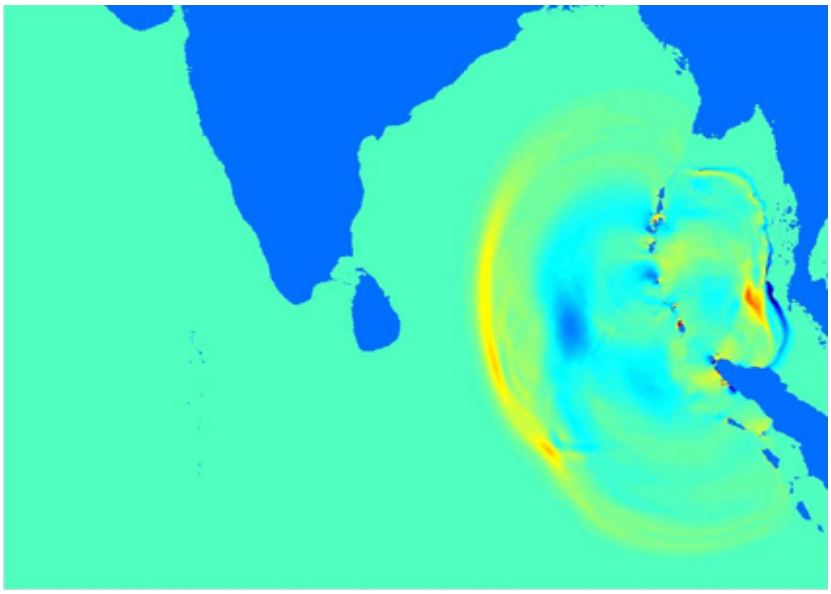
ENGR 102: Engineering Lab I - Computation



Numerical simulation of the Sumatra Tsunami that occurred in December, 2004. Red and yellow show higher than average and blues show lower than average water surface elevation. Calculated by Dr. Lynett using the COULWAVE model. Click on the image to view an animation of the simulation results.

Instructor
Dr. Scott A. Socolofsky, Professor

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 12:40-2:30 p.m. in ZACH 212

Level
Undergraduate

Contact
Dr. Scott A. Socolofsky
Ph +1-979-845-4517
FAX +1-979-862-8162
socolofs@tamu.edu

Course Description

ENGR 102 Engineering Lab I - Computation (1-3). Credits 2. Introduction to the design and development of computer applications for engineers; computation to enhance problem solving abilities; basic concepts of software design through the implementation and debugging of student-written programs; introduction to engineering majors, career exploration, engineering practice within realistic constraints, e.g. economic, environmental, ethical, health and safety, and sustainability; pathways to success in engineering. Prerequisites: Grade of C or better in MATH 151, or concurrent enrollment; admission to the College of Engineering.

Course Objectives

Upon successful completion of this course, students will be able to design, create, and execute computer programming solutions to engineering problems.

To achieve this goal, students will learn to:

- Demonstrate the use of basic programming techniques in the construction of computer programs, including techniques to:
    - Collect, store, and manipulate data within a computer program
    - Collect, create, store, and manipulate data in larger structures, such as arrays,

matrices, and lists
    - Use control structures, such as conditional statements and loops, in computer programs
    - Declare and use functions to solve computing-related problems
    - Analyze data from a file and output processed results to a file
    - Decompose a complicated task into more manageable pieces
- Apply programming techniques to solve problems in engineering and calculus, including:
    - Applying vector and matrix manipulation of data to solve engineering problems
    - Graphically plotting data to visualize basic calculus concepts
    - Manipulating data to numerically calculate derivatives in the context of engineering applications
    - Applying conditional statements and loops to implement numerical methods, such as bisection and Newton's method
- Complete a team programming assignment that ties together concepts learned in the class
- Complete the required homework assignments for introduction to engineering majors, engineering practice, and student success.

Keywords:

Structured computer programming, Python, numerical methods, root finding, arrays and matrices, numpy, scipy, matplotlib

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 16, 2018

ENGR 102-214
Engineering Lab I - Computation

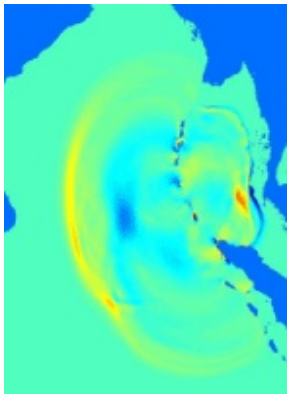
Instructor
Dr. Scott A. Socolofsky, A.P. and Florence Wiley Professor II

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 3:00-4:50 p.m. in ZACH 212

Contact
Ph +1-979-845-4517
socolofs@tamu.edu

Syllabus



Numerical simulation by Dr. Lynett of the 2004 Sumatra tsunami.

The following presents the syllabus for **ENGR 102, Section 214 for Fall 2019**.

Course Description and Prerequisites

ENGR 102 Engineering Lab I - Computation. (1-3). Credit 2. Introduction to the design and development of computer applications for engineers; computation to enhance problem solving abilities; basic concepts of software design through the implementation and debugging of student-written programs; introduction to engineering majors, career exploration, engineering practice within realistic constraints, e.g. economic, environmental, ethical, health and safety, and sustainability; pathways to success in engineering.

Prerequisites: Grade of C or better in MATH 151, or concurrent enrollment; admission to the College of Engineering.

This course provides an introduction into the design and development of computer applications for engineers. No prior experience in programming is necessary. Students will learn to use computation to enhance their problem solving abilities. The course will cover basic concepts of software design through the implementation and debugging of student-written programs. This course also introduces engineering majors that are available to students, types of work engineers in their field do, engineering practice within realistic constraints, e.g. economic, environmental, ethical, health and safety, and sustainability, and the paths to success in their chosen field.

Course Expectations

As a student in ENGR 102-213, you are expected to:

- Always use your @tamu.edu e-mail account to send correspondence between yourself and the teaching team. Always include your section number in the subject line for all correspondence. *Check your @tamu.edu email account daily*.
- Use your eCampus account (*http://ecampus.tamu.edu/*) to access protected course information, including online learning modules and your grades, and to turn in assignments. The open-access course information, including assignments, reading, and lecture nores, are available through the menu at the left on this website.
- Be an active problem solver, contributor, and discussant in class.
- Be prepared and accountable for class by reading the assigned material ahead of time and be able to answer simple questions over said material.
- Be held accountable for all assigned material that is, or is not, explicitly discussed in class. In other words, keep track of assignments through in-class announcements and the course website.

- Have a public presence in the class.
- Attend class as a community expectation.

Learning Outcomes or Course Objectives

Upon successful completion of this course, students will be able to design, create, and execute computer programming solutions to engineering problems.

To achieve this goal, students will learn to:

- Demonstrate the use of basic programming techniques in the construction of computer programs, including techniques to:
  - Collect, store, and manipulate data within a computer program
  - Collect, create, store, and manipulate data in larger structures, such as arrays, matrices, and lists
  - Use control structures, such as conditional statements and loops, in computer programs
  - Declare and use functions to solve computing-related problems
  - Analyze data from a file and output processed results to a file
  - Decompose a complicated task into more manageable pieces
- Apply programming techniques to solve problems in engineering and calculus, including:
  - Applying vector and matrix manipulation of data to solve engineering problems
  - Graphically plotting data to visualize basic calculus concepts
  - Manipulating data to numerically calculate derivatives in the context of engineering applications
  - Applying conditional statements and loops to implement numerical methods, such as bisection and Newton's method
- Complete a team programming assignment that ties together concepts learned in the class
- Complete the required homework assignments for introduction to engineering majors, engineering practice, and student success.

There is also a Weekly List of Goals and Objectives that give the fine details of what will be learned each week.

Keywords:

Structured computer programming, Python, numerical methods, root finding, arrays and matrices, numpy, scipy, matplotlib

Textbooks

There is one required online book for this class:

- *Programming in Python,* published by ZyBooks. ***Important***: This is an electronic book. You can purchase an access code either at the bookstore, or online through the course eCampus web site. Do not buy at both the bookstore and online! It is not recommended to purchase a book and code package from other retailers, since their codes will not give you proper access to the publisher's online materials.
- This online book includes material from two ZyBook titles: "Programming in Python 3.3" and "Troubleshooting Basics." Author: Bailey Miller. Senior Contributors: Roman Lysecky, Frank Vahid, and Nkenge Wheatland.

- Notes and other resources will be provided online and accessible either from http://ceprofs.civil.tamu.edu/ssocolofsky/ENGR102 or from the Texas A&M University eCampus online system.

Other Required Materials / Supplies

In addition to the on-line textbook, the following materials and supplies are also required and should be brought with you to each lecture and lab period:

- Your BYO computer. You should arrange to have the required course software (Microsoft Office, Anaconda, PyCharm and Python 3) installed. Microsoft Office is available from TAMU Software. We will install Anaconda, Python, and PyCharm together during the first week of lab.
- Access to your TAMU Google Drive. This is a free service arranged by TAMU, and will make teamwork much easier.
- A Scientific Calculator. The calculator can have as many features as you deem necessary. However, please note that for exams you will only be able to use the calculator's addition, subtraction, multiplication, division, logarithmic and trigonometric functions capabilities. Any other capabilities of your calculator will specifically be forbidden from being used. Please also note, for exams your phone will not be considered a calculator even if you have a calculator app. *Phones cannot be used during exams for any purpose*.

Grading Policies

Your final grade for the course will consist of the following elements:

- Exams (35%) - there will be one 2-hour midterm exam (15% of your grade) and one 2-hour comprehensive final exam (20% of your grade)
- Lab assignments (30%) - Lab assignments will be assigned weekly and are designed to help students understand the course material, provide practical programming experience, and help improve problem-solving abilities. Labs will consist of both in-class activities and take-home assignments. While many assignments will be individual, some lab assignments will be done in teams. Lab attendance is required and will be used as part (5%) of the lab grade.
- Quizzes (24%) - There will be at least 10 quizzes throughout the semester consisting of questions concerning material in the lecture and the lab assignments. The purpose of the quizzes is to help you stay caught up on the lecture material in the class as well as to test your understanding of the lab assignments. Quizzes may be given in class and without warning or online with a given completion deadline.
- Video Module Homework assignments (8%) - Students must complete the assignments having to do with the introduction of the engineering disciplines & engineering practice, as well as the modules addressing student success.
- Industry Night Essay and DI Saturday Essays (3%) - Information on dates and companies will be forthcoming. You will be required to attend 1 Industry Night Seminar during the term. These are informational events featuring different companies that hire engineering graduates. You will be required to attend 2 Department Information Presentations on **Saturday, November 23rd**. For all of these events you will need to submit a short (250 word) essay indicating you attended and paid attention. More details on Industry Nights and DI Saturday will be forthcoming.

Letter grades will be assigned from your total course score according to 90% to 100%: A, greater than or equal to 80% but <90%: B, greater than or equal to 70% but <80%: C, greater than or equal to 60% but <70%: D, below 60%: F. Please note that lab assignments and homework are 50% of your grade: please do not neglect this work!

Other Pertinent Course Information

Course Calendar

Please refer to the Calendar page.

Computer Languages

The primary computer language used in this course will be Python 3. Supplementary material will be provided to demonstrate how concepts can be realized in Excel.

Exams

One 60-minute midterm exam and one 2-hr final exam are scheduled (see Course Calendar above for scheduling). The grading of the exams will be based on both the approach and the final answer. Exams will be closed book and closed notes. You may need a hand-held calculator for each exam. It is your responsibility to ensure that your calculator is working and will perform in the examinations.

Lab Assignments and Class Participation

Please refer to the Assignments page for a list of all lab assignments.

Lab assignments will generally be assigned on a Monday at the start of each new topic and due within one week. Two laboratory assignments will be given each week: a group assignment, to be completed by the four students in your group in class, and an individual assigment, to be completed by each student individually.

Individual Lab assignments are an important part of the learning process and should be completed individually. You may ask others for help at places where you have made diligent attempts and have become stumped. You may ask others for confirmation of results at significant milestones in the problem. You may not share computer programs, Word documents, or Excel files. Copying another student's solution, even if you slightly change the presentation will be considered as cheating and given a grade of zero (see Plagiarism statement below). Referring to posted homework solutions is acceptable as long as the work you turn in is your own. Students may not use solutions from previous semesters of this course. Students' assignments may be scanned for similarity to other students' work using automated algorithms (e.g., turnitin.com).

Homework problems must be answered clearly, showing all your work, and should be easy to follow. Where applicable, the solution to each problem should contain:

- All associated programming code and computer input / output
- All Python files should have a header comment block with your name, UIN, the assignment number, date, and a short statement of the purpose of the contents of the file.
- All Python code must be commented
- You may not reuse code by copy-and-paste. Instead, create programming control structures (conditional statement, loops, functions, and modules) to reuse code.

Failure to include these elements (as needed) will result in lost credit for the assignment. *Not all homework problems may be graded*.

You are expected to attend all classes, turn in all assignments, and complete all exams at their scheduled times. Exceptions are only permitted for university excused absences (see Absences below). A total of 5% of your course grade will be for participation in the course scheduled lab time.

Unless you have a university excuse (see Absences below), late assignments will not be accepted for credit. Please do not ask for exceptions.

Electronically-Submitted Work

When submitting a file electronically via an eCampus submission box, you are **required** to

check that the file was uploaded successfully. This may be checked by trying to download the file that you just submitted. This helps prevent errors such as when students may inadvertently <Save> rather than <Submit>. Work that was <Saved> but not <Submitted> cannot be accessed by the grading team and therefore will not be graded. A team submission can be checked by any team member.

Quizzes

Classes may be given during class, and pointers for the lab assignments and last-minute changes to the schedule may be announced in class. It is your responsibility to be in class to receive this information or to get the information from another student.

Quizzes may be given at any time and will be taken from the past lecture material, assigned reading, or laboratory assignments. Quizzes are closed book and notes.

Video Module Homework Assignments - Introduction to Majors

A 25-30 minute online module will be required each week to improve student understanding of the breadth of engineering disciplines to aid in their selection of a major and to introduce the practice of engineering.

Industry Nights and Departmental Information Saturday

The industry nights are informational events featuring different companies that hire engineering graduates. You are expected to attend at least one of the Industry Nights events and to submit a 250-word summary of the presentation you hear there. Please be aware that you must RSVP for an Industry Night presentation. Pay attention to announcements and remeber to sign up before the end of the semester. Information on the dates and companies who will attend and present will be forthcoming.

You will also be required to attend 2 Department Information Presentations on **Saturday, November 23rd**. For all of these events you will need to submit a short (250 word) essay indicating you attended and paid attention.

Plagiarism and Cheating

"An Aggie does not lie, cheat, or steal, or tolerate those who do." Students are expected to understand and abide by the Aggie Honor Code presented on the web at:

- http://aggiehonor.tamu.edu/

No form of scholastic misconduct will be tolerated. Academic misconduct includes cheating, fabrication, falsification, multiple submissions, plagiarism, complicity, etc. These are more fully defined in the above web site. As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Since the problem sets and programming assignments grade for this course is a high percentage of your total grade, no plagiarism or cheating will be permitted in these assignments. Violations will be handled in accordance with the Aggie Honor System Process described on the web site.

Attendence

Attendance in class is mandatory. TAMU policies regarding student attendance/absences are defined in Part I, Section 7 of the TAMU Student Rules. In addition to those rules, the following policies will apply in this course:

1. An excused absence will be required for any day in which a graded assignment was due or exam was given.
2. There will be no opportunity to makeup/exempt in-class or out-of-class assignments, exams, RATs, CFU or any other “graded” materials due to an unexcused absence.

Student Rules

TAMU Student Rules are posted at *http://student-rules.tamu.edu*. You should be familiar with these by now. Any issue not addressed explicitly in this syllabus will be governed by the Student Rules.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu.

Export Controls

All information included in the public areas of the course website is paraphrased from the course textbooks, which are public domain and publicly available. All of the programming and numerical methods covered in this course are listed in the course catalog and are public domain. The online videos are protected and only available to students enrolled in the course; none of the material in the videos is export controlled, but this precaution prevents the unintended export of instructional material to an embargoed country.

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 21, 2019

ENGR 102-214
Engineering Lab I - Computation

Instructor
Dr. Scott A. Socolofsky, A.P. and Florence Wiley Professor II

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 3:00-4:50 p.m. in ZACH 212

Contact
Ph +1-979-845-4517
socolofs@tamu.edu

Calendar

The following table presents a tentative course calendar for **Fall 2019**. Reading assignments are from the *Programming with Python* online Zybook.

In addition to the weekly class meeting times, Two important dates should be noted:

- **Midterm Exam 1**: Wednesday, October 16, 3:00 p.m. to 4:50 p.m. in ZACH 212
- **Final Exam**: Monday, November 25, 3:00 p.m. to 4:50 p.m. in ZACH 212

You may view materials from the Pilot course in Spring 2018, and from the section taught by Prof. Socolofsky in Fall 2018.

You should also download and make frequent reference to the Weekly Goals and Objectives.

Because there are a lot of differnt assignments and web sites associated with this course, I have prepared a Weekly Checklist for you to ensure you do not miss an assignment or deadline. Please also remember to sign up for an attend one Industry Night seminar.

Date	Topic	Reading Assignment
8/26	Week 1: Introduction to course, engineering, and programming [Lecure notes; Python scripts]	Ch. 1, 2.1-2.2; 2.5
8/28	Lab 1, 1b: Setting up Python and writing your first programs	
9/2	Week 2: Sequential steps, variables, assignment, and data types	2.3-2.7
9/4	Lab 2, 2b	
9/9	Week 3: Input / output, modules, and calling functions	3.1-3.14
9/11	Lab 3, 3b	
9/16	Week 4: Conditional statements, Boolean expressions, and if/elif/else	4.1-4.9
9/18	Lab 4, 4b	
9/23	Week 5: Loops and iteration	5.1-5.2
9/25	Lab 5, 5b	
9/30	Week 6: Creating and testing programs and basic debugging	6.1-6.8
10/2	Lab 6, 6b	

10/7	Week 7: Arrays and lists of data (this is the last topic covered on the Midterm exam). See also Numpy Tutorial	7.1-7.11; 7.15-7.19
10/9	Lab 7, 7b	
10/14	Week 8: Top-down design of programs Lab 8, Study for midterm exam	8.1, 8.5, 8.6, 8.9
10/16	**Midterm Exam:** Coverts topics through Week 7. Wednesday, October 16th from 3:00 p.m. to 4:50 p.m. in ZACH 212.	
10/21	Week 9: File I/O	9.1-9.5
10/23	Lab 9, 9b	
10/28	Week 10: Using engineering modules in Python	10.1-10.13; 11.1-11.3; 11.13
10/30	Lab 10, 10b	
11/4	Week 11: Writing functions and variable scope	11.5-11.12; 11.14
11/6	Lab 11, 11b	
11/11	Week 12: Functions and their use in top-down and bottom-up design	12.1-12.3
11/13	Lab 12, 12b	
11/18	Week 13: Systematic debugging	13.1-13.12
11/20	Lab 13, Sudy for final exam	
11/25	**Final Exam**: Comprehensive. Monday, November 25th from 3:00 p.m. to 4:50 p.m. in ZACH 212	14.1-14.9; 15.1-15.7
11/27	Reading Day, *no classes*	
12/2	Redefined Friday -- *ENGR 102-213 does not meet*	
12/4	Week 14: Classes and Programming with Objects Lab 14	
12/11	**Final Team Lab 14 Due**: Submit your team's work by 12:30 p.m. through eCampus.	

Important University Dates

- August 26 – First day of fall semester classes.
- September 2 – Last day (by 5 p.m.) for adding/dropping courses for the fall semester.
- October 14 – Mid-semester grades due.
- November 15 – Last day (by 5 p.m.) to drop courses with no penalty (Q-drop) or to officially withdraw from the University
- November 27 – Reading day, no classes
- November 28-29 – Thanksgiving Holiday

- December 2 – A Monday, but students attend Friday classes
- December 3 – A Tuesday, but students attend Thursday classes
- December 4 – Last day of classes
- December 6-11 – Final exams

Dr. Socolofsky's Home Page | Zachry Department of Civil Engineering | Engineering at Texas A&M University | Texas Engineering Experiment Station | Texas A&M University

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 22, 2019

ENGR 102-214
Engineering Lab I - Computation

Instructor
Dr. Scott A. Socolofsky, A.P. and Florence Wiley Professor II

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 3:00-4:50 p.m. in ZACH 212

Contact
Ph +1-979-845-4517
socolofs@tamu.edu

Assignments

Lab Assignments

The following presents the lab assignments for **Fall 2019**. In the table below, Labs with only a number are expected to be done in groups of up to four students; labs with a number followed by 'b' (e.g., Lab 1b) are to be completed individually. Refer to the Syllabus for instructions on completing the group and individual assignments.

You may also view similar assignments from the Pilot course in Spring 2018, and from the section taught by Prof. Socolofsky in Fall 2018.

Week No.	Lab Assignment	Date due
1	Lab 1: Setting up Python and writing your first program Lab 1b: Writing your first programs: Assignment, print, and string formatting	9/2
2	Lab 2 [Python string documentation] Lab2b	9/9
3	Lab 3 Lab 3b	9/16
4	Lab 4 Lab 4b	9/23
5	Lab 5 Lab 5b	9/30
6	Lab 6 Lab 6b	10/7
7	Lab7 Lab 7b	10/14
8	Lab 8 Study for Midterm exam on 10/21	10/21
9	Lab 9 Lab 9b	10/28

10	Lab 10 Lab 10b	11/4
11	Lab 11 Lab 11b	11/11
12	Lab 12 Lab 12b	11/18
13	Lab 13 Team Project [due 12/11 at 12:30 p.m.]	11/25
14	Continue work on Team Project	12/11 at 12:30 p.m.

Dr. Socolofsky's Home Page | Zachry Department of Civil Engineering | Engineering at Texas A&M University | Texas Engineering Experiment Station | Texas A&M University

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 22, 2019

ENGR 102-214
Engineering Lab I - Computation

Instructor
Dr. Scott A. Socolofsky, A.P. and Florence Wiley Professor II

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 3:00-4:50 p.m. in ZACH 212

Contact
Ph +1-979-845-4517
socolofs@tamu.edu

Video Module Homework Assignments

The following table summarizes the assignments for the Video Modules Homework Assignments. These are designed to improve student understanding of the breadth of the engineering disciplines, to aid in their selection of a major, and to introduce the practice of engineering.

You will find links to the videos and online assessments / assignments in your eCampus account under the master ENGR 102 course.

Featured Department	Engineering Module	Date due
CHEN	No additional module	8/28
BAEN	Engineering Success	9/4
CPSC	Academic Honesty, Part 1	9/11
BMEN	Fischer Design Center	9/18
ECEN	Academic Honesty, Part 2	9/25
ETID	No additional module	10/2
ISEN	No additional module	10/9
MSEN	No additional module	10/16
MEEN	Student Counseling	10/23
NUEN	Global Program Opprotunities	10/30
AERO	Zachry Leadership Program	11/6
CVEN/EVEN	Entrepreneurship Program	11/13
PETE	No additional module	11/20
OCEN/ITDE/AREN	ENGR[X]	11/27

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 21, 2019

ENGR 102-214
Engineering Lab I - Computation

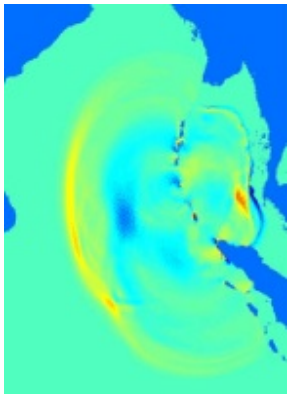
Instructor
Dr. Scott A. Socolofsky, A.P. and Florence Wiley Professor II

Office
DLEB 309-i
Office Hours

Course Meeting Times
MW 3:00-4:50 p.m. in ZACH 212

Contact
Ph +1-979-845-4517
socolofs@tamu.edu

Related Resources


Numerical simulation by Dr. Lynett of the 2004 Sumatra tsunami.

The following materials may be helpful for this course. You may also visit my general Links page for more resources.

On-line References

- https://www.python.org/download/releases/3.0/ (Python Software Foundation)
- https://anaconda.org/anaconda/python (Anaconda Python Distribution)
- https://docs.conda.io/en/latest/miniconda.html (Miniconda Distribution)
- http://www.numpy.org (NumPy Library for Matrix Computing)
- https://www.scipy.org (SciPy Library for Scientific Programming)
- https://matplotlib.org (Matplotlib for Plotting in Python)
- https://stackoverflow.com (Online forums for Programming Questions)

On-line Books and Notes

- YouTube channel for Automate the Boring Stuff with Python by Al Sweigart
- http://www.nr.com (Numerical Recipes)
- http://www.mathworks.com/ (Matlab Help)
- http://www.vni.com/products/imsl/ (Math Programming Libraries)
- MIT online introduction to computing course (Multiple versions of this course are available; see the listings for 1.00, and 1.001 here)
- MIT online course in software engineering

PowerPoint Lecture Notes

Each week, the ENGR 102 course coordinator prepares a stack of Power Point slides that summarize that week's lecture material. You may view the slides from the section taught by Prof. Socolofsky in Fall 2018. The slides for Fall 2019 are provided below.

Week No.	Lab Assignment	Date
1	Lecture 1: Introduction to course, engineering, and programming	9/2
2	Lecture 2: Sequential steps, variables, assignment, and data types	9/9

3	Lecture 3: Input / output, modules, and calling functions	9/16
4	Lecture 4: Conditional statements and Boolean expressions	9/23
5	Lecture 5: Loops and iteration	9/30
6	Lecture 6: Creating and testing a programs and basic debugging	10/7
7	Lecture 7: Arrays and lists of data	10/14
8	Lecture 8: Top-down design of programs	10/21
9	Lecture 9: File I/O	10/28
10	Lecture 10: Using engineering modules in Python	11/4
11	Lecture 11: Writing functions, scope	11/11
12	Lecture 12: Functions and their use in top-down and bottom-up design	11/18
13	Lecture 13: Systematic debugging	11/25
14	Optional - No prepared slides	12/4

Dr. Socolofsky's Home Page | Zachry Department of Civil Engineering | Engineering at Texas A&M University | Texas Engineering Experiment Station | Texas A&M University

Dr. Scott A. Socolofsky, 3136 TAMU, College Station, Texas 77843-3136 USA
Tel: +1 (979) 845-4517, FAX: +1 (979) 862-8162, socolofs@tamu.edu
Last updated: August 22, 2019