Course guides
330151 - ERQ - Chemical Reaction Engineering

Last modified: 05/05/2020

Unit in charge: Manresa School of Engineering
Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering.

Degree: BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Compulsory subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: MARIA DOLORS GRAU VILALTA

Others: ANTONIO DAVID DORADO CASTAÑO - NÚRIA TORRAS MELENCHÓN

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. (ENG) Calcular i dissenyar reactors químics ideals i homogenis, des del punt de vista material i energètic.
2. (ENG) Distingir els diferents tipus de reactors heterogenis.

Transversal:
3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
4. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
5. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

Type	Hours	Percentage
Hours medium group	15,0	10.00
Self study	90,0	60.00
Hours large group	45,0	30.00

Total learning time: 150 h

CONTENTS

(ENG) 1. Introducció a l'Enginyeria de la reacció química

Full-or-part-time: 5h
Theory classes: 4h
Self study : 1h

(ENG) 2. Cinètica de les reaccions homogènies

Full-or-part-time: 50h
Theory classes: 15h
Practical classes: 5h
Self study : 30h

(ENG) 3. Aspecte material en el disseny de reactors: Reactors ideals isotèrmics

Full-or-part-time: 66h
Theory classes: 16h
Practical classes: 8h
Self study : 42h

(ENG) 4. Aspecte energètic en el disseny de reactors

Full-or-part-time: 23h
Theory classes: 6h
Practical classes: 2h
Self study : 15h

(ENG) 5. Reactors per a sistemes heterogenis

Full-or-part-time: 6h
Theory classes: 4h
Self study : 2h

ACTIVITIES

(ENG) 1. RESOLUCIÓ DE PROBLEMES A CLASSE

Full-or-part-time: 7h
Theory classes: 4h
Self study: 3h

(ENG) 2. RESOLUCIÓ DE PROBLEMES A CASA

Full-or-part-time: 18h
Self study: 18h

(ENG) 3.QÜESTIONARIS ATENEA

Full-or-part-time: 4h
Self study: 4h

(ENG) 4. PRESENTACIÓ D'UN PROBLEMA EN GRUP

Full-or-part-time: 9h
Theory classes: 4h
Self study: 5h

(ENG) 5. PROVA INDIVIDUAL ESCRITA

Full-or-part-time: 14h
Theory classes: 4h
Self study: 10h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- Levenspiel, Octave. Ingeniería de las reacciones químicas [on line]. 3ª ed. México: Limusa Wiley, 2004 [Consultation: 30/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=8700. ISBN 9681858603.
- Fogler, H. Scott. Elementos de ingeniería de las reacciones químicas. 3ª ed. México: Pearson Educación, 2001. ISBN 9702600790.
- Westerterp, K. R.; Swaaij, W. P. M. Van; Beenackers, A. A. C. M. Chemical reactor design and operation. Chichester: John Wiley & Sons, 1984. ISBN 0471901830.
- Smith, J. M. Ingeniería de la cinética química. 3ª ed. México: Compañía Editorial Continental, 1986. ISBN 9682606284.
- Froment, Gilbert F.; Bischoff, Kenneth B. Chemical reactor analysis and design. 2nd ed. New York: John Wiley & Sons, 1990. ISBN 0471510440.

Complementary:
- Levenspiel, Octave. El omnilibro de los reactores químicos. Barcelona: Reverté, 1986. ISBN 8429173366.
- Walas, Stanley M. Chemical reaction engineering handbook of solved problems. Austraulia: Gordon and Breach, 1995. ISBN 2884491597.
- Hill, Charles G. An introduction to chemical engineering kinetics & reactor design. New York: Wiley, 1977. ISBN 0471396095.