SENG 1000 - Software Engineering Foundations and Practice
Course Syllabus – Fall 2020 – Block 8W1

Department of Computer Science

East Carolina University (ECU)

1 Course Catalog Description

Introduction to modern software engineering and computational problem-solving using object- oriented principles and a high-level programming language.

2 **Credit Hours:** 3.0

3 Prerequisites

ACT Math score of 24 or SAT Math score of 560 or MATH 1065;

4 Office Hours

If you are in need of assistance with the course material, office hours for this course will be held weekly on:

Wednesdays from 2:00 PM – 3:00 PM
Thursdays from 1:00 – 2:00 PM

Click this link, and after verifying that you have Webex, you can come in and if there's no one in front of you, you can have a conversation with me.

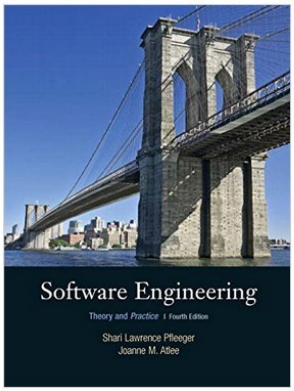
My Webex Link is https://ecu.webex.com/meet/saddlerj20

Bring your video feed with you, please. I'll bring mine. Face to face is a good thing for these kinds of things.

5 Corequisites

None.

6 Optional Textbook(s) and Readings



Software Engineering: Theory and Practice (4th Edition)

Pfleeger, Shari Lawrence; Atlee, Joanne M.

Published by Pearson (2009)
ISBN 10: 0136061699 ISBN 13: 9780136061694

Hardcover | New

Quantity Available: > 20

From: Palexbooks (Sanford, NC, U.S.A.)
Seller Rating: ★★★★★

7 Student Learning Objectives

- Understand the principles behind how programs are designed.
- Describe the professional and technical skills required to practice as a software engineer, and describe the various steps and activities involved in developing software systems.
- Apply knowledge of computing and mathematics to design algorithms and implement and test them, and apply knowledge of object-oriented principles and methods to solve computational problems
- Understand the intuition behind employing object-oriented design principles using the Python programming language.

8 Course Topic Outline

- Programming languages hierarchy, computer hardware and software, programming process, and basic computations
- Flow of control: conditional execution and repetition
- Modern software engineering practice
- Classes, objects, and methods
- Inheritance, polymorphism, and interfaces
- Overview ofsoftwareprocess, life-cycle models, projectmanagement, requirement anal- ysis, software design, construction, testing, and maintenance
- Arrays, sorting, and searching
- You will receive training on how to set up and manage a python environment to achieve success in submitting assignments.
- **You should attend the lectures and complete supplementary exercises with a computer you own and can manage (or an extremely-effective note-taking device) in hand,** to ensure proper installation of the software required.

9 Course Assignments

The course will have three types ofassignments:

- content understanding,
- problem-solving, and
- programming

Problem- solving assignments are pen and paper-based and range from reinforcement of basic concepts to synthesizing and integrating prior knowledge and skills. Programming assignments require more elaborate efforts and involve solving problems by writing computer programs. Content understanding assignments require that you attend to the lecture material more closely to demonstrate knowledge of concrete concepts we cover in this course. We will not only cover computing related concepts in these assignments, but also software process concepts, testing concepts, construction concepts and other concepts of software design.

10 Pacing

Please note this is an 8-week course.

Here are some sample lecture topics that might be taught during the first 3 weeks:

- Basic Computation Principles
- Control Flow in Python
- Classes and Inheritance in Python
- Inclusion and Exclusion of Packages in Python
- Software Process Models
- Software Lifecycle Management
- Powerful Algorithms in Python

11 Assessment Components for Grade Calculation

Component	Relative Weight
Class Participation	5%
Problem-solving assignments	20%
Programming Assignments	25%
Exam 1	15%
Exam 2	15%
Final Exam	20%

12 Grading Scale

Score Range		Letter Grade		
93%	≤			
90%	≤	A-	<	93%
87%	≤	B+	<	90%
83%	≤	B	<	87%
80%	≤	B-	<	83%
77%	≤	C+	<	80%
73%	≤	C	<	77%
70%	≤	C-	<	73%
67%	≤	D+	<	70%
63%	≤	D	<	67%
60%	≤	D-	<	63%