Universidad Zaragoza

Year : 2018/19

28917 - Ecology and management of agro-industrial byproducts

Syllabus Information

Academic Year:	2018/19
Subject:	28917 - Ecology and management of agro-industrial byproducts
Faculty / School:	201 -
Degree:	437 - Degree in Rural and Agri-Food Engineering
ECTS:	6.0
Year:	2
Semester:	Half-yearly
Subject Type:	Compulsory
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

Assessment tasks (description of tasks, marking system and assessment criteria)

Methodology, learning tasks, syllabus and resources

Methodological overview

The learning process designed for this subject consists on:

- Theory sessions. Teacher lectures in wich participation of the studens will be encouraged. Lectures form external experts could be included if available or relevant.

- Practical sessions in ecology will consist of: Practical onsite classroom sessions, group meeting with the teacher and a fieldtrip.
- Practical activities in "Gestión de subproductos agroindustriales will consit of: group meetings with the teacher, problem solving and study cases in classroom and computer lab and visits to agricultural and cattle industries facilities

Learning tasks

The program offered to the students to help them achieve the expected results, comprise the following activities:

Theory sessions in the classroom

Mainly master lectures with teacher's questioning. The rest correspond to invited speakers and seminars.

Special practices

Visits to facilities related to the program

Classroom practices

Students will previously receive information in order to be prepared for the practice. Some of them will be in computer classrooms.

Tutorials

For the teacher's survey of the theory and practice activities individual and team tutorials will be available

Reports

Teachers will offer different Ecology, Environmental and Agroindustrial By-products subjects to the students. They will write a report on these subjects, following teacher's advice.

Syllabus

Theory program

Ecology

Organisms and their environment.

Population ecology.

Interactions among species.

Biogeochemical cycles

Compost process as an ecosystem example.

Ecosystem services

Management of Agroindustrial by-products

Introduction to Environmental Management

Agroindustries

Waste and Agroindustry By-products legislation

Management of Agroindustry wastes

Technology of slaughter and slaughter by-products

Technology of cereals and cereal by-products

Practical program

Ecology

Practices focused on the recognition of ecological processes and ecosystems

Management of Agroindustry by-products

Design and control of a compost process. Part 1

Start of the team report

Search of agroindustry facilities affected by regulations

Design and control of a compost process. Part 2

Report presentation

The approximate overall distribution of the hours of work is in next table. It can be subject of changes regarding availability of facilities for practices and the specific yearly academic calendar.

Course planning and calendar

Calendar of on-site lectures and report presentations

A 6 ECTS subject will need an average 150 hours of work. The following table shows a breakdown of the different activities.

	Ecology	By-products
Activity	Students hours	Students hours
On-site hours	*30*	*30*
Master lecture	15	15
Classroom practices	10	10
Special practices	5 (field work)	5 (facilities)

Non on-site work	*45*	*45*
Tutorials	10	15
Study	32,5	27,5
Evaluation	2,5	2,5
Total	75	75

Activity and week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
	11-17 feb	18-24 feb	25 feb-3 mar	4-10 mar	11-17 mar	18-24 mar	25-31 mar	1-7 abr	8-14 abr	15-21 abr	22-28 abr	29 abr-5 may	6-12 may	13-19 may	20-26 may	27 may-2 jun	3-9 jun	10-16 jun	17-23 jun	24-30 jun-	
							Festi UZ 25 mar(lu			Vac SS Comienzo 15 abr (lun)	Fin vac SS 22 abr (lun) Festivo 23 (mar)	Festivo 1 (mie)				Fin perio clase 30 ma (mie	Comie exa 3 jun (lun			Fin exam 28 jun (vie)	
O si																					60
Theory	2	2	2	2	2	2	2	2	2		2	2	2	2	2	2					**30**
Problem solving		2		2		2	2	2	2			2	2		2	2					**20**
La					2									2							**4**
Team work																					**0**
Field trips																					**0**
Tutorial																					**0**
Assessment activities									2										4		**6**
O																					90
Autonomous work	4	2	4	2	4	2	4	2	2	6	4	4	2	2	2	4	8	8	4		**70**
Team work		2		2	2	2			2		2	2	2	2	2						**20**
TOTAL	**6**	**8**	**6**	**8**	**10**	**8**	**8**	**6**	**10**	**6**	**8**	**10**	**8**	**8**	**8**	**8**	**8**	**8**	**8**		150

Activity and week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total

Oı																					63
Theory	2	2	2	2	2	2			2		2	2	2	2	2	2					**26**
Problem solving	2			2		2			2		2	2	2		2						**16**
Lab		2	2		2				2					2							**10**
Team work																					**0**
field trips						3								2							**5**
Tutorial																					**0**
Assessment activities												2						4			**6**
Oı																					87
Autonomous work	2	3	3	3	3	3	3	4	4	1	3	3	4	2	1	4	7	7			**60**
Team work				4	2	2	2	3	3		2	2	4	3							**27**
TOTAL	**2**	**7**	**7**	**11**	**9**	**9**	**12**	7	7	**7**	**5**	**9**	**14**	**9**	**7**	**8**	**9**	**7**	**4**		150

Bibliography and recommended resources

BB Begon, Michael. Ecology : from individuals to ecosystems / Michael Begon, Colin R. Townsend, John L. Harper . 4ª ed. Malden, MA : Blackwell Pub., cop. 2006
[Comentario del profesor: O cualquiera de sus ediciones]
[Obs. docente: O cualquiera de sus ediciones]

BB Smith, T.M. (2015). Elements of ecology. Boston: Pearson
[Obs. docente: O cualquiera de sus ediciones]

BB Tchobanoglous, George. Gestión integral de residuos solidos / George Tchobanoglous, Hilary Theisen, Samuel Vigil ; traducción y revisión técnica Juan Ignacio Tejero Monzón, José Luis Gil Diaz, Marcel Szanto Narea . - [1a. ed. en español, reimpr.] Madrid [etc.] : McGraw-Hill, D.L.1996

LISTADO DE URLs:

Guías de Mejores Técnicas Disponibles por Sectores. Ministerio de Medio Ambiente y Medio Rural y Marino - [http://www.prtr-es.es/fondo-documental/documentos-de-mejores-tecnicas-dispon
Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación - [http://www.boe.es/diario_boe/txt.php?id=BOE-A-2002-12995]
Ley 22/2011, de 28 de julio, de residuos y suelos contaminados - [http://www.boe.es/boe/dias/2011/07/29/pdfs/BOE-A-2011-13046.pdf]
R.D. 509/2007, de 20 de abril, por el que

se aprueba el Reglamento para el desarrollo y ejecución de la Ley 16/2002 de 1 de julio, de prevención y control integrados de la contaminación - [http://www.boe.es/boe/dias/2007/04/21/pdfs/A17704-17717.pdf]

The updated recommended bibliography can be consulted in:
http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=8078