



UNIVERSITY of HAWAII®
WINDWARD
COMMUNITY COLLEGE

[**272, PHYSICS II**]
[3 Credits (64383)]
[M, W; 4:00 – 5:20 pm]

INSTRUCTOR: Dr. Jacob Hudson
OFFICE: Hale Imiloa Rm 122
OFFICE HOURS: M, W; 5:45 – 7:00 pm
TELEPHONE: [(808) 236-1222] **EMAIL:** [jacobh@hawaii.edu]
EFFECTIVE DATE: [Spring 2023]

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

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This is the second in a rigorous, calculus-based physics course for the professional or engineering major. The study of the concepts of physics including the fundamental principles and theories of electricity, magnetism, light and optical theory.
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STUDENT LEARNING OUTCOMES

The student learning outcomes for the course are:

1. Demonstrate a solid conceptual understanding of electricity, magnetism, light, and optical theory.
2. Solve applicable problems using calculus and vector analysis.
3. Apply the laws of physics to computational problems in electricity, magnetism, and wave phenomena.

COURSE PHILOSOPHY

Physics is an interesting and challenging subject. It is also the basic science, the foundation of all other physical sciences. Physics attempts to describe the fundamental nature of the Universe and how it works, striving for the simplest explanations common to its diverse behavior. For example, physics explains why the sky is blue, why rainbows have color, what keeps a satellite in orbit, and what atoms and nuclei are made of. In a rapidly changing environment, the key to success is adaptability. There is no other field of study available which offers the student greater flexibility in this high-tech society of ours. Whether the student is contemplating a career as a scientist, an engineer, a teacher, a physician, a lawyer, or a business person, one can get no better grounding in fundamental, logical and critical thinking than is possible in physics.

ASSESSMENT TASKS AND GRADING

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 in May.

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.

LEARNING RESOURCES

Text: Fundamentals of Physics (10th Edition); D. Haliday, R. Resnick, & J. Walker
J. Wiley and Sons, Inc.

In addition to the above-mentioned text, students will need a straight edged protractor, and a ‘non-QWERTY’ type calculator. A graphing calculator (such as a TI-85) is highly recommended.

ADDITIONAL INFORMATION

| | Subject | Text |
|------|------------------------------|--------------|
| | Electric Charge | pp. 561-579 |
| | Electric Fields | pp. 580-604 |
| | Gauss's Law | pp. 605-627 |
| | Electric Potential | pp. 628-655 |
| | Capacitance | pp. 656-681 |
| 2/6 | EXAM I | |
| | Current and Resistance | pp. 682-704 |
| | Circuits | pp. 705-734 |
| | Magnetic fields | pp. 735-763 |
| | Magnetic fields and Currents | pp. 764-790 |
| | Induction and Inductance | pp. 791-825 |
| 3/6 | EXAM II | |
| | Maxwell's Equations | pp. 826-860 |
| | EM Oscillations and AC | pp. 861-888 |
| | Electromagnetic Waves | pp. 889-923 |
| 4/17 | EXAM III | |
| | Images | pp. 924-957 |
| | Interference | pp. 958-989 |
| | Diffraction | pp. 990-1021 |
| 5/10 | FINAL EXAM | |

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 Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, royinouy@hawaii.edu, or you may stop by Hale Kāko'o 106 for more information.

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Jojo Miller, Confidential Advocate

Phone: (808) 348-0663

Email: advocate@hawaii.edu

Office: Hale Kāko‘o 110

Desrae Kahale, Mental Health Counselor & Confidential Resource

Phone: (808) 235-7393

Email: dkahale3@hawaii.edu

Office: Hale Kāko‘o 101

Karla K. Silva-Park, Title IX Coordinator

Phone: (808) 235-7468

Email: karlas@hawaii.edu

Office: Hale ‘Ākoakoa 220

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University’s Title IX resources and the University’s Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

ACADEMIC INTEGRITY

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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.

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.]

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: Alaka‘i 121
- Phone: (808) 235-7422