




5.0 credits	30.0 h + 15.0 h	1q
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Teacher(s) :	Remacle Jean-François ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Inline resources:	Course notes (English)
Prerequisites :	/
Main themes :	<p>Variational principles in structural mechanics, classical theory of finite elements for structures:</p> <ul style="list-style-type: none"> · Trusses (2D and 3D) · Frames (2D and 3D) · Plates and shells · Plane stress and plane strains. <p>More advanced material will eventually be covered: elasto-plastic modelling of frames, structural instabilities, modelling of brittle materials, large displacements in structures.</p> <p>A computer project will be assigned to students that will consist in the development of a finite element code for a specific type of structure. The code will have to deal with inputs and outputs, including a graphical user interface.</p>
Aims :	<p>Contribution of the course to the program objectives (N°) AA1.1, AA1.2, AA1.3, AA4.2, AA4.4, AA5.6.</p> <p>Specific learning outcomes of the course</p> <p>Students will understand the principles of the finite element method applied to usual civil engineering structures (beams, frames, plates and shells).</p> <p>Students will be trained in programming the finite element method. This includes the treatment of input data and the post-treatment of the results.</p> <p><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></p>
Evaluation methods :	Exam (40%) and computer project (60%).
Teaching methods :	Two-hour classes.
Content :	See "Main themes".
Bibliography :	Lecture notes of the Professor; Finite Element Structural Analysis, T.Y Yang, Prentice-Hall, Inc, Englewood, NJ, 1986;
Other infos :	/
Faculty or entity in charge:	GC

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Mechanical Engineering	MECA2M	5	-	
Master [120] in Electro-mechanical Engineering	ELME2M	5	-	
Master [120] in Civil Engineering	GCE2M	5	-	
Master [120] in Mathematical Engineering	MAP2M	5	-	