28906 - Physics II

Información del Plan Docente

Academic Year	2016/17
Academic center	201 - Escuela Politécnica Superior
Degree	437 - Degree in Rural and Agri-Food Engineering
ECTS	6.0
Course	1
Period	Second semester
Subject Type	Basic Education
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning process used in this subject is based on the following methodology:

- **Interactive exposition** combining an expositive and a demonstrative method. All the contents explained in the theory classroom will be complemented by the problem-solving. It offers students opportunities to test their ideas and opinions against the ideas and opinions of their peers.
- **Cooperative working** in the laboratory sessions.
- **Autonomous work** of the student, especially regarding the study and comprehension of the theoretical concepts and problem-solving.

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5.2.Learning activities

The learning process designed for this subject is based on the following activities:

- **Theoretical sessions** , including exposure of the theory and **problems resolution** . Students will have the content of each lecture as well as the collection of numerical exercises at the beginning of each session.
- **Laboratory sessions,** that include the presentation of the report elaborated from the results obtained. These laboratory sessions will take 2 hours, approximately every 15 days. Students will have the content before the session, which includes the practical procedure and the theoretical contents.
- **Individualized tutoring** will monitor the learning process development.

5.3.Program

Theory

UNIT 1. - **THERMODYNAMICS**

Topic I.1. Temperature and Heat. Heat transfers

Topic I.2. The First Law of Thermodynamics

Topic I.3. The Second Law of Thermodynamics

UNIT II. - **ELECTROMAGNETISM**

Topic II.1. Electrostatics

Topic II.2. Continuous current circuits

Topic II.3. Magnetostatics

Topic II.4. Electromagnetic field

UNIT III. - **WAVES**

Topic III.1. Waves in solids and fluids

Topic III.2. Electromagnetic waves

Practicals

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1. States of Aggregation
2. Calorific energy
3. Multimeter and oscilloscope
4. Ohm's Law and the relationship to resistance
5. Charge and discharge of a condens

5.4.Planning and scheduling

It is estimated that an average student should devote to this subject, 6 ECTS, a total of 150 hours. This time must include both classroom and non-attendance activities. The student must ensure that the dedication is distributed evenly throughout the quarter.

Type Activity/week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Presential activity																					63
Theory	2	2	2	2	2	2	2	2	2		2	2	2	2	2	2					**30**
Problems			2		2		2		2		2	2	2		2	1					**17**
Laboratory sessions		2		2		2		2						2							**10**
Team work																					**0**
Evaluation									1							1			4		**6**
Non presential work																					87
Individual work	4	4	2,5	4	2,5	4	2,5	4	1,5	8	4	4	4	4	2,5	4	8	8	4		**79,5**
Team work			1,5		1,5		1,5		1,5						1,5						**7,5**
TOTAL	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		150

5.5.Bibliography and recomended resources

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BB	**Basic Bibliography**
BC	**Complementary Bibliography**
BB	Burbano de Ercilla, Santiago. Física general / Santiago Burbano de Ercilla, Enrique Burbano García, Carlos Gracia Muñoz . - 32ª ed. Madrid : Tébar, D.L. 2003
BB	Burbano de Ercilla, Santiago. Problemas de física general / Santiago Burbano de Ercilla , Enrique Burbano García, Carlos Gracia Muñoz. 26ª ed. Zaragoza : Mira Editores, D.L.1994
BB	Física universitaria / Francis W. Sears ... [et al.] ; contribución de los autores, A. Lewis Ford ; traducción, Roberto Escalona García ; revisión técnica, Jorge Lomas Treviño ... [et al.] . - 11ª ed. México : Pearson Educación, cop. 2004
BB	Gettys, W. Edward. Física para ciencias e ingeniería / W. Edward Gettys, Frederick J. Keller, Malcolm J. Skove ; traducción, Luis Arizmendi López, José A. García Sole, Carlos E. Zaldo Luezas ; revisión técnica, Ángel Hernández Fernández, Sergio Saldaña Sánchez, María del Carmen Enriqueta Hano Roa. 2a ed. México : McGraw Hill Interamericana, cop. 2005
BC	González, Félix A.. La física en problemas / Félix A. González . - Nueva ed. actualizada Madrid : Tébar Flores, D.L. 2000
BC	Lleó Morilla, Atanasio. Física para ingenieros / Atanasio Lleó Madrid, etc. : Mundi-Prensa, 2001
BC	Nelson, E. W.. Mecánica vectorial : estática y dinámica / E. W. Nelson , Charles L. Best, W. G. McLean ; traducción y revisión técnica, Mª Rosa Dalmau, José Vilardell . Madrid [etc.] : McGraw-Hill/Interamericana, 2004
BC	Serway, Raymond A. Física para ciencias e ingeniería / Raymond A. Serway, Robert J. Beichner . - 5ª ed. México [etc.] : McGraw-Hill, cop. 2002

URLs:

Franco, A. (2006 *). Curso interactivo de Física en Internet* . Universidad del País Vasco - [http://www.sc.ehu.es/sbweb/fisica/default.htm]

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García, L.I. (2015). FisquiWeb. Espacio web dedicado a la enseñanza de la Física

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y de la Química. Dpto. De Física y Química del IES Juan A. Suanzes - [http://web.educastur.princast.es/proyectos/fisquiweb/]
Recopilación clasificada de enlaces de física en Internet - [http://www.galeon.com/filoesp/ciencia/fisica/index.htm]