Course guide
2400197 - 240MEI50 - Practical Application of Environmental Impact Minimisation in Industry

Last modified: 10/04/2026

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2025). (Optional subject).

Academic year: 2026 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Jordi Bou Serra

Others: Rosa Mari Darbra Roman

PRIOR SKILLS

Knowledge of Chemical Technology. To be student of Process Greening speciality

REQUIREMENTS

Student of Master MUEI in speciality Process Greening

TEACHING METHODOLOGY

In the four-month period of teaching, the student will go to a company, industry or institution to develop and learn systems related to the process greening, under the administrative framework of a CCE.
In principle, a dedication of 300 hours is expected, essentially half-time.
The type and planning of the activities will be negotiated with the collaborating entities, and may include topics such as: chemical engineering, environmental engineering, food and biological technologies, environmental management, sustainability, circular economy, ecodesign or environmental quality.

LEARNING OBJECTIVES OF THE SUBJECT

i) Learn to develop an activity related to the environment, within the business, industrial or institutional field
ii) Have environmental criteria to decide on the appropriate technologies
iii) Identify environmental problems in the business, industrial or institutional environment and provide solutions
iv) Acquire knowledge of basic technologies related to the environment, such as chemical engineering, food technology, environmental sciences, sustainability or circular economy.

STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours large group	22,5	18.00
Hours small group	22,5	18.00

Total learning time: 125 h

CONTENTS

Process greening stay in a company, industry or institution

Description:
Stay at a collaborating entity for 300 hours, at a time to be agreed, related to the process greening. The academic plan will be agreed for each case.

Specific objectives:
The same as those of the subject

Related activities:
Stay at a company, industry or institution

Full-or-part-time: 300h
Self study : 300h

GRADING SYSTEM

NT = 0,4·NAC + 0,6·NEF

NT = Total Grade NAC = Continuous assessment grade given by the collaborating entity NEF = Final exam grade on the agreed topics

EXAMINATION RULES.

An evaluation system will be agreed with the collaborating entity that includes the agreed topics. It could be a written or oral exam (NEF).
Part of the evaluation will come from reports from companies, industries or institutions (NAC).

BIBLIOGRAPHY

Basic:
- Maguire, Stuart ; Robson, Ian. Sustainable development through global circular economy practices [on line]. 1. Bingley: Emerald Publishing Limited, 2023 [Consultation: 07/04/2026]. Available on: https://www-emerald-com.recursos.biblioteca.upc.edu/books/monograph/11234/Sustainable-Development-Through-Global-Circular. ISBN 9781837535910.
- DeRosa, Thomas F. Engineering green chemical processes : renewable and sustainable design [on line]. First edition. New York: McGraw-Hill Education, 2015 [Consultation: 07/04/2026]. Available on: https://www-accessengineeringlibrary-com.recursos.biblioteca.upc.edu/content/book/9780071826686?implicit-login=true. ISBN 0071826696.
- Valdés Fernández, José Luis. Guía para la aplicación de UNE-EN ISO 14001:2015 [on line]. 1st. Madrid: AENOR ediciones, 2019 [Consultation: 07/04/2026]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=29383393. ISBN 9788481439168.
- Mequanint, Kibret; Tsegaw, Assefa Asmare; Sendekie, Zenamarkos Bantie; Kebede, Birhanu; Yetbarek Gedilu, Ephrem. Advancement of science and technology in sustainable manufacturing and process engineering [on line]. 1st ed. 2024. Cham: Springer Nature Switzerland : Imprint: Springer, 2024 [Consultation: 01/04/2026]. Available on: https://link-springer-com.recursos.biblioteca.upc.edu/book/10.1007/978-3-031-41173-1. ISBN 9783031411731.
- Chandel, Anuj Kumar. Biorefinery and Industry 4.0: Empowering Sustainability [on line]. Cham: Springer Nature Switzerland, 2024 [Consultation: 18/03/2026]. Available on: https://link-springer-com.recursos.biblioteca.upc.edu/book/10.1007/978-3-031-51601-6. ISBN 303151601X.

Complementary:
- Green, Don W. Perry's chemical engineers' handbook [on line]. Ninth edition. New York: McGraw-Hill, [2019] [Consultation: 07/04/2026]. Available on: https://www-accessengineeringlibrary-com.recursos.biblioteca.upc.edu/content/book/9780071834087. ISBN 9780071834087.

- von Braun, Joachim. Science and innovations for food systems transformation [on line]. 1. Springer Nature, 2023 [Consultation: 07/04/2026]. Available on: https://link.springer.com/book/10.1007/978-3-031-15703-5. ISBN 9783031157028.

RESOURCES

Hyperlink:
- Apunts ECONOMIA AMBIENTAL I SOSTENIBILITAT - 2500205. Resource