Course guide
390447 - IAAB - Food and Beverage Industries

Last modified: 16/01/2024

Unit in charge: Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit: 745 - DEAB - Department of Agri-Food Engineering and Biotechnology.

Degree: BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Isabel Achaerandio

Others: Isabel Achaerandio
Fabiola Juarez Muriel
Reine Khali

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Food engineering and technology: Engineering and basic operations in food industry. Food technology. Processes in food industry. Management and exploitation of waste. Modeling and optimization. Quality and safety management. Food analysis. Traceability.

Transversal:
2. 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

The teaching methodologies used in this course will be oral lecture, problem solving, case study and laboratory and pilot plant practice. The oral lectures will be combined with active learning activities (puzzle and debate) using the teaching material made from professors and students (they will develop it during their autonomous learning period). Problem solving sessions will be conducted in small groups at the computer lab with specific software together with student autonomous learning period (moodle quizzes, excel, minitab). The laboratory and pilot plant practice (face-to-face sessions) will be carried out by small groups at the Food technology facilities of the ESAB. Case study will be done during the course using task-based lessons, active learning activities (peer review and debates), oral presentation and visits to food industry

LEARNING OBJECTIVES OF THE SUBJECT

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STUDY LOAD

Type	Hours	Percentage
Hours small group	20,0	13.33
Self study	90,0	60.00
Hours medium group	40,0	26.67

Total learning time: 150 h

CONTENTS

(ENG) INDÚSTRIES DE BEGUDES NO ALCOHÒLIQUES

Description:
(ENG) Aigües envasades, mineral natural, de deu, potable preparada. Aigües gasificades, edulcorades i aromatitzades. Altres begudes refrescants.
Sucs de fruites i altres productes similars. Línies d'envasament de begudes.

Related activities:
(ENG) Activitat 1. Classes de teoria
Activitat 2. Prova individual d'avaluació
Activitat 3. Treball de laboratori i planta pilot

Full-or-part-time: 40h
Practical classes: 10h
Laboratory classes: 6h
Self study : 24h

(ENG) BEGUDES FERMENTADES I DESTIL·LATS

Description:
(ENG) Vins especials. Sidra i altres fermentats vegetals.
Begudes espirituoses i altres begudes alcohòliques.

Related activities:
(ENG) Activitat 1. Classe de teoria
Activitat 2. Prova individual d'avaluació
Activitat 3. Treball de laboratori i planta pilot
Activitat 4. Sortida a la Industria alimentària

Full-or-part-time: 35h
Practical classes: 10h
Laboratory classes: 4h
Self study : 21h

INDUSTRIES OF OTHER FOOD PRODUCTS

Description:
Coffee and substitutes. Tea and other vegetable infusions. Cocoa and cocoa derivatives. Confectionery products. Honey and other sweetness ingredient. Spices and condiments.

Related activities:
(ENG) Activitat 1 . Classe de teoria
Activitat 2. Prova individual d'avaluació
Activitat 3. Treball de laboratori i planta pilot
Activitat 4. Sortida a Indústria alimentària

Full-or-part-time: 29h
Practical classes: 8h
Laboratory classes: 4h
Self study : 17h

CEREAL DERIVED INDUSTRY

Description:
Fermented bread and pastry products. Puff pastry and leavening products. Obtaining of starches and derivatives. Pasta food. Rice. Baby food. Breakfast cereals. Snacks.

Related activities:
(ENG) Activitat 1 . Classe de teoria
Activitat 2. Prova individual d'avaluació
Activitat 3. Treball de laboratori i planta pilot
Activitat 4. Sortida a Indústria alimentària

Full-or-part-time: 46h
Practical classes: 12h
Laboratory classes: 6h
Self study : 28h

ACTIVITIES

(ENG) ACTIVITAT 1: CLASSES DE TEORIA

Full-or-part-time: 98h
Practical classes: 38h
Self study: 60h

(ENG) ACTIVITAT 2: PROVES INDIVIDUALS D'AVALUACIÓ

Full-or-part-time: 2h
Practical classes: 2h

(ENG) ACTIVITAT 3: TREBALL EXPERIMENTAL DE LABORATORI I PLANTA PILOT

Full-or-part-time: 30h
Laboratory classes: 12h
Self study: 18h

(ENG) ACTIVITAT 4: SORTIDES A INDÚSTRIES ALIMENTÀRIES

Full-or-part-time: 20h
Laboratory classes: 8h
Self study: 12h

GRADING SYSTEM

Grading:
Final mark = 0,35N1+0,35N2 + 0,25N3 +0,05N4
N1: mid-term exam (Parcial 1)
N1: final exam (Parcial 2)
N3: Laboratory reports and class assignments (individual and group active learning activities).
N4: Food Industry external visit quizzes (individual assignments)

EXAMINATION RULES.

Students will have a schedule with the course activities and due dates. The attendance to the active learning activities is required, as well as lab sessions and external visits.

BIBLIOGRAPHY

Basic:

- Buglass, Alan J. Handbook of alcoholic beverages : technical, analytical and nutritional aspects. Chichester: Wiley, cop. 2011. ISBN 9780470512029.
- Afoakwa, E.O. Cocoa production and processing technology. Boca Raton: CRC Press, 2014. ISBN 9781466598232.
- Edwards, W.P. La ciencia de las golosinas. Zaragoza: Acribia, 2001. ISBN 8420009644.
- Gobbetti, M. Handbook on sourdough biotechnology. Springer, 2012. ISBN 9781461454243.
- Ashurst, P.R. The chemistry and technology of soft drinks and fruit juices. 2nd ed. Oxford: Blackwell Pub, 2005. ISBN 1405122862.
- Adrián, J. La Panificación : aspectos socioeconómicos, materias primas, agentes de fermentación, tecnología, calidad. Barcelona: Montagud, cop. 1996. ISBN 8472120635.
- Ganjyal, Girish M.. Extrusion cooking: cereal grains processing [on line]. 2nd edition. Duxford, England: Woodhead Publishing, 2020 [Consultation: 11/04/2023]. Available on: https://www-sciencedirect-com.recursos.biblioteca.upc.edu/book/9780128153604/extrusion-cooking. ISBN 9780128153604.

Complementary:

- Steen, David P.; Ashurst, P. R. Carbonated soft drinks : formulation and manufacture. Oxford [etc.]: Blackwell, 2006. ISBN 9781405134354.
- Coles, R.; McDowell, D.; Kirwan, Mark J. Manual del envasado de alimentos y bebidas. Madrid: Mundi-Prensa, 2004. ISBN 8484761762.
- Senior, Dorothy A.G.; Ashurst, P. Tecnología del agua embotellada. Zaragoza: Acribia, 2001. ISBN 8420009431.
- Fellows, P. Food processing technology: principles and practice. 3rd ed. Boca Raton, Fla.: CRC, 2009. ISBN 9781439808214.
- Bryce, J.H.; Stewart, Graham G. Distilled spirits: tradition and innovation. Nottingham: Nottingham University Press, 2004. ISBN 9781897676394.
- Nielsen, S. Suzanne. Food analysis [on line]. 5th edition. New York, NY: Springer Science+Business Media, 2017 [Consultation: 21/06/2022]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6311488. ISBN 9783319457765.

RESOURCES

Hyperlink:

- AECOSAN, Agencia Española de Consumo Seguridad Alimentaria y Nutrición. Resource
- Codex alimentarius