



Universitat de Lleida

# DEGREE CURRICULUM

# **IRRIGATION**

Coordination: MONSERRAT VISCARRI, JOAQUIM

Academic year 2022-23

## Subject's general information

<b>Subject name</b>	IRRIGATION				
<b>Code</b>	102532				
<b>Semester</b>	1st Q(SEMESTER) CONTINUED EVALUATION				
<b>Typology</b>	<b>Degree</b>	<b>Course</b>	<b>Character</b>	<b>Modality</b>	
	Bachelor's Degree in Agricultural and Food Engineering	3	COMPULSORY	Attendance-based	
<b>Course number of credits (ECTS)</b>	6				
<b>Type of activity, credits, and groups</b>	<b>Activity type</b>	PRACAMP	PRALAB	PRAULA	TEORIA
	<b>Number of credits</b>	0.2	0.2	3.8	1.8
	<b>Number of groups</b>	1	2	1	1
<b>Coordination</b>	MONSERRAT VISCARRI, JOAQUIM				
<b>Department</b>	AGRICULTURAL AND FOREST ENGINEERING				
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.				
<b>Language</b>	Class teaching is in Catalan or Spanish. For English students english written documents and tutorship will be given.				

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
MONSERRAT VISCARRI, JOAQUIM	joaquim.monserrat@udl.cat	6,2	Tuesday 16 - 18 h Friday, 12 - 14 h

## Learning objectives

**RA1:** Determine when, how and how much water should be applied in an irrigation event

**RA2:** Determine Irrigation quality indexes

**RA3:** Design of pressurized irrigation facilities

## Competences

Students should know how to design and manage pressurized irrigation facilities. Make technical reports and present the results.

## Subject contents

### Contents

**Block 1.** Introduction. Water cycle and agriculture. Irrigation methods.

**Block 2.** Drip and sprinkle planning factors. Water needs. Salt leaching. Layout of set systems.

**Block 3.** Irrigation emitters. Hydraulics and uniformity considerations.

**Block 4.** Irrigation assessment. Efficiency and uniformity indexes

**Block 5** Drip and sprinkle lateral design

**Block 6.** Drip and sprinkle submain design. Rectangular and non rectangular subunits.

**Block 7.** Main delivery system design

**Block 8.** Filtration types. Filter design

## Practical activities

### Laboratory practices

**Practice 1.** Gravimetric determination of ET and soil-water characteristics.

**Practice 2.** Hydraulic assessment and modeling of a drip irrigation lateral.

**Practice 3.** Set Sprinkler assessment

### Field journey

Visit to a irrigation plot set

## Methodology

Classes will be in spanish or catalan. For english students written documents will be given and an irrigation project should be done.

## Development plan

First half of semester will be on Planning factors and Irrigation assessment

Second half will be about system pipe design

## Evaluation

For english students evaluation will be based on continued assessment of the project, a final presentation and practices.

## Bibliography

KELLER, J. BLIESNER R.D. (1990). Sprinkle and trickle irrigation. Van Nostrand Reinhold

JENSEN, M.E.; (1980) – Design and operation of farm irrigation systems - ASAE

BURT, C. and STYLES, S. 2016. Drip and Microirrigation Design and Management. ITRC.