

Course Syllabus

REINFORCED CONCRETE DESIGN

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Program: Oceanographic Engineering

1. Course number and name

CIVG1045 - REINFORCED CONCRETE DESIGN

2. Credits and contact hours

3 credits and 4 contact hours

3. Instructor's course or coordinator's name

NADIA ROSAURA QUIJANO ARTEAGA

4. Text book, title, author, and year

- McCormac, Jack. Brown, Russell. Diseño de concreto reforzado (8va Edición)
 - a. Other supplemental materials
- Darwin, David. Dolan, Charles W. Nilson, Arthur. Design of Concrete Structures (15th Edition)
 - Gonzáles Cuevas, Oscar. Fernández Villegas, Francisco. Aspectos fundamentales del concreto reforzado (4ta Edición)
 - Comité ACI 318. Requisitos de Reglamento para Concreto Estructural (2014)

5. Specific course information

- a. Brief description of the content of the course (catalog description)

This intermediate level professional training course in Civil Engineering, deals with the behavior of reinforced concrete elements, oriented to the design of structural elements bases on the current building regulations. In addition, this topic is addressed in reinforced concrete elements over compression, traction, bending, shear and torsion stresses, as well as the study of deflection under loads. This course includes the design of structural reinforced of columns with axial loads with uniaxial and biaxial bending. At the end of the course, is made the analysis and design of reinforced slabs in one and two directions.

- b. Prerequisites

STRUCTURAL ANALYSIS - CIVG1034

- c. This course is: Required

6. Specific goals for the course

- a. Specific outcomes of instruction

- 1.- Sizing sections of reinforced concrete by the axial force analysis, bending moment force, shear force and torsional moment.
 - 2.- Analyze the deflections of reinforced concrete elements in order to verify their condition service limit.
 - 3.- Apply the criteria for beams, columns and slabs planes, so that the illustration of the design of the structural plane is adequate.
 - 4.- Refine the dimensions of reinforced concrete structural elements by working on building projects using the current construction regulations.
- b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other

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7. Brief list of topics to be covered

- 1.- Evaluation activities
- 2.- Fundamental principles of reinforced concrete
- 3.- Elements subjected to bending
- 4.- Elements subjected to sheer and torsion stresses
- 5.- Service limit state and detailing
- 6.- Introduction to column design
- 7.- Introduction to slab design