momentum principles to dynamical systems under planar conditions.

4. Contribution of course to meeting the professional component
A. EGM 3400 supports several program outcomes enumerated in the Mission Statement of the Department of Mechanical and Aerospace Engineering. Specific MAE program outcomes supported by this course include: (1) Using the knowledge of chemistry and calculus based physics with depth in at least one of them. (ME Program Outcome M1); (2) Using the knowledge of advanced mathematics through multivariate calculus and differential equations. (ME Program Outcome M2); (3) Being able to work professionally in the area of rigid body dynamical systems. (ME Program Outcome M4).

B. Course content: Mathematics (15%), Physical Sciences (15%), Engineering Sciences, (70%)

5. Relationship of course to program outcomes
This course achieves the following ABET outcomes:
(a) Apply knowledge of mathematics, science, and engineering [high coverage; method of assessment is homework, quizzes and exams designed to measure Outcome (a)]
(e) Identify, formulate, and solve engineering problems [high coverage; method of assessment is homework, quizzes and exams designed to measure Outcome (e)]
(f) Understand professional/ethical responsibilities [low coverage; no formal method of assessment to measure Outcome (f)]
(h) Understand the impact of engineering solutions in a global and societal context [low coverage; no formal method of assessment to measure Outcome (h)]

6. Instructor
Dr. Gloria J. Wiens
* Office Location: NEB 127
* Telephone: 352-392-0806
* E-mail address: gwiens@ufl.edu
* Web site: http://lss.at.ufl.edu (e-learning in sakai system)
* Office Hours: W 5:00pm – 6:00pm or by appointment
Teaching Assistants:
Shawn Johnson
  * E-mail address: johnson3@ufl.edu
  * Office Hour: T 5:00pm-6:00pm (NEB 138)

Tzu Yu Lin
  * E-mail address: tyl@ufl.edu
  * Office Hour: Th 5:00pm-6:00pm (NEB 138)

7. Lecture Meeting Times and Location
   MF, 9th period, 4:05 - 4:55 pm in FLG 270

8. Laboratory Meeting Times and Location
   N/A

9. Meeting Location
   Lecture – FLG 270

10. Material and Supply Fees
    None

11. Textbooks and Software Required

    Mastering Engineering: http://www.masteringengineering.com/
    Course ID: EGM3400WIENS11

    Companion website: http://wps.prenhall.com/esm_hibbeler_engmech_12

12. Recommended Reading
    http://kmoddl.library.cornell.edu/ (historical on-line library of mechanisms)
    http://strandbeest.com (machines in motion)

13. Course Outline and Schedule:
    See schedule updates available at http://lss.at.ufl.edu (e-learning in Sakai system)
    - Kinematics of a Particle
    - Kinetics of a Particle: Force and Acceleration
    - Kinetics of a Particle: Work and Energy
    - Kinetics of a Particle: Impulse and Momentum
    - Planar Kinematics of a Rigid Body
    - Planar Kinetics of a Rigid Body: Force and Acceleration
14. Attendance and Expectations

- Attendance to lectures is expected. If you must miss lecture for any reason, you should obtain the lecture notes from another student. Students will be held responsible for knowledge of all scheduling and policy announcements made in class and on course Sakai and Mastering Engineering websites.

- Students are expected to take a sincere interest in learning the classroom material. Keeping with this expectation, students should: 1) not create distractions (i.e., during class cell phones turned off); and 2) show up to class on time.

15. Assessment Methods and Grading

Students will be evaluated from their grades on the following, which are weighted as follows.

- 16% Quizzes and Homework (~one in-class quiz per week and daily electronic problems assigned in Mastering Engineering; you will be allowed to drop your 2 lowest quiz grades)
- 84% Exam 1, Exam 2, Exam 3 and Final Exam (Based on TOP 3 Exam Scores out of the 4 Exams)

NO LATE HOMEWORK WILL BE ACCEPTED and NO MAKEUP QUIZZES WILL BE GIVEN.

Online (Mastering Engineering) homework will be given 3 multiple tries to answer correctly. An estimate of 10 quizzes will be given in-class throughout the semester. The two lowest quiz grades will be dropped where failure to take a quiz is considered a zero grade for that quiz.

ALL Exams MUST BE WRITTEN and SUBMITTED on the pages of the ‘Examination’ handed out at the time of the exams. No additional or loose pages will be allowed during the exam nor accepted afterwards. Exams will be closed-book and closed-notes. Prior to each exam, the student may use one “8.5 inch x 11 inch” single sheet (both sides) for listing formulas and refer to it during the exam. This sheet must be clearly marked indicating that it is the formula sheet, and will not be graded as part of the solution to the exam. All exams will be 110 min in duration. Thus, Exams 1, 2 and 3 will be evening exams administered either during E2-E3 periods, pending room reservation on scheduled dates (refer to 22.).

16. Grading Scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 – 100</td>
<td>A</td>
</tr>
<tr>
<td>90 – 92.9</td>
<td>A-</td>
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<tr>
<td>87 – 89.9</td>
<td>B+</td>
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<tr>
<td>83 – 86.9</td>
<td>B</td>
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<tr>
<td>80 – 82.9</td>
<td>B-</td>
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<td>77 – 79.9</td>
<td>C+</td>
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<tr>
<td>60 – 62.9</td>
<td>D-</td>
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<tr>
<td>0 – 59.9</td>
<td>E</td>
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</tbody>
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17. Make-up Exam Policy

Make-up exams will not be given since students are allowed to drop one of their four Exams. Only extreme extenuating circumstances will be considered otherwise and not without a documented excused absence (e.g., documented extreme medical emergency).

18. Honesty Policy

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
19. Accommodation for Students with Disabilities

Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

20. UF Counseling Services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd., 392-1575, psychological and psychiatric services
- Career Resource Center, Reitz Union, 392-1601, career and job search services.

21. Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

22. Important Dates

Exam 1: Tues/Wed/Thurs, September 27, 28 and 29, 2011 (Evening Exam). Location: TBD
Exam 2: Tues/Wed/Thurs, October 25, 26 and 27, 2011 (Evening Exam). Location: TBD
Exam 3: Tues/Wed/Thurs, December 5, 6, and 7, 2011 (Evening Exam). Location: TBD
(Evening Exams: E2-E3, 8:20-10:00pm)

Final: Friday, December 16, 2011 (12:30pm – 2:30pm). Location: FLG 270

Help/Review Sessions: (Location: TBD)
Thursday (Sept 8) Period 11 (6:15pm-7:05pm)
Thursday (Sept 22) Period 11 (6:15pm-7:05pm)
Thursday (Oct 6) Period 11 (6:15pm-7:05pm)
Thursday (Oct 20) Period 11 (6:15pm-7:05pm)
Thursday (Nov 3) Period 11 (6:15pm-7:05pm)
Thursday (Nov 17) Period 11 (6:15pm-7:05pm)
Thursday (Dec 1) Period 11 (6:15pm-7:05pm)