



Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

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| 4 credits | 20.0 h + 15.0 h | Q1 |
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| Teacher(s) | Cap Jean-François ; |
| Language : | French |
| Place of the course | Louvain-la-Neuve |
| Aims | <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i> |
| Evaluation methods | <p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. The evaluation has two parts:</p> <ul style="list-style-type: none"> • Open-book written examination with practical exercises related to the design of simple reinforced concrete structures (4h). • Oral exam with 'closed book' related to the theoretical concepts of the course. <p>The success of both parties is required.</p> |
| Teaching methods | <p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. Ex-cathedra lectures with Powerpoint slides. Workshops and exercices</p> |
| Content | <ul style="list-style-type: none"> • History of prestressed concrete • Principles of prestress • Field of application of prestressed concrete • Properties of steels • Prestressed systems • Loads equivalent to prestress • Load balancing and deformation compensation • Calculation of the prestress force • Calculation of stresses (Elastic field) • ULS design of bended beams • Shear strength of prestressed sections • Prestress losses • Pre-design of prestressed elements • Localized efforts: end zones of prestressed beams |
| Inline resources | Available on Moodle : Powerpoint slides, Exercices. |
| Bibliography | <ul style="list-style-type: none"> • Transparents du cours (syllabus) et formulaire EN 1992-1-1+ ANB ; • Norme NBN EN 1992-1-1 - Eurocode 2 : Calcul des structures en béton - Partie 1-1 : Règles générales et règles pour les bâtiments • René Walther, Manfred Miehlsbradt. Dimensionnement des structures en béton - Traité de Génie Civil Volume 7 . Presses polytechniques et universitaires romandes. • R. Favre, J.-P. Jaccoud, O. Burdet, H. Charif. Dimensionnement des structures en béton - Traité de Génie Civil Volume 8 . Presses polytechniques et universitaires romandes. |
| Faculty or entity in charge | GC |

| Programmes containing this learning unit (UE) | | | | |
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| Program title | Acronym | Credits | Prerequisite | Aims |
| Master [120] in Architecture and Engineering | ARCH2M | 4 | |  |
| Master [120] in Civil Engineering | GCE2M | 4 | |  |