



Universitat de Lleida

DEGREE CURRICULUM

BUILDINGS AND EARTHWORKS

Coordination: PUIGDOMENECH FRANQUESA, LUIS

Academic year 2023-24

Subject's general information

Subject name	BUILDINGS AND EARTHWORKS			
Code	102579			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Agricultural and Food Engineering	4	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRACAMP	PRALAB	PRAULA
	Number of credits	0.2	1.2	1.5
	Number of groups	1	1	1
Coordination	PUIGDOMENECH FRANQUESA, LUIS			
Department	AGRICULTURAL AND FOREST SCIENCES AND ENGINEERING			
Teaching load distribution between lectures and independent student work	Lectures: 60h Student work: 90h			
Important information on data processing	Consult this link for more information.			
Language	Catalan / Spanish			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
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Learning objectives

The student upon passing the subject must be able to:

1. Know the behavior of the soil as a building material
2. Know the main soil tests and interpret a geotechnical report
3. Design the main elements of the project of a rural road (plan, elevation, type section, esplanade, drainage and firm)
4. Design the main elements of the project of an irrigation raft (stability of the dike, waterproofing, landfill)
5. Design the structure of an industrial shed and its foundation

Competences

General competences

CG1. Capacity for the previous preparation, conception, drafting and signing of projects whose purpose is the construction, reform, repair, conservation, demolition, manufacture, installation, assembly or exploitation of movable or immovable property that by its nature and characteristics are included in the own technique of agricultural and livestock production (facilities or buildings, farms, infrastructure and rural roads), the agri-food industry (extractive, fermentative, dairy, canning, horticultural, meat, fisheries, salting and in general, any other dedicated to the elaboration and / or transformation, conservation, manipulation and distribution of food products) and gardening and landscaping (urban and / or rural green spaces - parks, gardens, nurseries, urban trees, etc. -, public or private sports facilities and environments subject to landscape recovery).

CG2. Ability to direct the execution of the works subject to projects related to agri-food industries, farms and green spaces and their buildings, infrastructure and facilities, the prevention of risks associated with this execution and the management of multidisciplinary teams and human resources management, in accordance with deontological criteria.

Specific competences

CEMCR1. Bases and technology of rural constructions. Soil mechanics. Materials. Material resistance. Structure Design and calculation. Agricultural constructions. Infrastructure and rural roads.

Subject contents

Earthworks

Unit 1: Soil mechanics. Characteristics of the soil as a building material.

Unit 2: Paths. Plotting, slope stability, surface drainage.

Unit 3: Irrigation rafts. Dock materials, stability, waterproofing sheets.

Buildings

Unit 4: The industrial warehouse- Vocabulary, structural typology

Unit 5: Enclosures. Enclosure materials and structure fixings

Unit 6: Straps. Design, sizing and testing criteria

Unit 7: Main structure: portico, truss. Design criteria and joints

Unit 8: Secondary structures and local reinforcements. Braces, braces, stiffeners, bases

Unit 9: Pavements. Design criteria.

Unit 10: Foundations. Geotechnics and design of isolated footings

Methodology

Practices

- Exercises and examples in the classroom and at home
- Practical case of a rural road

Development plan

Units 1 to 3: professor Álvaro Fernández, 3 credits

Units 4 to 10: professor Lluís Puigdomènech, 3 credits

Evaluation

Block 1: Themes 1-3; practical computer work (15%)

Block 2: Themes 1-3; exam (35%)

Block 3: Themes 4-10; exam (50%)

Pass criteria

Final grade equal to or greater than 5

Recovery

In case of failing the continuous assessment there will be a recovery exam.

Recovery exam:

- Block 1 has no recovery
- Block 2 (in case the grade in the continuous assessment is lower than 5)
- Block 3 (in case the grade in the continuous assessment is lower than 5)

The recovery grade cannot exceed a limit that is determined by the maximum value of the following two:

- 5.0
- The lowest grade of those obtained by students who have passed the continuous assessment minus 0.5

Alternative evaluation

unique exam of the entire subject syllabus which will be carried out on the date set by the center for the second examination, and which will weigh 100 % of the grade. In order to pass the subject, a minimum grade of 5 must be obtained in the exam. In case of failing this examination, there will be a recovery examination on the date set by the center.

Remarks

Formal correction, good writing, clarity, order and spelling are required in exams. The presence of some fundamental misconception, order of magnitude or contradiction may be sufficient cause for an exam to be classified as suspense. The mathematical expressions will have to be written correctly and the numerical results will be accompanied by units of measurement.

Having failed by partial exams, there would be a final exam for retaking the failed blocks; the maximum obtainable result in this exam would be the most result between - 5,0 - or 0,5 points less than the lowest one obtained by partial exams.

Bibliography

Basic references

AASHTO. 2001. Guidelines for geometric design of very low-volume local roads ($ADT \leq 400$). Washington: American Association of State Highway and Transportation Officials (AASHTO).

Dal-Ré Tenreiro R. 2001. Caminos rurales: Proyecto y construcción. 3ª ed. Madrid: Mundi-Prensa.

España. Ministerio de Fomento. 2011. Pliego de prescripciones técnicas generales para obras de carreteras y puentes (PG-3). Madrid.

Arnedo, A. 2009. Naves industriales con acero. Publicaciones APTA. 434 pp.