

- Course title: **Mechanics and Thermodynamics.**
- Course code: 5263
- Type of course: compulsory
- Level of course: basic
- Year of study: 1
- Semester: 1
- Number of credits allocated: 6
- Name of lecturer: Ramón E. Viloría
- Objective of the course: to be able to explain and apply the concepts and the fundamental phenomena of Mechanics and Thermodynamics; to understand Newtonian mechanics and the principles of conservation; to apply them to systems of particles, solids and fluids; to be able to explain and apply the First and Second Laws of Thermodynamics in simple systems; to identify and use the necessary instrumentation in the laboratory to conduct proper experiments and to take measurements in both disciplines.
- Prerequisites: no prior requirements.
- Course contents: magnitudes, units and dimensional analysis; motion in two and three dimensions; Newton's Laws: dynamics; systems of particles; dynamics; dynamics of rotation; gravitation; fluid statics; hydrodynamics; oscillations; waves; heat and temperature; thermal properties of matter; laws of thermodynamics; statistical mechanics.
- Recommended reading:
 - Paul A. Tipler, Gene Mosca, (2003). Physics for Scientists and Engineers. 5^a Ed., W. H. Freeman, (Vol. 1).
 - Sears, F.W., Zemansky, M.W., Young, H.D., Freedman, R.A., (2004). University Physics. 11 Ed., Addison Wesley, (Vol. 1).
 - Serway, R.A.; Jewett, J.W., (2003). Principles of Physics. 3^a Ed., Thomson, (Vol. 1).
 - Alonso, M. and Finn, E.J., (1995). Física, 1^a Ed., Addison-Wesley Iberoamericana, S.A., Madrid.
 - Angel Franco García, Curso interactivo de Física en Internet, Universidad del País Vasco, <http://sc.ehu.es/sbweb/fisica/default.htm>.
 - Wolfgang Christian, Mario Belloni, (2003). Physlet(R) Physics: Interactive Illustrations, Explorations and Problems for Introductory Physics, 1^a Ed., Benjamin Cummings
- Teaching methods:
 - Lectures: teachers explain the contents of the lessons.
 - Seminars: students and teacher discuss the problems and other points raised in class.
 - Practicals: students apply their knowledge by solving experimental laboratory problems.
- Assessment methods:
 - Resolution of problems, issues and other proposals: 20%.
 - Group or individual work: 10%.
 - Laboratory work: 20%.
 - Written work and exams: 50%.
- Language of instruction: Spanish and/or English