

EGR 2213 – Statics & Dynamics
Syllabus
Fall 2008
Part A- Course Outline

Catalog Description:

(3-1) 3 hours credit. Prerequisites: MAT 1223 and PHY 1904.

Force, moment, equilibrium, centroids and moments of inertia, kinematics, and kinetics of particles. One hour of problem solving recitation.

Prerequisites:

MAT 1223-Calculus II

PHY 1904 -Technical Physics I

(Require grade of C or better in both courses)

Textbook(s) and/ or required material:

R.C. Hibbeler, *Engineering Mechanics, Statics & Dynamics*, Eleventh Edition, Prentice Hall.

Major Prerequisites by Topic:

1. Algebra and Trigonometry
2. Differentiation
3. Integration
4. Vectors (addition, subtraction, dot & cross product)
5. Fundamental units and dimensions
6. Forces and Newton's Laws of motion

Course objectives:

To provide an opportunity for students to

1. Understand the commonly used systems of units (SI and FPS) and the conversion between
2. Learn to define and use vectors to describe position, forces and moments.
3. Understand and use the vector operations: addition, subtraction, dot & cross product
4. Understand force system resultants
5. Develop free body diagrams of a particle and rigid body
6. Determine internal forces in structural members
7. Learn the effects of and how to model friction
8. Learn how to determine the centroid and moments of inertia of a body
9. Determine the position, displacement, velocity and acceleration of a particle in rectilinear and curvilinear coordinates
10. Understand Newton's 2nd law and its application to particles
11. Enhance student problem solving skills

Relationship to CE program outcomes:

This course primarily contributes to CE program outcomes that develop student abilities to:

- use the principles from chemistry, physics, statistics, and mathematics in engineering applications (Outcome A)
- use computer-based tools for engineering applications use computer-based tools for engineering applications (Outcome B)
- identify, formulate, and solve engineering problems (Outcome C)

The course secondarily contributes to CE program outcomes that develop student abilities to

- formulate design problem objectives, constraints, and synthesize problem information (Outcome E)

Relationship to EE program outcomes:

This course primarily contributes to EE program outcomes that develop student abilities to:

- utilize advanced mathematics, general scientific principles, and computer applications for solving practical engineering problems (Outcome A)
- identify, formulate, and solve engineering problems (Outcome E)

The course secondarily contributes to EE program outcomes that develop student abilities to:

- work effectively in multi-disciplinary teams (Outcome D)
- analyze and design systems, components or processes relevant to their field of specialty (Outcome C).

Relationship to ME Department of objectives and outcomes:

The course objectives primarily address the ME Department educational objectives and outcome [A, C, E].

Topics covered:

1. Measurements, units (SI and U.S. customary), accuracy and precision
2. Vector operations
3. Equilibrium of a particle
4. Force system resultants
5. Equilibrium of a rigid body
6. Internal forces
7. Center of gravity and centroid
8. Moments of inertia
9. Friction
10. Kinematics of a particle
11. Kinetics of a particle, force and acceleration/impulse and momentum

Class/laboratory schedule:

1. 3 times/50 minutes of lectures
2. 1 time/50 minutes of recitation per week

Performance criteria:

1. Objectives 1 through 11 will be evaluated using evaluation methods [1, 2, 3, and 4]

Course Content:

Engineering Science: 3 credits (100%)

Class/Laboratory Schedule:

- 3-50 minutes lectures/week
- 1-50 minute problem solving recitation/ week

Coordinator:

Nestor Sanchez

Persons who prepared this description: 1/9/2004-08

Nestor Sanchez, Associate Professor of Mechanical engineering

Daniel Hogenauer, Associate Professor of Civil engineering

Enos Inniss, Assistant Professor of Civil Engineering

Qian Chunjiang, Assistant Professor of Electrical Engineering

Part B- General Course Information and Policies

CRN: 14850 SEC: 01	Lecture	Recitation
Instructor	Nestor Sanchez, Ph.D. nestor.sanchez@utsa.edu Ph. 458-5528	
Instructors' Office	Office: EB 3.04.28	

Instructors' Office Hours	MW 9:00-9:30 am , MWF 2:00-3:00 pm , or by Appointment	
Meeting Time/ Room – Section 1	MWF 8:00-8:50 a.m . EB 2.04.02	(sec 01) W 11:00-11:50 am EB 3.04.66 F 11:00-11:50 am EB 3.04.66 Office Hours EB 3.04.60 T 9:00-10:00 R 9:00-10:00

Homework: assigned at each week and collected and graded. Interact with the WebCT using webct@utsa.edu and your ID.

Class Conduct:

Students are expected to assist in maintaining a classroom environment that is conducive to learning.

Accommodation Policy:

Student with any type of disability that may prevent him/her from fully demonstrating his/her skills should contact me personally to ensure full participation and facilitation of educational opportunities.

University Codes:

Student must be acquainted with the university's code, policies, and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on physical handicap.

GRADE POLICY:

HOMEWORK + CLASS QUIZZES	10%
EXAM I	15%
EXAM II	15%
EXAM III	15%
FINAL	45%
TOTAL	

100%

Homework Policy:

Cooperation is permitted; however, what you submit should represent your own efforts. Copying is not permitted. **THE HOMEWORK IS THE MOST IMPORTANT PART OF THE CLASS TO LEARN THE MATERIAL.**

- Homework is to be handed in at the beginning of class on the day indicated. **No late homework will be accepted!**
- It should be done on letter-size paper, **one side only; it should be neat, legible, and properly labeled, and it must have professional look;** and **all pages should be stapled together.**
- Students are responsible for making sure that every homework problem and exercise has been understood before a test.
- Students are welcome and encouraged to consult with the instructor during the posted office hours, or previously arranged times.
- **Students should never copy from another source, nor allow their work to be copied.** Students should contact the Office of Student Judicial Affairs, 458-4720, if they have any questions.

Examination Policy

All examinations and quizzes will be individual efforts, closed book tests. The final examination will be comprehensive.

Final Answer

When solving problems, students are encouraged to be neat, well-organized and logical. The correct final answer is important. The student should not expect much partial credit because of “trivial” error(s). Students should develop the habit of checking their work.

No make-up test will be given! Absences to examinations must be notified before the test. Only under proven exceptional circumstances, an alternative way of evaluation would be considered.

Schedule for holidays and other Events for EGR 2213 Static's & Dynamics Fall 2008	
Date	Event
August 26	Tuesday, Census Date. Last day to drop or withdraw without a grade; choose credit/ no-credit grading option; drop an individual course and receive a 100% refund.
August 27	Wednesday, First day of class
September 24	Wednesday, Test I (15%)
October 22	Wednesday, Test II (15%)
October 30	<i>Thursday, last day to drop a course and receive an automatic grade of "W"</i>
November 26	Wednesday, Test III (15%)
November 27	Thanksgiving Holiday
December 15	<u>Monday 7:30-10:00 am, (45%)</u>