Course Syllabus

020BEAGS3 Reinforced Concrete

1. **Course number and name:** 020BEAGS3 Reinforced Concrete
2. **Credits and contact hours:** 6 credits, 3x1:15 course hours
3. **Instructor's or course coordinator's name:** Wassim RAPHAEL
4. **Textbook and other supplemental material:**
   - **a.** Instructor class notes
   - **b.** EN 2004. "General rules and rules for building, Eurocode 2" – Design of concrete structures, Part 1
   - **c.** FIB, "Structural Concrete: Textbook on Behaviour, Design and Performance, Updated Knowledge of the of the CEB/FIP Mod-el Code 1990," Bulletin No. 2, V. 1, Fédération internationale du béton (FIB), Lausanne, Switzerland, 1999
5. **Specific course information**
   - **a. Catalog description:** Understand the behavior of reinforced concrete - Analyze, design and detail reinforced concrete elements by applying the Eurocode 2
   - **b. Prerequisites:** 020ACTGS2 Basis of structural design – Structural Load calculations
   - **c. Required/Elective/Selected Elective:** Required major course for Civil Engineering Specialty students

6. **Specific goals for the course:**
   - **a. Specific outcomes of instruction:**
     - Properly apply EC2 code provisions
     - Analyze, design and detail reinforced concrete elements
     - Investigate serviceability requirements
     - Acquire the basics of sustainable practices
     - Identify the behavior and mode of failures of concrete members

   - **b. KPIs addressed by the course:**

KPI	a1	a2	c2	e3	g1	k2
Covered	x	x	x	x	x	x
Assessed			x	x	x	
Give Feedback			x	x		

7. **Brief list of topics to be covered and approximate number of lectures:**
   1. Introduction (2.5 hours)
   2. Materials (Concrete – Reinforcing Steel) (5 hours)
   3. Durability and cover to reinforcement (5 hours)
   4. Detailing of members and particular rules (5 hours)
   5. Serviceability and Ultimate limit states (5 hours)
   6. Design of ties – Crack limitations (7.5 hours)
   7. Design of columns (5 hours)
   8. Design of Beams (5 hours)
   9. Design of members requiring shear reinforcement (5 hours)
   10. Design of members submitted to Combined Axial Load and Bending (5 hours)

11. Overview of BAEL code (2.5 hours)