

Reinforced and Prestressed Concrete II:

Calendar: 2nd Year 1st Semester

Contact Hours: 15h00T +30h00 T/P + 7h30 OT

Syllabus:

Design of flat slabs: actions, calculation models, calculation of limit states, design to the ultimate and service limit states, bending and punching shear. Detailing.

Introduction to research: analysis of scientific paper (structure) and its presentation.

Prestressed slabs: general; materials; design and pre-design; constructive arrangements; evaluation of prestressing; safety checking to ULS; verifying the safety of SLS; detailing; conclusions.

Creep and shrinkage.

Intended learning outcomes of the curricular unit:

It is intended that students are enabled to the design of flat slabs and prestressed slabs. Students must master all the procedures related to the Service and Ultimate Limit States design, in the topics of calculation and design. It also intended to address the concepts of creep and shrinkage, as well as initiate an approach to research practices.

Demonstration of the syllabus coherence with the curricular unit's intended learning outcomes:

The main objective is that students acquire designing skills for flat slabs and prestressed slabs, the syllabus addresses, in detail:

- the revision of the concepts associated with the design of slabs and prestressing (acquired in the 1st cycle of studies) in order to ensure the base knowledge;
- the methodologies adopted in the project of flat slabs, being applied either to the design sequence and for the detailing;
- the methodologies adopted in the design of prestressed slabs;

The contents taught enable the students to acquire the skills required for the domain of the autonomous steps associated with the design.

Teaching methodologies (including evaluation):

In the theoretical classes it will be taught the theoretical component of the syllabus accompanied, wherever possible, with the resolution of practical examples with the application of the design concepts. In practical classes, it will correspond to the development of the practical project work and the follow-up of students.

In the work of project it will be intended that students use software tools applied in the labour market.

The assessment consists of the execution of a project work of a flat slab (30%), prestressing work (40%), a monograph (20%) and discussion of a scientific paper (10%).

- reference, every step of the resolution of practical examples, the rules imposed by the legislation and demonstration of its observance;
- providing to students of teaching material which enables them to assimilate the introduced concepts;

-provision of forums for open discussion, to the clarification of any questions that may arise.