

## 28931 - Fruit Production I

### Syllabus Information

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**Academic Year:** 2019/20

**Subject:** 28931 - Fruit Production I

**Faculty / School:** 201 - Escuela Politécnica Superior

**Degree:** 437 - Degree in Rural and Agri-Food Engineering  
583 - Degree in Rural and Agri-Food Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject Type:** Optional

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

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

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

Interactive master classes, practice sessions, technical visits, tutored sessions, and presentation of projects.

#### 4.2.Learning tasks

The course consists of 30 hours interactive lectures that will be held regularly during the 15 weeks, 6 hours (practical sessions) dedicated to problem-solving and case, 14 hours (practical sessions) devoted to laboratory practice, greenhouse or orchard, 6 hours (practical sessions) visiting fruit farms or fair fruit growing. The course work is divided into a tutored session (2 h) and presentation if projects (2 h).

#### 4.3.Syllabus

The course includes the following learning tasks:

1. Interactive lectures (activity type 1) - 30 hours/student

Module I - Morphology and physiology of fruit trees

I.1 Morphology of fruit tree

I.2 Blooming to ripening - cycles

Module II - Multiplication of fruit trees

II.1 Sexual and asexual multiplication (micropropagation)

II.2 Asexual multiplication (layers and rootstocks)

II.3 Grafts

#### Module III. Planting techniques

III.1 Soil and climate

III.2 Planting techniques

#### Module IV - Fruit tree cultivation techniques

IV.1 Pruning and thinning out

IV.2 Shape pruning

IV.3 Soil maintenance

IV.4 Fertilization

IV.5 Irrigation

IV.6 Pest and disease control

IV.7 Harvesting and storage

#### Module V - Regulations

V.1 Organic production, integrated production and CMO in fruits

#### Content of practical sessions

2. Resolution of problems and cases (activity type 2) - 6 hours/student

i.1 Selection of growing areas through GIS

i.2 Strategical alternatives

3. Laboratory practice (activity type 3) - 14 hours/student

a.1 Description and identification of fruit trees

a.2 Fruit quality

a.3 Pruning and pruning systems

a.4 Sexual and asexual multiplication

a.5 Grafts

a.6 Pest and disease control

4. Special practice (activity type 4) - 6 hours/student

Given the importance of direct contact with fruit culture, an external visit has been scheduled for students to know orchards with different production goals

5. Tutorials, revision, and presentation of projects (activity type 6) - 4 hours/student

6. Teaching project (activity type 6) - 16 hours/student

Preparing and presenting a practical project (workshop type). The topics for this activity will be suggested at the beginning of the course.

7. Study (activity type 7) - 74 hours/student

Global final test in accordance with the Regulation of Learning Assessment Standards of the University of Zaragoza.

#### 4.4.Course planning and calendar

The approximate timing is shown in the table below , taking into account the outputs to farms they will be conditioned with the a

Section/ week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Teoría	I.1	I.2	II.1	II.2	II.3	III.1	III.2	IV.1	IV.2	IV.3	IV.4	IV.5	IV.6	IV.7	V.1	
Hours	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Solving-problems Sessions													i.1	i.2		
Hours													2	2	4	
Laboratory practice, patch, greenhouse	a.1	a.3	a.3	a.2	a.4	a.5	a.1						a.6			

horas	2	2	2	2	2	2				2					16
Field work															
Hours							6								6
Exposure Hours														2	2
Tutorials								2							2
Group work						2	2	2	2	2	2	2	2		16
Autonomous work	5	5	5	5	5	5	4	5	5	5	5	5	5	5	74
															150

#### 4.5.Bibliography and recommended resources

- BB** Agustí Fonfría, Manuel. Fruticultura / Manuel Agustí . Madrid : Mundi-Prensa, 2004
- BB** Baldini, Enrico. Arboricultura general / Enrico Baldini ; versión española de José de la Iglesia González . Madrid : Mundi-Prensa, 1992
- BB** Gil Salaya, Gonzalo F.. Fruticultura : el potencial productivo : crecimiento vegetativo y diseño de huertos y viñedos / Gonzalo F. Gil Salaya . 2ª ed. Santiago : Alfaomega : Ediciones Universidad Católica de Chile, cop.1999
- BB** Gil Salaya, Gonzalo F.. Fruticultura : la producción de fruta : fruta de climas templado y subtropical y uva de vino / Gonzalo F. Gil Salaya . Santiago, Chile : Ediciones Universidad Católica de Chile , 2000
- BB** Gil-Albert Velarde, Fernando. El cultivo de las plantaciones frutales / Fernando Gil- Albert Velarde . Madrid : Mundi-Prensa, 2015
- BB** Gil-Albert Velarde, Fernando. Tratado de arboricultura frutal. Vol.I, Morfología y fisiología del árbol frutal / Fernando Gil-Albert Velarde. 3ª ed. rev. Madrid : Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1991
- BB** Gil-Albert Velarde, Fernando. Tratado de arboricultura frutal. Vol.II, La ecología del árbol frutal / Fernando Gil-Albert Velarde . 3ª ed. rev. Madrid : Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1992
- BB** Gil-Albert Velarde, Fernando. Tratado de arboricultura frutal. Vol.III, Técnicas de plantación de especies frutales / Fernando Gil-Albert Velarde . Madrid : Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1989
- BB** Gil-Albert Velarde, Fernando. Tratado de arboricultura frutal. Vol.IV, Técnicas de mantenimiento del suelo en plantaciones frutales / Fernando Gil-Albert Velarde . Madrid : Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1991
- BB** Gil-Albert Velarde, Fernando. Tratado de arboricultura frutal. Vol.V, Poda de frutales / Fernando Gil-Albert Velarde. Madrid : Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1997
- BC** Bretaudeau, Jean. Poda e injerto de frutales / Jean Bretaudeau ; versión española de Vicente Sotes Ruiz y Manuel Vázquez-Prada Grande, Elisa Boix Aristu . 1ª ed., 4ª reimp. Madrid : Mundi-Prensa, 1991
- BC** Calderón Alcaraz, Esteban. Fruticultura general : el esfuerzo del hombre / Esteban Calderón Alcaraz . 3a ed., 3a reimp. México : Limusa, 1989
- BC** Cambra Ruiz de Velasco, Mariano. Diseños de plantación y formación de árboles frutales / M. Cambra, R. Cambra Ruiz de Velasco . [9a. ed.] Madrid : Consejo Superior de Investigaciones Científicas , 2004
- BC** Coutanceau, M.. Fruticultura : Técnica y economía de los cultivos de Rosáceas leñosas productoras de fruta / M. Coutanceau . 3ªed./ Traducción, adaptación y prólogo de la 1ªedición española [por] Juan Simarro , ampliación y puesta al día de la 2ª y 3ª edición española [por] Antonio J. Felipe Mansergas Barcelona :

Oikos-Tau, 1977 (reimp.1997)

- BC** Frutticoltura ad alta densità : impianti, forme d'allevamento e tecniche di potatura / a cura di S. Sansavini, A. Errani . 1<sup>a</sup> ed. Bologna : Edagricole, 1998
- BC** Gautier, Michel. La culture fruitière. Vol. 1, L'arbre fruitier / Michel Gautier . 2e. éd. rev. et augm. París : Tec & Doc-Lavoisier, 1993
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- BC** La qualite gustative des fruits: méthodes pratiques d'analyse / auteurs, Françoise Alavoine...[et al.] . Aix en Provence : CEMAGREF, 1988
- BC** Lalatta, Filippo. Fertilización de árboles frutales / Filippo Lalatta . Barcelona : CEAC, 1988
- BC** Martínez de Toda Fernández, Fernando. Claves de la viticultura de calidad : nuevas técnicas de estimación y control de la calidad de la uva en el viñedo / Fernando Martínez de Toda Fernández . Madrid [etc.] : Mundi-Prensa, 2008

The updated recommended bibliography can be consulted in:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=28931&Identificador=14189>