

PROJECTS

Code: **43340-UVA**

Extension: Half-yearly Semester(s): 9 Academic year: 5 Cycle: 2
CreditsLocal: 7,5 ECTS: 7,5

Lecture hours: 54 Practical hours: 21
Personal work hours: 113 Laboratory hours: 0

Aims: Methodological: Conceptualize, design, develop, interpret and evaluation of Chemical Engineering Projects within the Chemical Engineering framework.

Organising: Work in teams, determine the different tasks and stages of a project and distribute the man-hours leading the project when required.

Management: Relate with other engineers, communicate the results efficiently, ask engineering questions and ask for technical requisitions.

Assessment: Examination (60%) Classwork (50%)

Outline Syllabus:

PART I. Introduction to Project Engineering

1. Introducción general a la Ingeniería de Proyectos
2. Morphology of a Chemical Engineering Projects
3. Technology Transfer
4. Alternatives in a Project

PART II. Process Engineering

1. Process Engineering (I). Process Flow Diagram. Material & Energy Balances
2. Process Engineering (II). Piping and instrumentation Diagrams (P&IDs)
3. Process Engineering (III). Equipment Specification (Process Data Sheets)
4. Plant and Equipment Layout
5. Utilities (I). Water in a plant
6. Utilities (II). Other services

PART III. Economy, Safety, Environmental Impact, Management, Quality Control and New Trends for Design

1. Cost Engineering
2. Safety and Health
3. Environmental Impact
4. Project Management
5. Management of Quality
6. New trends for Design in Chemical Engineering

Bibliography:

- ENCYCLOPEDIAS: (1) Ullmann's Encyclopedia of Industrial Chemistry, Verlag Chemie, Weinheim, FRG, 7th Edition, (2004). (2) Kirk-Othmer Encyclopedia of Chemical Technology, DialogOnDisc, 4th ed., (2002). (3) J. McKetta, Encyclopedia of Chemical Processing and Design, Marcel Dekker, (1997)
 - PROCESS AND EQUIPMENT MANUALS: (1) E.E. Ludwig, Applied Process Design for Chemical and Petrochemical Plants, Vols. 1-3, 3rd ed., Gulf Professional Publishing, (1999). (2) Perry, Green, and Maloney, Perry's Chemical Engineers Handbook, McGraw-Hill, 7th ed.,
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New York, (1999). (3) J.R. Couper, W.R. Penney, J.R. Fair, S. Walas, Chemical Process Equipment - Selection and Design -, 2nd ed. Gulf Professional Publishing, (2004).

- BASIC CHEMICAL ENGINEERING AND PLANT DESIGN: (1) W.D. Baasel, Preliminary Chemical Engineering Plant Design, 2nd ed., (1989). (2) J.M. Douglas, Conceptual Design of Chemical Processes, McGraw-Hill, New York (1988). (3) M.S. Peters, K.D. Timmerhaus, R.E. West, M. Peters, Plant Design and Economics for Chemical Engineers, McGraw-Hill, New York, 5th ed., (2002). (4) R.K. Sinnott, J.M. Coulson, and J.F. Richardson, Chemical Engineering, Vol. 6, Design, Butterworth Heinemann, Third edition, Oxford, (1999). (5) Lieberman, Process Design for Reliable Operations, Gulf Pub Co, 2nd ed., (1988).
- PHYSICAL PROPERTIES: (1) D.R. Lide, Handbook of Chemistry and Physics, CRC-Press, 79th ed., (1998). (2) American Petroleum Institute (API), Technical Data Book: Petroleum Refining, 6th ed., (1997).
- Other specific bibliography: specific by topic, given to the student during the year.
- Websites: specific by topic, given to the student during the year.

Staff Involved: Juan García-Serna, Fernando Fdz-Polanco, Rafael González, Andrés Herguedas

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