Course guides
330455 - BI - Biotechnology

Last modified: 12/05/2020

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 2016). (Compulsory subject).

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

LECTURER

Coordinating lecturer: Dorado Castaño, Antonio David

Others: Gamisans Noguera, Xavier

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. (ENG) Comprendre les bases bioquímiques i microbiològiques dels processos biotecnològics industrials.
2. (ENG) Utilitzar i resoldre les equacions cinètiques enzimàtiques i del creixement microbià.
3. (ENG) Distingir les característiques diferencials dels bioreactors

Transversal:
4. 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.
5. 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.
6. EFFECTIVE USE OF INFORMATI0N RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

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STUDY LOAD

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

Total learning time: 150 h

CONTENTS

title english

Description:
content english

Full-or-part-time: 36h
Theory classes: 12h
Practical classes: 4h
Self study : 20h

title english

Description:
content english

Full-or-part-time: 64h
Theory classes: 18h
Practical classes: 6h
Self study : 40h

title english

Description:
content english

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

ACTIVITIES

name english

Full-or-part-time: 42h
Practical classes: 6h
Self study: 36h

name english

Full-or-part-time: 33h
Practical classes: 3h
Self study: 30h

name english

Full-or-part-time: 23h
Practical classes: 3h
Self study: 20h

name english

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

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- López Santín-Bellaterra, José; Casas Alvero, Carles; Gòdia i Casablancas, Francesc. Ingeniería bioquímica. Madrid: Síntesis, 1998. ISBN 8477386110.
- Schaechter, M., i altres. Microorganismes. Barcelona: Reverté, 2008. ISBN 9788429118605.
- Bailey, James Edwin; Ollis, David F. Biochemical engineering fundamentals. 2nd ed. New York: McGraw-Hill, cop. 1986. ISBN 0070032122.
- Doran, Pauline M. Bioprocess engineering principles. London: Academic Press, 1995. ISBN 0122208560.
- Díaz Fernández, Mario. Ingeniería de bioprocesos. Madrid: Paraninfo, 2012. ISBN 9788428381239.
- Ingraham, John L.; Ingraham, Catherine A. Introducció a la microbiologia. Barcelona: Reverté, 1999. ISBN 8429118691.
- Najafpour, Ghasem D. Biochemical engineering and biotechnology [on line]. Amsterdam: Elsevier, 2007 [Consultation: 21/05/2019]. Available on: https://discovery.upc.edu/iii/encore/record/C__Rb1505973?lang=cat. ISBN 9780444528452.

Complementary:
- Rittmann, Bruce E.; McCarty, Perry L. Environmental biotechnology: principles and applications. Boston: McGraw-Hill, 2001. ISBN 0071181849.
- Scragg, A. H. Biotecnología para ingenieros: sistemas biológicos en procesos tecnológicos. México: Limusa, 1996. ISBN 9681847083.
- Nelson, David L., i altres. Lehninger principios de bioquímica. 4ª ed. Barcelona: Omega, 2005. ISBN 8428214107.