

INTER AMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
Department of Natural Sciences

SYLLABUS

I. GENERAL INFORMATION

Course title	:	General Physics II
Code and Number	:	PHYS 3002
Credits	:	4 credits
Academic Period	:	
Professor	:	
Office Hours	:	
Office Phone	:	
e-mail	:	

II. DESCRIPTION

Continuation of the study of conservation laws, the interaction between particles and fields and the atomic description of matter. Students are exposed to different experiences in the areas of electromagnetism, waves and modern physics. Emphasis on the integration and application of concepts throughout the experimentation. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: PHYS 3001.

III. OBJECTIVES

It is expected that at the end of the course, the student can:

1. Examine qualitatively and quantitatively the physical laws under study in the areas of electromagnetism, waves and modern physics.
2. To relate and integrate the concepts and laws of physics in their interpretation of the physical phenomena of nature.
3. Interpret phenomena of the physical world using correctly the processes of analysis and synthesis.
4. Prepare and interpret graphical representations of physical phenomena.
5. Describe qualitatively any observed physical phenomena.
6. Use mathematics for the quantitative description of physical world.
7. To use Physics in a process of searching for knowledge about the physical world.
8. Applying ethical principles in solving problems in the field of physics.

For the Physics Laboratory

1. Apply the scientific method in an experimental process.
2. Use correctly the techniques of measurement of physical quantities.
3. Relate and apply laboratory experiences to theories and concepts studied in class.
4. Describe qualitatively and quantitatively the different concepts studied in Electromagnetism, Waves and Modern Physics.
5. Apply ethical principles in the Scientific Method in the exercises (Experiments) developed in laboratories.

COMPETITION OF THE PROFESSION OF THE GRADUATE THAT ARE ATTENDED IN THIS COURSE.

Knowledge

1. Use mathematical principles and scientific concepts and apply them to new situations.
2. Use the scientific method to understand natural phenomena relevant to living things.

Skill

1. Apply critical thinking and logical reasoning in the solution of problems and in decision making.
2. Use technological means that allow the construction and visualization to select, interpret and analyze scientific information.

Attitude

1. To value the importance of teamwork.
2. Strengthen the ethical aspects within the Natural Sciences.

IV. THEMATIC CONTENT

A. General Aspects

1. Introduction
 - a. Discussion of the medical record

B. Waves (Part I: Sound)

C. Electromagnetism

1. Electric Loads and Electric Fields
2. Electrical Potential and Capacitance
3. Electrical Current and Resistance
4. Magnetism
5. Electromagnetic Induction
6. Alternating Current Circuits

D. Waves (Part II: Light)

1. Geometric Optics

E. Modern Physics

1. Diffraction grating

V. ACTIVITIES

- a. Conferences.
- b. Simulations or demonstrations of physical phenomena in vivo.
- c. Educational videos or films on Physics (see references).
- d. Collaborative work.
- e. Written reports.
- f. Experimentation through laboratory exercises.
- g. Discussions in the Physics class

VI. EVALUATION

VII. SPECIAL NOTES

A. Auxiliary services or special needs

All students who require ancillary services or special assistance must request the same at the beginning of the course or as soon as they acquire knowledge that they need them, through the corresponding register, or You can communicate with the Coordinator (a) Auxiliary to the telephone Mr. Jose Rodriguez, extension 2306, or email jrodriguez@metro.inter.edu.

B. Honesty, fraud, plagiarism

Lack of honesty, fraud, plagiarism and any other inappropriate behavior in relation to academic work are major infractions sanctioned by the General Regulations of Students. Major infractions, according to the General Regulations of Students, may result in the suspension of the University for a definite time greater than one year or permanent expulsion from the University, among other sanctions.

C. Use of electronic devices

Cell phones and any other electronic device that could disrupt the teaching and learning processes or switch the driving environment to academic excellence were deactivated. The answers are correct, as appropriate. The handling of electronic devices that allow access, storage or sending of data during test evaluations is prohibited.

D. Compliance with the provisions of "Título IX "

The Federal Higher Education Act, as amended, prohibits discrimination on the basis of sex in any academic, educational, extracurricular, athletic or any other program or employment, sponsored or controlled by an institution of higher education regardless of whether it takes place Inside or outside the institution's premises, if the institution receives federal funds.

As provided by current federal regulations, a Title IX Assistant Coordinator has been designated in our academic unit to provide assistance and guidance regarding any alleged incidents of discrimination based on sex or gender, sexual harassment or sexual assault.

You can communicate with the Coordinator (a) Auxiliary to the telephone Sr. George Rivera, extension 2262 or 2147, or email griverar@metro.inter.edu.

VIII. EDUCATIONAL RESOURCES

A. Textbook

For the class:

Cutnell, John, and Johnson, Kenneth. (2012). Physics 9e, ninth edition. Volume two. USES. John Wiley & Sonc, Inc. USA. ISBN 978-0-470-879542.

www.wiley.com/college/cutnell

For the Laboratory:

Arteaga, Edilberto and Gómez Wiil, A. (2005). Manual of Physics Laboratory II with computers: using DataStudio, San Juan, P.R .. Sponsored by the Campus Metropolitan of the Inter-American University of Puerto Rico (UIPR) and by the project TEN (# P031S010036) of the Title V program of the Department of Education of the U.S.

For the class and the laboratory a calculator is necessary, the use of the TI-nspire calculator.

IX. BIBLIOGRAPHY

A. Texts

- Cutnell, John. And Jonson, Kenneth. (2009). Physics 8e. eight Edition. Volume two. USA. John Wiley & Sonc, Inc. NJ, USA. ISBN 978-0-470-37925-7. www.wiley.com/college/cutnell
- Cutnell, John. And Jonson, Kenneth. (2007). Physics. Seven Edition. Volume two. John Wiley & Sonc, Inc. NJ, USA.
 - Cutnell, John. And Jonson, Kenneth. (2006). Essential of physics. Sixth Edition. John Wiley & Sonc, Inc. NJ, USA.
- Cutnell, John. And Jonson, Kenneth. (2004). Physics. Sixth Edition. John Wiley & Sonc, Inc. NJ, USA.
 - Giambattista, Alan. McCarthy, Betty and Richardson, Robert. (2008). Physics. Mc Graw-Hill, Higher Education. New York. Contains samples examination questions MCAT (Medical College Admisión Test). ISBN: 978-0-07-340447-9.
- Giancoli, Douglas. (1998) Physics, Fifth Edition, Pearson Prentice Hall. New jersey. IBSN # 0-13-611971-9
- Hecht, Eugene. (2003). Physics: Algebra/Trig. Third Edition. Thomson: Brooks/cole. California, USA. WEB: <http://www.thomsonrights.com>
- Kirkpatrick, Larry, D. and Francis, Gregory, E. (2007). Physics, a World view. Sixth Edition. Thomson Brooks/Cole, a part of the Thomson Corporation. United States of America. ISBN: 0-495-01088-X.
- Moore, Thomas, A. (2005) Física: Seis ideas fundamentales. Tomo II, Segunda edición. Mc Graw Hill. México.
- Ostdiek, Vern. J and Bord, Donald J. (2005). Inquiry into Physics. Fifth Edition. Brooks/Cole, a division of Thomson Learning. United States of America. ISBN: 0- 534-49168-5.
- Serway, Raymond. And Jewett, John, jr. (2008) Physics for Scientists and Engineers with Modern Physics. Seventh Edition. Thomson Learning, Inc. United States. ISBN-13: 978-0-495-11245-7 or 10: 0-495-11245-3.
- Serway, Raymond. and Faughn, Jerry, S. (2003). College Physics. Sixth Edition. Thomson: Brooks/cole. California, USA. WEB: <http://www.thomsonrights.com>
- Serway, Raymond, A and Vuille, Chris. (2007). Essentials of College Physics. Thomson, Brooks/Cole. USA.
- Tippens, Paul, E. (2001). Física: conceptos y aplicaciones. Sexta Edición. McGraw-Hill. México.
- Wilson, Jerry, D. and Buffa, Anthony, J. (2003) College Physics. Fifth Edition. Pearson Prentice Hall. New Jersey.
- Walker, James, S. (2004) Physics. Second Edition. Pearson Prentice Hall. New Jersey.
 - Young and Freedman (2008). Sear and Zeemansky's: University Physics with Modern Physics. 12 Edition. Pearson Addison-Wesley. San Francisco. ISBN-10: 0-321-50121-

B. Audiovisual Resources

The following resources are available in the Audiovisual Room of our Campus to help to study. The following are videos in DVD format.

QC28 .W394 2000	Q-260 DVD	2000
Waves [videorecording]: energy in motion AIMS Multimedia (Firm)		
QC28 .L564 2000	Q-261 DVD	
2000 Light, lenses and lasers [videorecording] AIMS Multimedia (Firm).		
QC28 .E543 2000	Q-257 DVD	2000
Electricity [videorecording] : the invisible river of energy AIMS Multimedia (Firm). Videos de Física en formato VHF disponibles en Audiovisuales de nuestro recinto		
QH212.E43 1987	Q-123 VHF	
Electron Microscopy [video] AIMS Multimedia (Firm).		
QC360.L53718 1990	Q-200 VHF	
Luz (CA) [video] AIMS Multimedia (Firm).		

C. Readings Audiovisual Resources

In the Reserve Room (Access to Information Center) of our Campus, the following resources are available to help you study.

QC23 .G399 1998	1998
Physics: principles with applications 5th ed. Giancoli, Douglas C.	
QC23 . G399 2005	
2005 Physics: principles with applications 6th ed. Giancoli, Douglas C.	

- On the WEB you can use the following information.
- <http://www.metro.inter.edu> portal of the Inter. Meter.
- <http://metro.inter.edu/servacad/cai/index.html> This is the library portal (Access to Information Center).
- <http://metro.inter.edu/servacad/cai/subscripciones.htm> Here you get information for the "electronic resources" available in the library.
- <http://metro.inter.edu/servacad/cai/bases.htm> Database; Another way of accessing information.
- Useful links to reinforce the physics class.
- <http://library.thinkquest.org/C001429/>
- <http://www.glenbrook.k12.il.us/gbssci/phys/mmedia/#top>
- <http://www.physicsclassroom.com>
- <http://newton.cnice.mecd.es/alumnos.html>
- <http://newton.cnice.mecd.es/4eso/mru/rectobjetivos.htm>
- The following addresses are tools for browsing or searching the Internet (search engines).
<Http://www.yahoo.com>
- <http://www.google.com.pr/>
- <http://www.altavista.com>
- <http://www.hotmail.com>