

## 390447 - IAAB - Food and Beverages Industries

Coordinating unit:	390 - ESAB - Barcelona School of Agricultural Engineering		
Teaching unit:	745 - EAB - Department of Agri-Food Engineering and Biotechnology		
Academic year:	2019		
Degree:	BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Optional)		
ECTS credits:	6	Teaching languages:	Catalan, Spanish

### Teaching staff

Coordinator:	Elena Gordún Quiles
Others:	Elena Gordún Quiles Elena Sánchez Sánchez

### 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

### Study load

Total learning time: 150h	Hours large group:	0h	0.00%
	Hours medium group:	40h	26.67%
	Hours small group:	20h	13.33%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%



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### Content

<p>(ENG) INDÚSTRIES DE BEGUDES NO ALCOHÒLIQUES</p>	<p>Learning time: 40h Practical classes: 10h Laboratory classes: 6h Self study : 24h</p>
<p>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.</p> <p>Related activities: (ENG) Activitat 1. Classes de teoria Activitat 2. Prova individual d'avaluació Activitat 3. Treball de laboratori i planta pilot</p>	
<p>(ENG) BEGUDES FERMENTADES I DESTIL·LATS</p>	<p>Learning time: 35h Practical classes: 10h Laboratory classes: 4h Self study : 21h</p>
<p>Description: (ENG) Vins especials. Sidra i altres fermentats vegetals. Begudes espirituoses i altres begudes alcohòliques.</p> <p>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 Indústria alimentària</p>	

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<p><b>INDUSTRIES OF OTHER FOOD PRODUCTS</b></p>	<p>Learning time: 29h            Practical classes: 8h            Laboratory classes: 4h            Self study : 17h</p>
<p>Description:            Coffee and substitutes. Tea and other vegetable infusions. Cocoa and cocoa derivatives. Confectionery products. Honey and other sweetness ingredient. Spices and condiments.</p> <p>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</p>	
<p><b>CEREAL DERIVED INDUSTRY</b></p>	<p>Learning time: 46h            Practical classes: 12h            Laboratory classes: 6h            Self study : 28h</p>
<p>Description:            Fermented bread and pastry products. Puff pastry and leavening products. Obtaining of starches and derivatives. Pasta food. Rice. Baby food. Breakfast cereals. Snacks.</p> <p>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</p>	

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### Planning of activities

(ENG) ACTIVITAT 1: CLASSES DE TEORIA	Hours: 98h Practical classes: 38h Self study: 60h
(ENG) ACTIVITAT 2: PROVES INDIVIDUALS D'AVUACIÓ	Hours: 2h Practical classes: 2h
(ENG) ACTIVITAT 3: TREBALL EXPERIMENTAL DE LABORATORI I PLANTA PILOT	Hours: 30h Laboratory classes: 12h Self study: 18h
(ENG) ACTIVITAT 4: SORTIDES A INDÚSTRIES ALIMENTÀRIES	Hours: 20h Laboratory classes: 8h Self study: 12h

### Qualification system

The course grade will be calculated as,  $N_{final}$  (Course grade):

$N_{final} = 50\% \text{ Part I (Contents 1 and 2)} + 50\% \text{ Part II (Contents 3 and 4)}$

Part I =  $0,80N1 + 0,15N2 + 0,05N3$

N1: Activity 2: Individual exam and course assignments (individual and group tasks)

N2: Activity 3: Lab and pilot plant sessions and group report

N3: Activity 4: Food industry visit test

PART II =  $0,50N1 + 0,50N2$

N1: Activity 2, 3 and 4: Individual exam of contents of theory classes and practices

N2: Activity 2 and 3: Course assignments (individual and group tasks)

### Regulations for carrying out activities

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.

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### Bibliography

#### Basic:

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.

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.

Buglass, Alan J. Handbook of alcoholic beverages : technical, analytical and nutritional aspects. Chichester: Wiley, cop. 2011. ISBN 9780470512029.

Adrián, J. La Panificación : aspectos socioeconómicos, materias primas, agentes de fermentación, tecnología, calidad. Barcelona: Montagud, cop. 1996. ISBN 8472120635.

#### Complementary:

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.

Steen, David P.; Ashurst, P. R. Carbonated soft drinks : formulation and manufacture. Oxford [etc.]: Blackwell, 2006. ISBN 9781405134354.

#### Others resources:

##### Hyperlink

[Codex alimentarius](#)

[AECOSAN, Agencia Española de Consumo Seguridad Alimentaria y Nutrición](#)

[Resource](#)