CE 270, Applied Mechanics I  
3 Credits (CRN 64386)  
Tuesdays and Thursdays; 2:30 to 3:45 pm  

INSTRUCTOR: Dr Jacob V Hudson Jr  
OFFICE: Hale Imiloa 130  
OFFICE HOURS (times students may drop in for help): M-F 12:00 to 2:00 pm  
TELEPHONE: X9112 EMAIL: jacobh@hawaii.edu  
EFFECTIVE DATE: Fall/2018

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko‘olau region of O‘ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

This course is a study of equilibrium of rigid bodies under the action of forces and the application of the principles of mechanics to solve static problems of engineering.

PRE-REQUISITE

Physics 170; Credit for or registration in Math 231 or consent of the instructor

STUDENT LEARNING OUTCOMES

As a result of taking this course, students can expect to attain the following outcomes:

1. Solve problems involving forces, resultant and static equilibrium and their application to rigid bodies.
2. Analyze equilibrium of rigid bodies in two and three dimensions.
3. Solve problems involving center of gravity, centroids, couples, and moments of inertia.
4. Analyze engineering structures subjected to concentrated loads, distributed loads, and frictional forces.
5. Utilize abstract thinking and analytical reasoning in the analysis of word problems dealing with mechanical structures.
6. Apply calculation techniques to dynamic problems in engineering.

CONNECTION WITH GLOs

- Develop the ability to perceive how people interact with their cultural and natural environments, through their own worldview and through the worldview of others, in order to analyze how individuals and groups function in local and global contexts.
• Identify information needed in a variety of situations, and access, evaluate, and use relevant information effectively and responsibly.
• Make judgements, solve problems, and reach decisions using analytical, critical, and creative thinking skills.
• Use written, visual, and oral communication to discover, develop, and communicate meaning, and to respond respectfully to the ideas of others in multiple environments.

ASSESSMENT

Grading: Student assessment will be determined from class participation (~5%), homework (~40%), midterms (~35%) and the Final (~20%). All students are required to take the Final exam.

Class Participation – In addition to the class lecture, students are to take part in the problem solving that will be emphasized each class.

Homework – A homework assignment will be given each class. The assignment is due at the beginning of the next class period. No Late assignments will be collected.

Exams – There are three midterm exams, each yielding approximately 12% of the overall point total of the semester grade. The final exam is at the scheduled time, and is worth approximately 20% of the overall point total of the semester grade.

COURSE CONTENT

Tentative Schedule:
8/21 Orientation
8/23 Units Chap. 1 pp. 3 - 16
8/28 Force Vectors Chap. 2 pp. 17 - 87
9/18 Equilibrium of a Particle Chap. 3 pp. 87 – 120
9/25 Exam I
10/9 Force System Resultants Chap. 4 pp. 121 – 206
10/16 Equilibrium of a Rigid Body Chap. 5 pp. 207 – 272
10/23 Exam II
10/25 Structural Analysis Chap. 6 pp. 273 – 342
11/8 Internal forces Chap. 7 pp. 343 – 400
11/15 Friction Chap. 8 pp. 401 – 464
11/20 Exam III
11/27 Center of Gravity and Centroids Chap. 9 pp. 465 - 528
12/4 Moment of Inertia Chap. 10 pp. 529 - 580
12/6 Virtual Work Chap. 11 pp. 581 - 615
12/13 Final Exam

Windward Community College is an equal opportunity, affirmative action institution.
LEARNING RESOURCES


Although not required, a graphing calculator (e.g. Texas Instrument TI-84) is extremely useful.

ADDITIONAL INFORMATION

- MySuccess: Students may be referred for extra help or advising through MySuccess. Students can also explore resources at MySuccess.Hawaii.edu and windward.hawaii.edu/MySuccess

DISABILITIES ACCOMMODATIONS

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ‘Ākoakoa 213 for more information.

TITLE IX

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: https://windward.hawaii.edu/Title_IX/.

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235-7468 or karlas@hawaii.edu or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or wcctix@hawaii.edu.

ACADEMIC INTEGRITY

Work submitted by a student must be the student’s own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to [http://www.TurnItIn.com](http://www.TurnItIn.com) to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

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ALTERNATE CONTACT INFORMATION

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121
Phone: 808-235-7422
Email: wccaa@hawaii.edu