

**COMMONWEALTH GRADUATE ENGINEERING PROGRAM
DISTANCE LEARNING COURSE PLANNING SHEET
UNIVERSITY OF VIRGINIA**

Course: CE 6320 – Advanced Reinforced Concrete Design
Semester: Fall 2009
Instructor: C. Dale Buckner
Phone No.: 540-348-1230
Office Address:

E-Mail Address: cdb5k@virginia.edu

Textbook(s): (Student to purchase)

None. Select readings will be posted on Collab site, and excerpts from ACI 318-08 and other sources will be reproduced in class notes.

Reference(s): Limit 4

Computer Needs:

Computer Capability:

Software required:
Provided?

Other:

See attached course syllabus.

CE 6320/4322 - ADVANCED REINFORCED CONCRETE DESIGN

Study of advanced topics in reinforced concrete design, including design of slender columns, deflections, torsion in reinforced concrete, design of continuous frames and two-way floor systems. Introduction to design of tall structures in reinforced concrete, and design of shear walls. (Prerequisite: Undergraduate design of concrete structures)

Instructor: C. Dale Buckner, PhD, PE, SECB
Adjunct Professor
cdb5k@virginia.edu

Text: None. Select readings will be posted on collab site and excerpts from ACI 318-08 and other sources will be reproduced in class notes.

Content:

1. Introduction – codes and standards
2. Mechanical properties of steel and concrete
3. Flexural Behavior – Service Load Range
4. Flexural Behavior – Strength Limit State
5. Moment-curvature Relationships
6. Combined axial and bending – uniaxial bending
7. Combined axial and bending –biaxial bending
8. Slender columns—braced frames
9. Slender columns –unbraced frames
10. Shear – slender members
11. Torsion and shear
12. Limit analysis – one-way systems
13. One-way floor and roof systems
14. Two-way floor and roof systems—Direct Design Method
15. Two-way floor and roof systems—Equivalent Frame Method
16. Two 75-minute in-class tests at approximately the third points plus a comprehensive three-hour final exam

Prerequisite:

An undergraduate course in structural concrete based on the strength design method of ACI 318-02, ACI 318-05, or ACI 318-08.

Homework:

Homework is assigned each period and collected at the beginning of the first class meeting the following week. The Honor System is enforced. Students may discuss assignments with the instructor, other faculty, or other students but all work submitted for grade must be the individual effort of each student.