CENG 3121- REINFORCED CONCRETE STRUCTURES I
Academic Year: 2016/2017

COURSE OUTLINE

1. Introduction
   1.1. General Introduction to RC structures
   1.2. Introduction to Eurocode
       1.2.1. Introduction
       1.2.2. Introduction Eurocode : Basis of structural design
       1.2.3. Introduction Eurocode 1:
       1.2.4. Introduction Eurocode 2:
   1.3. Design Philosophies
   1.4. Partial factor method
   1.5. Materials Aspect of Reinforced Concrete

-------- Assignment I ---------

2. Limit State Design for Flexure
   2.1. Introduction
   2.2. ULS of Singly Reinforced Rectangular Sections (Beams, One-way Slabs)

TEST-1………………………………..

2.3. ULS of Doubly Reinforced Rectangular Sections

--------- Assignment II ---------

--------- Semester Project Begins ---------

3. Limit State Design for Shear
   3.1. Introduction
   3.2. Basic Theory
   3.3. Mechanism of shear resistance in concrete beams without shear reinforcement
   3.4. Design of shear reinforcement
   3.5. Bond and Development Length

--------- Assignment III ---------

TEST-2………………………………..

--------- Semester Project Submission ---------

FINAL EXAM…………………………..
Course Objectives:

- Know the mechanical properties of concrete and reinforcing steel,
- Know the different limit states in reinforced concrete structures and the application of the basic limit-states design equation according to Ethiopian Building Code Standards,
- Be able to carry out the structural design of singly reinforced beams, one way slabs and doubly reinforced beams in the ultimate limit state,
- Be able to carry out the structural design of reinforced concrete beams for shear in the ultimate limit state,
- Be able to carry out the structural design for anchorage,
- Be able to check the serviceability limit state of excessive crack width and deflections in beams and one way solid slabs,
- Be able to produce design calculations reports and structural drawings.

Value Aims:

- To develop an awareness in the students concerning their moral and social responsibility in carrying-out proper and accurate analysis and design of Reinforced Concrete Structures.
- To develop honesty, patience and perseverance in students through the course requirements in the form of problem sets, exercises, exams and recitation.

Assignments:

- Homework problems will be given regularly. All work submitted for grading must be done professionally and neatly on computation paper.

Scholastic Dishonesty:

- Giving aid to a student during an exam or taking information from another student’s exam constitutes academic dishonesty. Submitting another student's homework assignment and representing it as your own work also constitutes scholastic dishonesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University.

Attendance:

- Course attendance and on-time arrival are required. Excessive and chronic absences of more than 15% of total lecture dates will result in an incomplete grade (IA).

Evaluation:

- \[ [A^+=90, A^+=83, A^+=80, B^+=75, B^+=68, B^+=65, C^+=60, C^+=50, C^+=45, D^+=40, F_x \geq 30, F<30] \]