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

Course CE 684 - Advanced Reinforced Concrete Design Semester Fall 2005

Instructor Rodney T. Davis Phone No. (434) 293-1929

Office Address Virginia Transportation Research Council; Room 248; Shelburn Building; 530 Edgmont Road; Charlottesville, VA 22903

E-Mail Address rtd8u@Virginia.edu or Rodney.Davis@VDOT.Virginia.gov

Textbook(s): (Student to purchase)

Nilson, Darwin and Dolan , *Design of Concrete Structures*, Thirteenth Edition, Published by McGraw-Hill, ISBN: 0072921994

Reference(s):
ACI Committee 318-05, "Building Code Requirements for Structural Concrete and Commentary," The American Concrete Institute, Farmington Hills, MI 2005.

"AASHTO LRFD Bridge Design Specifications, Third Edition," The American Association of State Highway and Transportation Officials, Washington, D. C., 2004.

Computer Needs:

Computer Capability Any

Software required? A spreadsheet program Provided? No

Other

Syllabus CE 684, CE 403
Advanced Reinforced Concrete Design
Fall Semester 2005
8:00-9:15 p.m., M-W
A119 Thornton Hall

Instructor: Rodney T. Davis, Ph.D., P.E.
Adjunct Faculty Lecturer, Dept. of Civil Engineering and Applied Mechanics
Research Scientist, Virginia Transportation Research Council
Office: Room 220, Shelburne Building
Phone: (434) 293-1929
Email: rtd8u@Virginia.edu or Rodney.Davis@VDOT.Virginia.gov

Text: Nilson, Darwin and Dolan, *Design of Concrete Structures*, Thirteenth Edition. Published by McGraw-Hill, 2004.

Prerequisites: CE 326 (Concrete I), or Graduate Standing

Course Objectives: To provide a fundamental knowledge of the design of reinforced concrete structures, including:

- Basic Design Methodology
- Useful Methods of Structural Analysis
- Behavior at the Limit States
- Properties of Concrete and Reinforcing Steel
- Methods of Construction

Course Outline:

Design of Beams and Columns
Design of Slabs, Walls, and Foundation Elements
Design and Detailing of Connections
Design of Continuums by the Strut-and-Tie Method
Plastic Design of Frames
Structural Stability
Designing for Ground Motion

Grading:

Homework	35%
Exam 1	20%
Exam 2	20%
Final Exam	25%

Rodney T. Davis, Ph.D., P.E.

Rodney Davis is a research scientist with the Virginia Transportation Research Council, and an adjunct faculty lecturer for the Department of Civil Engineering at the University of Virginia. His area of expertise is the design and testing of prestressed concrete bridges. His current research includes the evaluation of various high-performance concretes for use in prestressed concrete bridge girders. The research program consists of both analytical study and full-scale testing of bridges and bridge elements. He has also provided consulting engineering services for a broad range of project types over the course of his career, including transportation, marine, industrial and residential. Dr. Davis received Ph.D. and M.S.E degrees from the University of Texas at Austin, and his B.S.C.E. from Virginia Tech.