

CIVL-205 Computer Applications in Engineering Spring 2008

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Office Hours: MW 9:00-9:50 AM, TF 10:00-10:50 AM

Course Information

Description: The objective of this course is to provide students with the fundamental computer skills needed to succeed in the Civil Engineering degree program and in subsequent graduate studies and/or professional practice. Topics tentatively planned for coverage includes;

- computer architecture, hardware and software, ethics
- communications, networks, security, computer information resources
- computer productivity (word processing, spreadsheets, drawing, graphing, etc.)
- computer programming (Visual Basic)

These topics and skills will be applied to a variety of applied problems related to civil engineering. Though the course will address a variety of computer platforms, assignments will generally be conducted on PCs.

Recommended Texts:

1. Wang, Wallace, *Visual Basic 6 for Windows for Dummies*, Wiley/IDG Books Worldwide, Inc., 1998, ISBN: 9780764503702.

Special Fees: To be announced.

Prerequisites: PHYS 4A, MATH 7C (may be taken currently).

Schedule: Lecture/Lab: M, W 10:00-11:50AM, OCNL 334 (this is a PC lab).

Final Exam: Wednesday, May 21, 2008, 10:00-11:50 AM in OCNL 334.

Grading: Final course grade will be weighted as follows:

Assignments	80%	(deductions will be made for unexcused absences)
Quizzes and Exams (Minimum of 1)	20%	(some quizzes may be unannounced)

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Fall 2007

Tentative Schedule

<u>Lab</u>	<u>Title</u>
1	Introduction to Personal Computers (basic PC skills, hardware & software)
2	E-Mail, World Wide Web and Remote Access (Student Computing classes)
3	Advanced Word (editing, simple drawing, equation editor, importing objects)
4	Fundamental Spreadsheet Analysis (basic skills, relative & absolute refs., graphing)
5	Convert load-deflection to stress-strain, graph, trend line to calculate Young's modulus.
6	Advanced Spreadsheet Analysis (logic, functions, dynamic displays, long eqns.) Electrical circuit analysis.
7	Determine steel compression member capacity by AISC ASD criteria.
8	Determine concrete shear capacity using long equations, logic and the solver.
9	Computer Program Design (programming concepts, logic and looping, I/O, flowcharts)
10	Flowchart numerical series to calculate π , detect convergence.
11	Visual Basic - π Problem (objects, properties, design-/run-time, subs., var. types, code)
12 - 13	Visual Basic – Individual series problem, similar to π problem, individual effort.
14 - 15	Visual Basic – Numerical integration of definite integrals.
16 - 19	Visual Basic - SDOF Earthquake Response (Week 1: File I/O, Week 2: Calculate SDOF response, Week 3: Graph, scrolling textbox, printing)
20-	Visual Basic – Individual programming project.

Other topics, which may be included if time permits are, file structures and associated readers, presentation software, databases, equation solvers, etc.. The primary software tools planned for use are Windows, Microsoft Office, and Microsoft Visual Basic 6.

General Course Policies:

Assignments will generally be made on a weekly basis according to the topics covered. Some assignments may be due at the end of the laboratory period, while others may carry over into the subsequent week, as specified by the instructor.

Class and laboratory attendance is required. If a serious event prevents you from attending a meeting, contact the instructor as soon as possible to receive consideration for a make-up.

No late submittals will be accepted without prior authorization. Make-up quizzes and examinations will not be given. Students experiencing a serious event that prevents them from taking a quiz or exam should contact the instructor as soon as possible to receive consideration for a make-up.