- Course title: **Chemical Engineering I**.
- Course code: 5286
- Type of course: compulsory
- Level of course: fundamental
- Year of study: 3
- Semester: 1
- Number of credits allocated: 6
- Name of lecturer: José Manuel Benito.
- Objective of the course: To acquire the knowledge needed to pose and solve the property balances that describe the change in a system due to momentum, energy and mass transfer. To acquire the knowledge needed to construct a process flowchart and to discuss the unit operations involved, identifying the operations and basic equipment in a chemical plant. To know and classify the separation processes according to the physicochemical and thermodynamic principles, and transport phenomena involved in an industrial chemical process.
- Prerequisites: It is recommended that students should have attended Mathematics I and Mathematics II before following this course.
- Course contents: Introduction to Chemical Engineering. Unit operations in chemical processes. Mass balances. Energy balances. Fluid flow. Flow measurement. Pumping of liquids. Unit operations based on fluid flow: filtration, settling, fluidization. Heat transfer. Heat exchangers. Unit operations based on heat transfer: evaporation.
- Recommended reading:
  - McCabe, W.L.; Smith, J.C.; Harriott, P., "Unit Operations of Chemical Engineering", 7th Ed., McGraw-Hill, USA (2004).
  - Geankoplis, C. J., "Transport Processes and Unit Operations", 3rd Ed., Prentice Hall, New York (1993)
  - Felder, R.M.; Rousseau, R.W., "Elementary Principles of Chemical Processes", 3rd Ed., Wiley, USA (2005).
  - Himmelblau, D.M.; Riggs, J.B., "Basic Principles and Calculations in Chemical Engineering" 7th Ed., Prentice-Hall, USA (2003).
  - Costa López, J.; Cervera, S.; Cunill, F.; Esplugas, S.; Mans, C.; Mata, J., "Curso de Química Técnica", Reverté, Barcelona (1991).
  - Henley, F.J.; Rosen, E.M., "Material and Energy Balance Computations", Wiley, New York (1969)
- 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:
  - Continuous evaluation of theoretical-practical sessions: 40%
  - Group and individual work: 10%
  - Written work and exams: 50%.
- Language of instruction: Spanish and/or English