

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	9.0
Course	1
Period	Annual
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**

This course consists of **three parts or different training activities** :

- The first training activity is the acquisition of fundamental physical concepts and their application to solving problems in specific scenarios. Such action will be implemented through 74 hours of theory classes and problems. Of these, 50 h will be devoted to the development of the proposed program. In these classes with computer presentations will be used, except for the most complex mathematical demonstrations that will take place on the blackboard. The remaining 24 hours will be devoted to solving problems and cases related to the program developed in the theoretical classes.

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- The second training activity are eight laboratory practices, two hours each, in which students will apply the knowledge acquired in the first training activity. In these sessions indications will be provided to the student for an autonomous work, but under supervision of the teacher.

- In the third training activity students will perform complex problems in small and tutored groups on issues related to the program.

5.2.Learning activities

1. Topics to be developed in the theory classes (50 hours):

-See 5.3 Program.

2. Classes of problem solving in small groups (24 hours):

-The students will solve problems related to the topics explained in the theory classes.

3. Laboratory practices: 16 hours:

1. Forced oscillations. Mechanical resonances.

2. Standing waves.

3. Resistivity measurement.

4. Optical Components. Microscope. Measurement of basic properties of light.

5. Measuring of mechanical properties of fluids.

6. Fluid Mechanics.

7. Measurement of thermal properties of matter.

8. Measurement of electrical and magnetic properties of matter.

5.3.Program

- Mechanics. Newton's laws. Kinematics. Energy.

- Gravitation. Planetary motion.

- Mechanical properties of matter. Elasticity.

- Oscillations and waves. Oscillatory movement. Wave motion.

- Electricity and Magnetism.

- Optics.

- Fluids. Fluids statics. Ideal fluids dynamics. Real fluids. Surface phenomena.

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- Thermodynamics. Ideal gases. Kinetic theory of gases. First and second laws of thermodynamics. Thermodynamics process. Thermal properties of matter.
- Electrical and magnetic properties of matter.
- Mechanics. Newton laws. Cinematics. Energy.
- Gravitation. Planetary movement.

5.4.Planning and scheduling

SCHEDULED SESSIONS

- The lectures will be held at the time indicated by the Faculty of Sciences.
- The problem solving classes will be held on Tuesdays during the first quarter and Wednesdays during the second quarter. Two reduced groups of problems will be organized: group I, 12-13h; group II 13-14h
- The practical sessions will be held on Tuesday, Wednesday and Friday (in the second quarter). Specific dates will be announced by teachers in advance.
- The theoretical examination shall be conducted on the dates indicated by the Faculty of Sciences.

5.5.Bibliography and recommended resources

- BB** Callister, William D., jr.. Introducción a la ciencia e ingeniería de los materiales / William D. Callister, jr ; [versión española por Pere Molera Solà y Marc J. Anglada Gomila] . - [1ª] ed. en español, reimp. Barcelona [etc.] : Reverté, 2007
- 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** Lowrie, William. Fundamentals of geophysics / William Lowrie . - 1st ed., 4th reprint. Cambridge : Cambridge University Press, 2011
- BB** Tipler, Paul A.. Física para la ciencia y la tecnología. Vol. 1, Mecánica , oscilaciones y ondas, termodinámica / Paul A. Tipler, Gene Mosca ; [coordinador y traductor José Casas-Vázquez ; traductores Albert Bramon Planas ... et al.]. - 6ª ed. Barcelona : Reverté, D.L. 2010

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- BB** Tipler, Paul A.. Física para la ciencia y la tecnología. Vol. 2, Electricidad y magnetismo, luz / Paul A. Tipler, Gene Mosca ; [coordinador y traductor José Casas-Vázquez ; traductores Albert Bramon Planas ... et al.]. - 6ª ed. Barcelona : Reverté, D.L. 2010
- BB** Tipler, Paul A.. Física para la ciencia y la tecnología. Vol. Apéndices y respuestas / Paul A. Tipler, Gene Mosca; [coordinador y traductor, José Casas-Vázquez; traductores, Albert Bramon Planas...[et al.]]. - 6ª ed. Barcelona [etc.] : Reverté, 2010
- BB** Tipler, Paul A.. Física para la ciencia y la tecnología. Vol. Física moderna, Mecánica cuántica, relatividad y estructura de la materia / Paul A. Tipler, Gene Mosca; [coordinador y traductor, José Casas-Vázquez; traductores, Albert Bramon Planas...[et al.]]. - 6ª ed. Barcelona [etc.] : Reverté, 2010