COURSE SYLLABUS

COURSE NUMBER: CIVE 421
COURSE TITLE: REINFORCED CONCRETE DESIGN

COURSE DESIGNATION
Required Course for Civil Engineering majors and Technical elective for Construction Engineering majors

COURSE DESCRIPTION
Properties and characteristics of reinforced concrete: design of structural components. Introduction to plastic theory and limit design. (3 credits)

PRE-REQUISITE
CIVE 321

LECTURES SCHEDULE
Lecture – 3 sessions per week, 50 minutes per session

TEXTBOOK

COURSE LEARNING OUTCOMES
To develop a fundamental understanding of the behavior, analysis and design of reinforced concrete structural elements based on structural mechanics principles utilizing ACI Code.

TOPICS COVERED
- Introduction and Materials
- Strength Design Method vs. Allowable Stress Method
- Structural Analysis of Reinforced Concrete
- Design of Singly Reinforced Beams in Flexure
- One-Way Slabs
- Doubly Reinforced Concrete Beams
- T-Beams
- Shear Design for Beams
- Bond and Development Length
- Serviceability of Beams
- Columns
- Footings
- Exams and Review.

GRADING
Homework Assignments and Quizzes 20%
Exams 50%
Final 30%