

**1. General information****Course:** BUILDING STRUCTURES II**Type:** CORE COURSE**Degree:** 315 - UNDERGRADUATE DEGREE IN BUILDING ENGINEERING**Center:** 308 - SCHOOL POLYTECHNIC OF CUENCA**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 59321**ECTS credits:** 6**Academic year:** 2020-21**Group(s):** 30**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** JESUS ALFARO GONZALEZ - Group(s): 30

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2. Pre-Requisites

Previous knowledge of physics-mechanics

Knowledge of vector systems

Knowledge of rigid solid and applied statics.

Knowledge of graphostatic drawing.

Material resistance limits

Own knowledge of concrete and steel as construction materials

It is recommended to have taken the subjects of Building Structures I, Construction II and III and Construction Materials I and II

3. Justification in the curriculum, relation to other subjects and to the profession

Specific training subject that complies with one of the basic guidelines of the degree.

Regarding its location within the Study Plan, the subject is supported by basic subjects such as mathematical and physical foundations, it is interrelated with other specific subjects of the degree such as Construction, Construction Materials, Installations, Pathology and Restoration, being of direct application in the subject of Technical Projects and Final Degree Project.

This subject constitutes an important professional activity of the Building Engineer, covering some of its essential competences in terms of the development of structural calculation activities, project writing, technical reports, technical directions, etc.

4. Degree competences achieved in this course**Course competences**

Code	Description
E21	Ability to apply technical regulations to the building process, and generate documents of technical specification of building procedures and construction methods.
E23	Aptitude for the pre-measure, design, calculation and verification of structures and to direct their material execution.
G01	Ability for analysis and synthesis
G02	Organization and planning ability
G04	Problem resolution
G05	Decision making
G06	Critical thinking
G12	Autonomous learning
G21	Command of Information and Communication Technologies (ICT)

5. Objectives or Learning Outcomes**Course learning outcomes**

Description

Apply practical conclusions that constitute the object of the research carried out

Apply the above to the calculation of wooden, metal, reinforced concrete and prestressed structures.

Learn the concept of the Resistance of Materials.

Know how to interpret the results of computer programs.

Idealization of the object to be calculated, obtaining diagrams.

Learn what Structural Safety is.

6. Units / Contents

Unit 1:

- Unit 1.1
- Unit 1.2
- Unit 1.3
- Unit 1.4

Unit 2:

- Unit 2.1
- Unit 2.2
- Unit 2.3
- Unit 2.4
- Unit 2.5
- Unit 2.6
- Unit 2.7
- Unit 2.8

Unit 3:

- Unit 3.1
- Unit 3.2
- Unit 3.3

Unit 4:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	E21 E23 G01 G02 G04 G05 G06	0.28	7	N	-	
Class Attendance (practical) [ON-SITE]	Project/Problem Based Learning (PBL)	E21 E23 G01 G02 G04 G05 G06 G21	0.6	15	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	E21 E23 G01 G02 G04 G05 G06 G21	1.36	34	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	E21 E23 G01 G02 G04 G05 G06 G12 G21	3.6	90	N	-	
Final test [ON-SITE]	Assessment tests	E21 E23 G01 G02 G04 G05 G06	0.16	4	Y	Y	
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Assessment of problem solving and/or case studies	40.00%	0.00%	
Final test	60.00%	100.00%	
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

In the practical theoretical exam the student will solve questions and exercises of the practices carried out. The difficulty of the exercises will be variable, with the basic contents of the subject foundation until reaching higher levels of complexity.

The calculation of one or more structures will be delivered, along with the descriptive and supporting documentation thereof.

It will be necessary to achieve a 4 out of 10 in each of these two sections to pass the subject.

Non-continuous evaluation:

The student will take a test in which it is possible to achieve 100% of the contents and comprehensive skills of the continuous assessment.

Specifications for the resit/retake exam:

In the practical theoretical exam the student will solve questions and exercises of the practices carried out. The difficulty of the exercises will be variable, with the basic contents of the subject foundation until reaching higher levels of complexity.

The calculation of one or more structures will be delivered, along with the descriptive and supporting documentation thereof.

It will be necessary to achieve a 4 out of 10 in each of these two sections to pass the subject.

Specifications for the second resit / retake exam:

In the practical theoretical exam the student will solve questions and exercises of the practices carried out. The difficulty of the exercises will be variable, with the basic contents of the subject foundation until reaching higher levels of complexity.

The calculation of a structure will be delivered, along with descriptive and supporting documentation. The statement of the structure to be calculated will be provided to the student 15 days before the exam and will be delivered at the beginning of the test.

It will be necessary to achieve a 4 out of 10 in each of these two sections (exam and calculation of structure) to pass the course.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	.5
Unit 1 (de 4):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	1
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	8.1
Final test [PRESENCIAL][Assessment tests]	1
Teaching period: WEEKS 1 TO 4	
Unit 2 (de 4):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3.5
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	12.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	14.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	51.9
Final test [PRESENCIAL][Assessment tests]	3
Unit 3 (de 4):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	1
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	14
Study and Exam Preparation [AUTÓNOMA][Self-study]	25.5
Unit 4 (de 4):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	.5
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	4.5
Global activity	
Activities	hours
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	34
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Class Attendance (practical) [PRESENCIAL][Project/Problem Based Learning (PBL)]	15
Final test [PRESENCIAL][Assessment tests]	4
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
CYPE Ingenieros	Manuales y documentación de los programas http://www.manuales.cype.es/					
Calavera Ruiz, J.	Cálculo de estructuras de cimentación /	INTEMAC,		978-84-88764-26-3	2015	
Calavera, J.	Proyecto y cálculo de estructuras de hormigón : en masa, arm	Instituto Técnico de Materiales y Construcciones,		84-88764-05-7 (Obra	2008	
Ministerio de Fomento	Código Técnico de la Edificación http://www.codigotecnico.org/					
Ministerio de Fomento	EHE-08 https://www.cscae.com/images/stories/Noticias/Tecnica/EHE2008comentada1.pdf				2010	
Reyes Rodríguez, Antonio Manuel	CYPECAD 2014 : cálculo de estructuras de hormigón /	Anaya Multimedia, Gabinete		978-84-415-3553-4	2014	
Rodríguez Val, Javier	estructuras de hormigón para edificios	Técnico Aparejadores Guadalajara	Guadalajara		2015	
Trimble	Tekla Structures 21.0 PDF documentation https://teklastructures.support.tekla.com/tekla-structures-210-pdf-documentation					
	Números gordos en el proyecto de estructuras / autores, Juan	Cinter Divulgación Técnica,		978-84-932270-4-3	2009	