Prestressed concrete

Titulaire
Stéphanie STAQUET (Coordonnateur)

Mnémonique du cours
CNST-H401

Crédits ECTS
3 crédits

Langue(s) d'enseignement
Anglais

Période du cours
Deuxième quadrimestre

Campus
Solbosch

Contenu du cours

- History of prestressed concrete and introduction : what is prestressed concrete (PC) ?
- Materials
- Equivalent loads induced by prestressing
- Prestress losses
- Design of PC beams at serviceability limit states
- Ultimate limit state of simply supported beams (bending and shear)
- Anchorage zones

Objectifs (et/ou acquis d'apprentissages spécifiques)

Design of simple prestressed concrete structures

Pré-requis et co-requis

Cours ayant celui-ci comme pré-requis

MEMO-H501 | Master thesis civil engineering | 24 crédits

Méthodes d'enseignement et activités d'apprentissages

Lectures, exercices and one on site visit

Contribution au profil d'enseignement

This teaching unit contributes to the following competences:

- In-depth knowledge and understanding of exact sciences with the specificity of their application to engineering
- In-depth knowledge and understanding of integrated structural design methods in the framework of a global design strategy
- Develop, plan, execute and manage engineering projects at the level of a starting professional
- A critical attitude towards one's own results and those of others
- Design (conceptually and quantitatively), model, realize and manage concrete, steel and composite structures in the context of buildings and civil engineering infrastructures
- Integrate advanced modelling tools for the design of complex structures in civil engineering

Références, bibliographie et lectures recommandées

Hurst, M.K., Prestressed Concrete Design, 2nd ed, E & FN Spon (1998)

Gilbert, R.I., Mickleborough, Design of Prestressed Concrete, Unwin Hyman (1990)

Support(s) de cours

Université virtuelle

Autres renseignements

Lieu(x) d'enseignement

Solbosch

Contact(s)

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Méthode(s) d'évaluation

Examen écrit

Méthode(s) d'évaluation (complément)

Written exam

- exercises (reference material limited to the lecture notes and own solution of exercises of the year)
- theory (without reference material)

Construction de la note (en ce compris, la pondération des notes partielles)

25% for the whole 5 reports to provide during the semester (Q2) + 50% exercises (written exam in June) + 25% theory (written exam in June)

Langue(s) d'évaluation principale(s)

Anglais

Programmes

Programmes proposant ce cours à l'école polytechnique de Bruxelles

MA-IRAR | Master : ingénieur civil architecte | finalité Spécialisée/bloc 2 et MA-IRCN | Master : ingénieur civil des constructions | finalité Spécialisée/bloc 1