Steel Structures

1. **Course number and name:** 020CMMGS3 Steel Structures

2. **Credits and contact hours:** 6 ECTS credits, 3x1.25 hours

3. **Name(s) of instructor(s) or course coordinator(s):** Fadi GEARA, Joanna NSEIR

4. **Instructional Materials:**
   - **a.** Les Charpentes métalliques – Editions Eyrolles
   - **b.** Eurocode 0 : Bases de calcul des structures – 2001
   - **c.** Dimensionnement des structures en béton – traité de génie civil de l'Ecole Polytechnique fédérale de Lausanne – Vol. 7, Presses Polytechniques
   - **d.** Romandes (R. Walther, M. Miehlbradt)- 1990
   - **e.** Le projet de construction avec les Eurocodes (Jean-Armand Calgaro) – 2004
   - **f.** Instructor's Class Notes

5. **Specific course information**
   - **a. Catalog description:** This class aims at providing students with a solid background on principles of steel structural design based on the Eurocodes 3. Students will be exposed to the theories and concepts of steel design and analysis both at the element and system levels.
   - **b. Prerequisites or co-requisites:** 020RDMGS2 Strength of Materials
   - **c. Required:** Required for all Civil Engineering students.

6. **Educational objectives for the course**
   - **a. Specific outcomes of instruction:**
     - Understanding of the concept of steel design.
     - Analyze a structure to obtain actions such as bending moments, shear forces…
     - Design steel structural elements for design actions on the cross-section level and the member level.
     - Analyze and understand the functioning and load path of an assembly.
   - **b. PI addressed by the course:**

PI	1.1	1.4	2.3
Covered	yes	yes	yes
Assessed	yes	yes	yes

7. **Brief list of topics to be covered:**
    - **a.** Introduction (2 hours)
    - **b.** Design (16 hours)
    - **c.** Tension in members (4 hours)
    - **d.** Cross-section design (4+4 hours)
    - **e.** Compression in members (5 hours)
    - **f.** Bending in members (5 hours)
    - **g.** Combined loading in members (6 hours)
    - **h.** Assembly (6.5 hours)