

Course guide

330153 - QF - Physical Chemistry

Last modified: 04/05/2023

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).
Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Pere Busquets Rubió

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. Expand knowledge of the state of gases.
2. Know the basic concepts of thermodynamics.
3. Expand knowledge of chemical equilibria.
4. Expand knowledge of liquids and solutions.
5. Develop problem-solving skills.
6. Develop skills in the laboratory.
7. Planning, organization and learning on a personal and team level.
8. (ENG) Aprenentatge autònom.

Transversal:

9. 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.
10. 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.
11. 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.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

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

Total learning time: 150 h



CONTENTS

(ENG) Contingut 1: L'ESTAT GASÓS

Description:

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Full-or-part-time: 33h

Theory classes: 10h

Laboratory classes: 3h

Self study : 20h

(ENG) Contingut 2: TERMODINÀMICA

Description:

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Full-or-part-time: 44h

Theory classes: 12h

Laboratory classes: 4h

Self study : 28h

(ENG) Contingut 3: EQUILIBRIS QUÍMICS

Description:

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Full-or-part-time: 32h

Theory classes: 8h

Laboratory classes: 4h

Self study : 20h

(ENG) Contingut 4: LÍQUID I DISSOLUCIONS

Description:

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Full-or-part-time: 41h

Theory classes: 15h

Laboratory classes: 4h

Self study : 22h

ACTIVITIES

(ENG) ACTIVITAT 1: PRÀCTIQUES DE LABORATORI

Full-or-part-time: 20h

Laboratory classes: 10h

Self study: 10h



(ENG) ACTIVITAT 2: RESOLUCIÓ DE PROBLEMES I/O EXERCICIS. AVALUACIÓ CONTINUADA

Material:

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Full-or-part-time: 14h

Self study: 14h

name english

Material:

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Full-or-part-time: 24h

Laboratory classes: 4h

Self study: 20h

(ENG) ACTIVITAT 4: PROVES INDIVIDUALS D'AVUACIÓ

Full-or-part-time: 52h

Theory classes: 6h

Self study: 46h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Levine, Ira N.; Fisicoquímica, Vol. 2 [on line]. 5a ed. Madrid: McGraw-Hill, 2004 [Consultation: 13/06/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=4150. ISBN 8448137876.
- Engel, Thomas; Reid, Philip J. Introducción a la fisicoquímica: termodinámica. Madrid: Pearson Prentice Hall, 2007. ISBN 9789702608295.
- Atkins, P. W.; De Paula, J. Química física. 8ª ed. Buenos Aires: Editorial Médica Panamericana, 2008. ISBN 9789500612487.
- Levine, I. N. Fisicoquímica, Vol. 1 [on line]. 5ª ed. Madrid: McGraw-Hill, 2004 [Consultation: 11/11/2020]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=4149. ISBN 8448137868.
- Atkins, P. W.; Friedman, Ronald. Molecular quantum mechanics. 5th ed. Oxford: Oxford University Press, 2011. ISBN 9780199541423.
- Ball, David W. Fisicoquímica. México: Thomson, 2004. ISBN 9706863281.

RESOURCES

Other resources:

Teaching digital material (UPCCCommons Videos, multimedia material; Power Point Presentations).

Collection of Exercises.

Virtual digital support (Athena).

The physical space (the classroom with a blackboard and audiovisual support to teach the classes. Classrooms to be able to work in groups).