

Syllabus

CVEEN 2750-301 Computer Tools

Overview

Course	CVEEN 2750-301 Computer Tools
Department	Department of Civil and Environmental Engineering
Instructor	Roshina Babu
Class Hours:	9:00 to 9: 50 AM (Mon and Wed)
Location	UAC 505
Pre-Requisites	C or better in ((MATH 1210 OR MATH 1310 OR MATH 1311) OR AP Calc AB score of 4+ OR AP Calc BC score of 3+).
Credit Hours	2
Semester	Spring 2021
Description	Application to databases, advanced spreadsheet computations, GIS, and advanced 3-D BIM design to engineering

Course Objectives

This course covers a range of computer skills that are essential to engineering. The primary learning objectives of the course include:

- Understand fundamental concepts about computing and processing systems
- Use advanced spreadsheet skills to answer engineering problems
- Develop fundamental programming skills to make spreadsheets more efficient and powerful
- Use database management techniques to effectively work with large amounts of complex data
- Master essential skills with BIM software

During the course, we will focus on Microsoft Excel, SQLite, and Revit software programs, though many of the skills learned are easily transferable to other environments.

Required Materials

There will be no textbook for this course. Regular assignments will often include readings, which will be provided with each module as needed. The following resources may also be helpful:

- David Evans. Computing Explorations in Language, Logic, and Machines. University of Virginia. <https://computingbook.org/FullText.pdf>
- Karl W. Broman & Kara H. Woo (2018) Data Organization in Spreadsheets, The American Statistician, 72:1, 2-10, DOI: 10.1080/00031305.2017.1375989
- <https://newtonexcelbach.com/about/>

Important: You must use a PC (not Mac) computer to complete assignments in this class, with the same versions of the software in the lecture room. The textbook for this course will be:

Schedule

This is the tentative schedule, subject to change as the course progresses.

Week	Date	Module	In-Class Work/Participation	Assignments	Bonus
1	22 Feb	Course Introduction	Get to know everyone	Syllabus Quiz ; A1: Excel primer	
	24 Feb	Computer Basics	Survey	A2: Computer Basics	
2	1 Mar	Independence Movement Day (Holiday)			
	3 Mar	Spreadsheet Tools 1	In-class worksheet	A3: Spreadsheet Tools 1	Discussion
3	8 Mar	Spreadsheet Tools 2	In-class worksheet	A4: Spreadsheet Tools 2	Discussion; Excel for DM
	10 Mar	Spreadsheet Tools 3	In-class worksheet	A5: Spreadsheet Tools 3	Discussion

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4	15 Mar	Macros	In-class worksheet	A6: Macros	Discussion
	17 Mar	Controls	In-class worksheet	A7: Controls	
5	22 Mar	Excel Review			
	24 Mar	Programming 1	In-class worksheet	A8: Programming 1	Discussion
6	29 Mar	Programming 2	In-class worksheet	A9: Programming 2	
	31 Mar	Spring Recess			
7	5 Apr	Programming 3	In-class worksheet	A10: Programming 3	Discussion
	7 Apr	Programming Review			
8	12 Apr	Midterm			
	14 Apr	SQL 1	In-class worksheet	A11: SQL1	
9	19 Apr	SQL 2	In-class worksheet	A12: SQL2	Discussion
	21 Apr	SQLite Studio	In-class worksheet	A13: SQLite	Discussion
10	26 Apr	Relationships and Joins	In-class worksheet	A14: Relationships and Joins	Discussion
	28 Apr	Databases & Problem Solving	In-class worksheet		Discussion
11	3 May	Reading Day (No lecture)			
	5 May	Reading Day (No lecture)			
12	10 May	Databases Review			
	12 May	Revit 1	In-class worksheet	Revit Quiz	Discussion
13	17 May	Revit 2	In-class worksheet	A15: Revit	Discussion
	19 May	Buddha's Birthday (Holiday)			
14	24 May	Revit 3	In-class worksheet		Discussion
	26 May	Revit 4	In-class worksheet		Discussion
15	31 May	Finals			
	2 June	Finals			

Evaluation

Your performance in this course will be evaluated by:

Category	Weight
Homework Assignments	40%
Midterm	25%
Finals	25%
Attendance and Participation	10%
Bonus (Extra 2%)	
Total	100%

Communication

- Email: roshina.babu@utah.edu
- Phone: 6214 (during office hours)
- Office Hours: 2:00 PM to 3:00 PM (Mon, Wed) or by appointment