



ENGR 2214-01 – Engineering Mechanics: Statics

<u>Instructor Details</u>		<u>Course Details</u>	
Instructor:	Dr. Amy Borello Gruss	Term:	Fall 2019
Office:	L-158	Classroom:	Q-311
Office Hrs:	MWF 10 – 11 am (in L-158) MW 12:15 – 1:15 pm (in Q-311) or by appointment	Class Time:	MWF 11:15 am – 12:05 pm
Email address:	agruss@kennesaw.edu	Credit Hours:	3-0-3 (Lecture-Lab-Total)
		Prerequisite:	PHYS 2211

COURSE DESCRIPTION: Study of force vectors, equilibrium of particles, equilibrium of rigid bodies in two and three dimensions; trusses, friction, centroids, and moments of inertia

REQUIRED or ELECTIVE: Required

REQUIRED TEXT: (1) **Engineering Mechanics: Statics** by Russell C. Hibbeler, Prentice-Hall, 14th Edition, ISBN-13:978-0-13-291554-0, ISBN-10; 0-13-291554-5.

(2) **NCEES: FE Reference Handbook**. This text can also be downloaded for FREE in the provided link (<http://ncees.org/exams/study-materials/download-fe-supplied-reference-handbook/>).

OTHER MATERIALS: Handouts may be provided as needed. **Kennesaw email** and **D2L** systems will be used for messages and part of the content delivery. Students should access these sites on a daily basis. *Disclaimer: Please do NOT email the professor through D2L as it will not be checking these regularly. To contact, please email: agruss@kennesaw.edu.*

COURSE LEARNING OUTCOMES: Upon successful completion of this course, students shall be able to:

1. Draw free body diagram of force systems on particles and rigid bodies
2. Determine the moment about a point and an axis
3. Reduce a system of forces to a force-couple system and to a single force
4. Develop and apply the equations of equilibrium to calculate support reactions and internal forces for structures such as beams, frames, and machines subjected to concentrated forces, distributed loadings, and moments
5. Analyze plane trusses using the method of joints and the method of sections
6. Determine the centroids of plane areas
7. Determine the moments of inertia composite areas using the parallel-axis theorem

COURSE REQUIREMENTS:

- 1. Homework:** All problem assignments must be submitted in the next class/week following the class in which the topic is discussed or finished, or any other date assigned by the instructor.
 - A physical copy of the homework is due at the **START** of class on the due date.
 - Homework turned in one class period late will lose 1/4th of the possible score.
 - Assignments **WILL NOT be accepted more than one class late** without prior instructor consent. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities with appropriate evidence.
 - All homework must be submitted on 8½"x11" white paper or engineering/graph paper.
 - Fold the assignment in half (the long way), and write your (1) name, (2) course number, (3) assignment number (i.e, HW1, HW2...), and (4) date submitted on the outside of the folded sheet.
 - Show the detail works for full credit, i.e., free body diagrams, graphs, calculations.
 - **Box or Underline your answers.** Illegible handwriting will not be graded.
 - Graded homework will be returned to students; however, students need to preserve them until the grades are finalized and show them to the instructor if there is any dispute in final grades.
- 2. Exams/Quizzes:** All exams/quizzes are closed books and notes unless advised otherwise. However, **NCEES FE Handbook can be used** during the Exams and Quizzes but must be in book form or stapled and free from any handwritten notes or comments. NO make-up exams/quizzes will be given. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities. However, appropriate evidence must be presented in order to qualify for exceptions. Quizzes will be in class the date assigned by the instructor; however, pop quiz may also be given from time to time. Exam dates will be confirmed in class and posted on D2L Brightspace on the D2L calendar.
- 3. Final Exam:** The course final exam is a cumulative exam, covering all topics covered during the term. As there are many topics covered, the questions are typically small in scope, and are most similar in format to the questions found in the periodic quizzes.

Unless directed otherwise, the final exam will be held during finals week in the usual classroom. Check the KSU registrar's website for additional scheduling information. Similar to the midterm exams, the exam will be closed books and notes, with the exception that the FE Handbook may be used.
- 4. Attendance Policy:** Students are required to attend classes. In the case of unavoidable absences, you are responsible for making up the work done in class. It is not the instructor's responsibility to provide the student with that information outside of class. It is the student's responsibility to obtain any missed information or handouts given in class from a classmate.
- 5. Communications, Grading, and Response Timeframe:** The best way to communicate with me is by **KSU email.** Please do not send emails through D2L as it will not be checked regularly. Grading of homeworks/assignments may take up to a week. I will try to respond to any discussions/comments/questions **by the close of the following business day.** Expect to receive a response to emails sent on the weekend on the following Monday.

Do not expect to solve all problems via email! Taking advantage of office hours is the easiest and most effective way to solve complex issues. If you are unable to attend office hours, allow ample

time to arrange a meeting, as the instructor is usually not immediately available outside of office hours.

6. **Plagiarism Policy:** KSU considers committing plagiarism as an act of academic dishonesty, and takes all occurrences very seriously. Any instances where academic dishonesty is suspected will result in an automatic grade of a zero for all students involved. The instructor reserves the right to remove any student from the class if the student's behavior is of a disruptive nature or if there is an evidence of academic dishonesty. Further disciplinary action may be taken such as suspension or expulsion from the University.
7. **FERPA:** The Family Education Rights and Privacy Act (FERPA) is a federal law designed to protect the privacy of educational records by limiting access to these records, and precludes Southern Polytechnic State University from providing information regarding the student to anyone without written authorization. Examples of records not released are grades; grade point average; the specific number of hours/credits enrolled, passed, or failed; Social Security Number; student ID number; name of parents or next of kin; and/or residency status.
8. **Ethics and Sexual Harassment Policy:** Sexual harassment in any situation is reprehensible. It subverts the mission of the University, and threatens the careers of students, faculty, and staff. It is viewed as a violation of Title VII of the 1964 Civil Rights Act as amended by the 1991 Civil Rights Act. Sexual harassment will not be tolerated at KSU. KSU is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, disability, age, sexual orientation, or veteran status. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972; by Title VII of the Civil Rights Act of 1964, as amended by the Civil Rights Acts of 1991; by Sections 504 and 504 of Rehabilitation Act of 1973; by Executive Order 11246, as amended by 38 U.S.C. 2012; the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity. This policy on sexual harassment applies to the entire University and to the conduct of students, faculty, and staff alike.
9. **Student Rights and Responsibilities:** Students of KSU are entitled to an environment that is conducive to learning and individual growth. To this end, students enrolling at KSU assume a responsibility to abide by the policies and regulations expressed in this section. By doing so, students may fulfill their responsibilities and enjoy the exercise of their own rights while also respecting the rights of others. Information about the student rights and responsibilities can be found at <http://catalog.kennesaw.edu/content.php?catoid=27&navoid=2263>
10. **Statement on Publication of Course Materials:** Some lecture slides, course notes, or assignments used in this course may be the property of the textbook publisher or other third parties. All other course material, including but not limited to slides developed by the instructor, the syllabus, assignments, course notes, course recordings (audio or video) and examinations or quizzes are the property of the University or of the individual instructor who developed them. Students are free to use this material for study and learning, and for discussion with others. Republishing or redistributing this material, including uploading or linking the material to websites, violates the rights of the copyright holder and is prohibited. There are civil and criminal penalties for copyright violation. Publishing or redistributing this material in a way that might give others an unfair advantage in this or future course may subject you to penalties for academic misconduct.

11. **Academic Honesty/Integrity:** KSU has an academic honesty/integrity and a procedure for handling cases when academic misconduct is alleged. All students should be aware of them. Information about the academic honesty/integrity and the misconduct procedure can be found at <https://web.kennesaw.edu/scai/content/ksu-student-code-conduct>.
12. **ADA Provisions:** “Students with disabilities, as defined by the Americans with Disabilities Act (ADA) of 1990, should contact the instructor during the first week of the semester regarding the accommodations necessary to complete the requirements of this course. The instructor, with the help of KSU, will make reasonable adjustments to take into consideration the specific handicap of each student covered under the ADA.” The students can also contact KSU Marietta Campus ADA coordinator at 678-915-7244 for additional help.”
http://www.kennesaw.edu/stu_dev/dsss/policies.shtml.
13. **Electronic Communications:** The University provides all KSU students with an “official” email account with the address “students.kennesaw.edu.” As a result of federal laws protecting educational information and other data, this is the sole email account you should use to communicate with your instructor or other University officials.
14. **Grade Dispute/Appeal:** Final grade dispute/appeal must be submitted within a week of the final exam. The procedure has been outlined in the KSU website that can be accessed via the link at http://www.kennesaw.edu/registrar/policies/grade_appeals.php.
15. **Course Withdrawal Policy:** Please refer to the KSU catalog for specific information regarding course withdrawal. Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.
16. **Contacts to get Help:**
 - D2L Technical Support, go to <https://d2lhelp.view.usg.edu/>
 - D2L Brightspace website at <https://kennesaw.view.usg.edu/d2l/login>
 - KSU UITs at <http://uits.kennesaw.edu/>
 - You can find The USG Copyright Policy at <http://www.usg.edu/copyright/>
 - Academic support services and student services at <http://kennesaw.edu/currentstudents.php>
 - KSU CETL Thank a Teacher at <http://cetl.kennesaw.edu/thank-a-teacher>

GRADING POLICY: All exams, quizzes, and assignments must be completed satisfactorily in order to pass the course. The evaluation process described below is subject to change by the instructor. Changes will be announced in class. Please visit the following link for KSU’s detailed grading policy:
<http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2170>

Class Grade Components:		Class Grading scale and letter grade	
Homework	20%	>90.0	A
Quiz	20%	89.9 – 80.0	B
Exam 1	20%	79.9 – 70.0	C
Exam 2	20%	69.9 – 60.0	D
Final Exam	20%	<59.9	F
Total	100%	Withdrawal after deadline	WF

TENTATIVE LECTURE TOPIC/OUTLINE: The following lecture topic/outline, as well as the information contained in the course syllabus, is subject to change by the instructor with reasonable advanced notice. Changes will be announced in class.

Class/Week	Tentative Lecture Topic/Outline	Homework	Textbook Sections
Week 1	Topic 1: General Principles	HW1: 2-3, 2-12, 2-25	Chapter 1.2-1.3
Week 1 - 3	Topic 2: Force Vectors	HW2: 2-43, 2-47, 2-60, 2-71, 2-80 HW3: 2-88, 2-94, 2-115, 2-129	All Chapter 2
	Labor Day – Monday Sept 2 nd	No Classes	
Week 4	Topic 3: Equilibrium of a Particle Learning Outcome #1	HW4: 4-5, 4-8, 4-16	Chapter 3.1-3.4
Week 5	Exam 1		---
Week 5 – 8	Topic 4: Force System Resultants Learning Outcome #2-3 Withdraw Deadline – Oct 9 th	HW5: 4-30, 4-39, 4-57, 4-70 HW6: 4-101, 4-104, 4-142, 4-150	Chapter 4.1-4.7; 4.9
Week 8 – 9	Topic 5: Equilibrium of a Rigid Body Learning Outcome #1, 4	HW7: 5-1, 5-10, 5-13, 5-16, 5-44	Chapter 5.1-5.4; 5.7
Week 10 – 11	Topic 6: Structural Analysis Learning Outcome #1, 4, 5	HW8: 6-2, 6-39, 6-49, 6-61, 6-71	Chapter 6.1-6.4, 6.6
Week 11	Exam 2		---
Week 12 – 13	Topic 7: Internal Forces Learning Outcome #1, 4	HW9: 7-1, 7-11	Chapter 7.1
Week 14	Topic 8: Centroid Learning Outcome #6	HW10: 9-7, 9-58, 9-59, 9-65	Chapter 9.1-9.2
Week 15	THANKSGIVING BREAK (Nov. 15 – Dec 1) – No Classes		
Week 16	Topic 9: Moments of Inertia Learning Outcome #7	HW11: 10-6, 10-29, 10-33, 10-42	Chapter 10.1-10.2, 10.4
Week 17	Final Exam – Comprehensive Wednesday, December 11 th 10:30 AM - 12:30 PM		