- Course title: **Physical Chemistry II: Spectroscopy and Statistical Thermodynamics**.
- Course code: 5275
- Type of course: compulsory
- Level of course: fundamental
- Year of study: 2
- Semester: 1
- Number of credits allocated: 6
- Names of lecturers: Saturnino Ibeas and Santiago Aparicio
- Objective of the course:
    - To acquire a basic knowledge of symmetry, and its application for spectroscopic purposes.
    - To understand the basic foundations of spectroscopy.
    - To analyze the theoretical basis of statistical thermodynamics and its role between classic thermodynamics and quantum chemistry.
- Prerequisites: It is recommended that students should have attended Electromagnetism Quantum Physics and Optics before following this course,
- Course contents: The course is divided into three main blocks:
    - The first is devoted to the study of molecular symmetry, point Group Symmetry and character Tables.
    - The second considers the analysis of microwave, infrared, Raman, uv-vis spectroscopies together with nuclear magnetic resonance.
    - The third is centred on the study of the basis of statistical thermodynamics and its application to ideal and non-ideal gases and solid systems.
- Recommended reading:
    - Maczek (1998) Statistical Thermodynamics, Ed. Oxford Science Publications.
    - Alberto Requena Rodríguez, José Zúñiga Román (2004) Espectroscopia, Ed. Pearson, Madrid.
    - C.E. Hetch. Ed. Freeman and Co (1990) Statistical Thermodynamics and Kinetic Theory.
    - Diaz Peña and A. Roig Muntaner (1989) Química Física. Vol 1, Editorial Alambra, Madrid.
    - F. Albert Cotton (1983) La teoría de grupos aplicada a la Química, Editorial Limusa, Mexico.
    - Donald L. Pavia [et al.] (2009) Introduction to spectroscopy, Belmont, CA: Brooks/Cole, Cengage Learning, cop.
- 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 to solve laboratory experiments.
- Assessment methods:
    - Resolution of problems, issues and other proposals: 25 %.
    - Continuous evaluation of theoretical-practical sessions: 20 %.
    - Participation and attitude in lectures and seminars: 5 %
    - Written work and exams: 50 %.
- Language of instruction: Spanish and/or English