



| Teaching Guide      |                                                                                                                                                                                                                                                                                                                                                          |        |                        |           |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------|-----------|
| Identifying Data    |                                                                                                                                                                                                                                                                                                                                                          |        | 2020/21                |           |
| Subject (*)         | Building Structures I                                                                                                                                                                                                                                                                                                                                    | Code   |                        | 670G01107 |
| Study programme     | Grao en Arquitectura Técnica                                                                                                                                                                                                                                                                                                                             |        |                        |           |
| Descriptors         |                                                                                                                                                                                                                                                                                                                                                          |        |                        |           |
| Cycle               | Period                                                                                                                                                                                                                                                                                                                                                   | Year   | Type                   | Credits   |
| Graduate            | 2nd four-month period                                                                                                                                                                                                                                                                                                                                    | First  | Obligatory             | 6         |
| Language            | SpanishGalician                                                                                                                                                                                                                                                                                                                                          |        |                        |           |
| Teaching method     | Face-to-face                                                                                                                                                                                                                                                                                                                                             |        |                        |           |
| Prerequisites       |                                                                                                                                                                                                                                                                                                                                                          |        |                        |           |
| Department          | Construcións e Estruturas Arquitectónicas, Cívís e Aeronáuticas                                                                                                                                                                                                                                                                                          |        |                        |           |
| Coordinador         | Lamas Lopez, Valentin                                                                                                                                                                                                                                                                                                                                    | E-mail | valentin.lamas@udc.es  |           |
| Lecturers           | Lamas Lopez, Valentin                                                                                                                                                                                                                                                                                                                                    | E-mail | valentin.lamas@udc.es  |           |
|                     | Mosquera Rey, Emilio                                                                                                                                                                                                                                                                                                                                     |        | emilio.mosquera@udc.es |           |
| Web                 |                                                                                                                                                                                                                                                                                                                                                          |        |                        |           |
| General description | La asignatura aborda contenidos de elasticidad y resistencia de materiales junto a acciones en la edificación.                                                                                                                                                                                                                                           |        |                        |           |
| Contingency plan    | 1. Modifications to the contents<br><br>2. Methodologies<br>*Teaching methodologies that are maintained<br><br>*Teaching methodologies that are modified<br><br>3. Mechanisms for personalized attention to students<br><br>4. Modifications in the evaluation<br><br>*Evaluation observations:<br><br>5. Modifications to the bibliography or webgraphy |        |                        |           |

| Study programme competences |                                                                                                                                                                                                                            |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Code                        | Study programme competences                                                                                                                                                                                                |
| A37                         | A0.2 Applied knowledge of the principles of general mechanics, structural systems statistics, mass point geometry, and elastic behaviour of solids (principles and analysis methods).                                      |
| A56                         | A3.1 Ability to apply building rules and standards, and draw up technical specifications in relation to building methods and procedures.                                                                                   |
| A58                         | A3.3 Ability to carry out initial sizing, design, calculation and testing of structures, and oversee their implementation.                                                                                                 |
| B31                         | B1 Students will demonstrate knowledge and understanding of subjects that build upon the foundation of a general secondary education using advanced textbooks and ideas and analyses from the cutting edge of their field. |
| B32                         | B2 Students will be able to use their knowledge professionally and will possess the skills required to formulate and defend arguments and solve problems within their area of study.                                       |
| B33                         | B3 Students will have the ability to gather and interpret relevant data (especially within their field of study) in order to make decisions and reflect on social, scientific and ethical matters.                         |
| B34                         | B4 Students will be able to communicate information, ideas, problems and solutions to specialist and non-specialist audiences alike.                                                                                       |
| B35                         | B5 Students will develop the learning skills and autonomy they need to continue their studies at postgraduate level.                                                                                                       |
| C1                          | Adequate oral and written expression in the official languages.                                                                                                                                                            |
| C3                          | Using ICT in working contexts and lifelong learning.                                                                                                                                                                       |
| C4                          | Acting as a respectful citizen according to democratic cultures and human rights and with a gender perspective.                                                                                                            |
| C5                          | Understanding the importance of entrepreneurial culture and the useful means for enterprising people.                                                                                                                      |



|    |                                                                                                                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C6 | Acquiring skills for healthy lifestyles, and healthy habits and routines.                                                                                                                                  |
| C7 | Developing the ability to work in interdisciplinary or transdisciplinary teams in order to offer proposals that can contribute to a sustainable environmental, economic, political and social development. |
| C8 | Valuing the importance of research, innovation and technological development for the socioeconomic and cultural progress of society.                                                                       |
| C9 | Ability to manage times and resources: developing plans, prioritizing activities, identifying critical points, establishing goals and accomplishing them.                                                  |

| Learning outcomes                                                                                                                                              |     |                             |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------|----|
| Learning outcomes                                                                                                                                              |     | Study programme competences |    |
| Conocimientos aplicados a la Arquitectura Técnica de elasticidad y resistencia de materiales y de las acciones de edificación.                                 | A56 | B31                         | C1 |
|                                                                                                                                                                | A58 | B32                         | C3 |
|                                                                                                                                                                |     | B33                         | C4 |
|                                                                                                                                                                |     | B34                         | C5 |
|                                                                                                                                                                |     | B35                         | C6 |
|                                                                                                                                                                |     |                             | C7 |
|                                                                                                                                                                |     |                             | C8 |
|                                                                                                                                                                |     |                             | C9 |
|                                                                                                                                                                |     |                             |    |
| Visión general del análisis tensional y deformacional, del predimensionado y comprobación de elementos estructurales sencillos en el ámbito de la edificación. | A37 | B31                         | C1 |
|                                                                                                                                                                | A56 | B32                         | C3 |
|                                                                                                                                                                | A58 | B33                         | C4 |
|                                                                                                                                                                |     | B34                         | C5 |
|                                                                                                                                                                |     | B35                         | C6 |
|                                                                                                                                                                |     |                             | C7 |
|                                                                                                                                                                |     |                             | C8 |
|                                                                                                                                                                |     |                             | C9 |
|                                                                                                                                                                |     |                             |    |

| Contents                                                                                      |           |
|-----------------------------------------------------------------------------------------------|-----------|
| Topic                                                                                         | Sub-topic |
| 1.-Tensiones y deformaciones. Relaciones: ley de Hooke generalizada y ecuaciones de Lamé      |           |
| 2.-Principios de la resistencia de materiales.                                                |           |
| 3.-Esfuerzos simples: axil (tracción y compresión). Cortadura simple. Flexión pura.           |           |
| 4.-Esfuerzos combinados: flexión simple, flexión esviada. Flexión compuesta . Nucleo central. |           |
| 5.-Acciones en la edificación. Aspectos normativos. Bases de cálculo.                         |           |

| Planning              |              |                      |                               |             |
|-----------------------|--------------|----------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies | Ordinary class hours | Student's personal work hours | Total hours |



|                                |                                                                  |    |    |    |
|--------------------------------|------------------------------------------------------------------|----|----|----|
| Guest lecture / keynote speech | A37 A56 A58 B31<br>B32 B33 B34 B35 C1<br>C3 C4 C5 C6 C7 C8<br>C9 | 30 | 30 | 60 |
| Objective test                 | A37 B31 B32 B33<br>B34 B35 C3 C6 C7<br>C8 C9                     | 4  | 8  | 12 |
| Problem solving                | A37 B31 B32 B33<br>B34 B35 C3 C6 C7<br>C8 C9                     | 26 | 52 | 78 |
| Personalized attention         |                                                                  | 0  |    | 0  |

(\*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

| Methodologies                  |                                                                                                                              |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                  | Description                                                                                                                  |
| Guest lecture / keynote speech | Se expondrán los diversos conceptos teóricos de la materia y se orienta al alumnado en el desarrollo de su trabajo autónomo. |
| Objective test                 | Se plantearán cuestiones y/o problemas teóricoprácticos a resolver por el alumno.                                            |
| Problem solving                | Se propondrán y/o resolverán por profesor y alumnado diversos ejercicios prácticos relacionados con el temario.              |

| Personalized attention                                              |                                                                                                                               |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                                                       | Description                                                                                                                   |
| Problem solving<br>Guest lecture / keynote speech<br>Objective test | La atención personalizada será en el propio aula y en el horario de tutorías del profesor que figura en la web de la escuela. |

| Assessment     |                                              |                                                          |               |
|----------------|----------------------------------------------|----------------------------------------------------------|---------------|
| Methodologies  | Competencies                                 | Description                                              | Qualification |
| Objective test | A37 B31 B32 B33<br>B34 B35 C3 C6 C7<br>C8 C9 | Consistirá en ejercicios y/o cuestiones teóricoprácticas | 100           |

| Assessment comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| El alumno puede alcanzar los 10 puntos con la resolución de ejercicios y/o teoría que plantee el profesor en la primera y segunda oportunidad de los exámenes oficiales que fije la escuela. Aquellos alumnos que garanticen una asistencia superior al 80% podrán también tener una evaluación continua a través de dos pruebas que el profesor propondrá a lo largo del curso antes de los exámenes oficiales. Se puede llevar a las pruebas calculadora no programable, material de dibujo, formulario A4 manuscrito redactado por el alumno exclusivamente con formulación. No se admiten teléfonos móviles en el examen. Se acudirá con el DNI a las pruebas. Pueden solicitar el no presentado durante la primera media hora. El esquema de calificación es orientativo, se ajustará, por parte de los profesores, en cada momento a las circunstancias del curso. |

| Sources of information |
|------------------------|
|------------------------|



|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic         | <ul style="list-style-type: none"><li>- ortiz Berrocal,Luis (1985). Elasticidad. Litoprint Pricam, SA.</li><li>- ortiz Berrocal,Luis (1992). Resistencia de materiales. McGraw</li><li>- M. Vazquez (1986). Resistencia de Materiales. Coimpres, SA.</li><li>- Timoshenko (1980). Resistencia de Materiales. Espasa Calpe, SA</li><li>- Feodosiev (1980). Resistencia de Materiales. Mir</li><li>- Timoshenko y Young (1981). Teoría de las Estructuras. Urmo,SA</li><li>- Documento (). DB-SE-AE. Ministerio de Fomento</li><li>- Documento (). DB-SE. Ministerio de FOmento</li></ul> |
| Complementary |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Recommendations                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subjects that it is recommended to have taken before                                                                                                                                                                                                                                                                                                                                                                                        |
| Mechanical Basics of Building Structures/670G01104                                                                                                                                                                                                                                                                                                                                                                                          |
| Subjects that are recommended to be taken simultaneously                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Subjects that continue the syllabus                                                                                                                                                                                                                                                                                                                                                                                                         |
| Building Structures II/670G01111                                                                                                                                                                                                                                                                                                                                                                                                            |
| Other comments                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Para un axeitado seguimento da materia é imprescindible o dominio previo dos seguintes temas: - Razoamento Lóxico. - Cálculo vectorial. - Sistemas de unidades. - Matrices. - Xeometría e Trigonometría. - Derivación e Integración. - Resolución de sistemas de ecuacións. Se recuerda que la bibliografía propuesta es orientativa. Existen numerosos textos de mecánica por los cuales se puede realizar el trabajo autónomo del alumno. |

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.