


4.00 credits

20.0 h + 15.0 h

Q1

Teacher(s)	Cap Jean-François ;
Language :	French
Place of the course	Louvain-la-Neuve
Learning outcomes	
Evaluation methods	<p>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>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)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Civil Engineering	GCE2M	4		
Master [120] in Architecture and Engineering	ARCH2M	4		