

Syllabus - Electrical & Computer Engineering EE 312

SOFTWARE DESIGN & IMPLEMENTATION I

The University of Texas at Austin, Summer 2019

Instructor: Vallath Nandakumar

Subject to change until 8/29/2019

Last modified: 8/20/2019

Description: This course teaches C/C++ programming. All programming will be in C/C++.

Objectives: To learn problem solving skills and techniques for programming; programming in the C/C++ language; and basic software engineering concepts for imperative programming for small programs. Develop the ability to use programming techniques, skills and modern tools necessary for software engineering practices.

Estimates of the required effort to pass the class are:

- 5 hours per week of studying
- 5-15 hours per week of programming (less early in the course, more later)
- 1500 lines of C code.

Prerequisites: Electrical Engineering 306 or Biomedical Engineering 303 with a grade of at least C- AND Electrical Engineering 319K with a grade of at least C-. Incoming students are expected to know the basics of computers and computation, and to have written some small programs in both C and assembly language.

Lecture:

TuTh 3:30 PM -5 PM, lectures will be in CPE 2.218.

Recitation (Discussion) Sections:

Unique	Hour	Room	Day	Recitation Section TA	Grader
16065	10-11	EER 0.818	Tu	Zhiqiang	
16070	11-12	EER 0.818	Tu	Zhiqiang	
16075	12-1	EER 0.818	Tu	Grant	
16080	1-2	EER 0.818	Tu	Grant	

Teaching Staff:

- **Instructor, Vallath Nandakumar**, email: vallathn [at] austin dot utexas dot edu Office: EER 4.826.
Office Hours: See the [Office Hours page](#). Or by appointment.

- **Teaching Assistants:**

Graduate TAs:

Zhiqiang Zang, first name dot last name at utexas dot edu

Undergraduate TAs:

Grant Shurtz, firstNameLastName at utexas dot edu

Tyler Ta, first name dot last name at utexas dot edu

Class web site: See Canvas and [here](#).

Required Textbook:

<https://learn.zybooks.com/zybook/UTEXASEE312NandakumarFall2019>

Recommended Textbooks:

C Programming, Second Edition, K. N. King ; Paperback ; ISBN: 978-0-393-97950-3

Thinking in C++ (2nd Edition) Volume 1, by B. Eckel, ISBN 0-13-979089-9. Note that the Eckel book can be downloaded from <http://www.mindviewinc.com> ♦ i.e., this book is free.

Class Participation, Instapoll on Canvas (Required)

- Make sure that you can access Canvas and Instapoll using a web browser in class.
- You may use a phone or other internet-connected device. **Participation on the Instapoll questions is graded.**
- In order to get credit for a given day you MUST answer at least 3/4 of the Instapoll questions during class.

If you do not meet these requirements you will not receive Instapoll credit for that day. Regardless of your Instapoll score, you are expected to come to all classes on time, and stay until the end.

Answering Instapoll from anywhere other than the classroom, answering for another person etc. are considered academic dishonesty, and will be grounds for reporting to Student Conduct.

You are given 2 free Instapoll days, which you can use for any reason (app not working, left phone at home, cannot attend lecture, attending interview etc.). For longer absences due to personal issues, etc. come and see me as soon as possible if you want to make up the missing scores; I may ask for evidence.

Class Discussion Tool: I have set up a discussion group for the class on [Piazza](#).

- Go to the Piazza web site and [join](#) the EE 312 - Nandakumar group, for The University of Texas at Austin. An access code is required to sign up, that you may get from me.
- I will post class announcements and information to the discussion group.
- You must read Piazza posts, especially instructor announcements. Piazza is an official communication channel for this course.
- Post your questions about the class to the discussion group. You cannot expect to get detailed answers to technical questions by email, so Piazza use is encouraged. Students are also encouraged to discuss important matters with the teaching team in person, typically during recitation or office hours.

Email: All students must become familiar with the University's official e-mail student notification policy. It is your responsibility to keep the University informed as to changes in your e-mail address. You are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily. Instructions for updating your e-mail address are available [here](#).

You are responsible for checking your e-mail and the class discussion group regularly for class work and announcements.

Verbal instructions and special dispensations given to you by instructors must be confirmed by email. You must include your full official name and UT EID in every email. You must also Cc: all relevant parties, including your TA and project partner, where relevant.

Use of electronic devices in class:

Laptops, cell phones, tablets etc. are not allowed in class. Exceptions are made for use related to the lecture/recitation.

Contacting the instructors:

Piazza is to be used for technical questions and questions of general interest. If you have a question regarding your grade, attendance, special requirement etc., you must contact the staff by email. Include your EID and course name. If relevant, include your TA or grader(s) (and/or Nandakumar) in every email. Use Reply All whenever possible to keep everyone in the loop. Include the unique or the recitation date and time if relevant.

Any agreement between you and an instructor must be confirmed by email. Oral agreements may not be honored unless confirmed in writing.

Do not use Canvas mail to contact the instructor staff.

Software: Required software for programming assignments is described on [this web page](#) or on Piazza.

Computing Facilities:

You must log in remotely to the [remote Linux machines](#) kamek.ece.utexas.edu to try out your programming assignments.

Schedule: A schedule of lecture topics is [available online](#). Readings will be announced on Piazza, and are to be completed **before** class. The schedule is subject to change. The schedule on Canvas is to be followed, if there are discrepancies.

Grading: Class components used to determine your final average are shown below. This is subject to change.

Component Type	Number	Points	Total Points
Programming Assignments	8-9	~28	250*
Quizzes	Undecided		90*
Instapoll Participation	~27	~1 each	20
Zybooks			50
Midterms 1 & 2	2	150/190	340
Final Exam	1	250	250
Total			1000

- Quizzes, Zybooks assignments, and Instapoll participation cannot be made up for any reason. For programming assignments there is some leeway. See the explanation of slip days below.
- The final letter grades will be assigned based on your earned total points. The maximum possible points is 1000. The grade cutoffs will be determined later. There may be upward curving of your earned total points.
- Depending on the results of an exam, exam scores may be adjusted. Exam scores will rarely get worse due to a adjustment. No other class components (assignments, Instapoll participation, or quizzes) are curved.
- You have 3 slip days (max of 1 per homework assignment) to use through out the term on your assignments if you are not able to turn an assignment in on time. If you want to use a slip day, mark it in your submitted program file header (the main file's). Slip days are to account for life circumstances (My hard drive crashed!! I got a virus downloading an mp3!!) and emergencies. Do not use your slip days frivolously. If you use up your slip days and late assignments will not be graded and be assigned a grade of 0. Failure to follow instructions on turning in assignments may result in the loss of slip days.
- The required format and procedures for turning in assignments are available on Canvas on the assignments page. Assignments that are not turned in in the correct format will cause you to lose slip days, lose points, and/or receive a 0 on the assignment. Once you run out of slip days, you will get a 0 for late work. Turning in work more than 24 hours late will also earn a 0.
- At any time, you may be asked to come to the instructor's office and work out coding or other questions. This will be part of the homework assignment grading process.

- Quizzes are given at the beginning of some recitation sections. If you are not present when the quiz is completed you receive a 0 for that quiz. Quizzes cannot be made up under any circumstances. Quizzes are not curved. Quiz grading will be: 10 for a perfect quiz, 7 - 9 for minor mistakes, and 6 or less for little or no effort. Your lowest quiz score will be dropped.
- If a student misses a midterm exam with a verifiable excuse, the final exam will count for the missed exam.
- If you are **dissatisfied with a grade** you receive on an assignment or test, you must submit your complaint via email, along with supporting evidence, to your grader within **5 days** of the date the teaching staff first attempted to return the assignment or test to you.
- Questions about your grade are to be sent to the grader assigned to your section. See the table above for graders and section unique ids.
- You may request a regrade of an exam if you feel the grading criteria was not applied correctly. To ensure accuracy the entire exam will be regraded and your score may go down.
- Illness: If you are sick and cannot attend class or turn in an assignment, inform the instructor immediately. Be prepared to turn in a doctor's certificate explaining your condition; we may allow some adjustment in deadline.

Guiding Principle - Feedback and concerns about the course are always welcome; legitimate grading errors that are identified in a timely fashion will certainly be corrected, but whining is counter-productive and will only irritate those who evaluate your work to determine grades.

Important Dates for Changing Academic Status and Dropping the Course: Refer to the [Registrar's academic calendar](#) for the deadlines for changes in academic status. Highlights are:

- 9/3/19: Last day of the official add/drop period; after this date, changes in registration require the approval of the department chair and usually the student's dean.
- 9/13/19: Last day to drop for a possible refund. Last day to add a course.
- 10/31/19: Last day a student may change registration in a class to or from the pass/fail or credit/no credit basis. Last day an undergraduate student may, with the dean's approval, withdraw from the University or drop a class except for urgent and substantiated, nonacademic reasons.

Students experiencing significant nonacademic problems (extended health problems or family emergencies) should contact the [Engineering Student Services](#) in EER 2.848.

Academic Dishonesty:

Read the [academic integrity policy](#) that we expect and enforce at UT Austin.

"...You and other students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. This is a very basic expectation that is further reinforced by the University's [Honor Code](#). At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- acknowledge the contributions of other sources to your scholastic efforts;
- complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them;
- follow instructions for assignments and exams, and observe the standards of your academic discipline; and
- avoid engaging in any form of academic dishonesty on behalf of yourself or another student."

Every piece of work that you turn in with your name on it must be yours and yours alone unless explicitly allowed by an instructor in a particular class. Specifically, unless otherwise authorized by an instructor:

- Students may not discuss their work with anyone except the instructor and other members of the instructional staff (instructor, TA, lab proctor or partner on a pair assignment).
- Students may not acquire from any source (e.g., another student or an internet site) a partial or complete solution to a problem or project that has been assigned.

You are responsible for complying with this policy in two ways:

1. You must not turn in work that is not yours, except as expressly permitted by the instructor of each course.
2. You must not enable someone else to turn in work that is not theirs. Do not share your work with anyone else. Make sure that you adequately protect all your files. Even after you have finished a class, do not share your work or published answers with the students who come after you. They need to do their work on their own. This means do not post your solution code to any public web site such as pastebin. Also, do not post your work to the web even after you have completed EE 312.

The penalty for academic dishonesty will be a course grade of F and a referral of the case to the [Dean of Students](#). Further penalties, including suspension or expulsion from the university may be imposed by that office.

One final word: This policy is not intended to discourage students from learning from each other, nor is it unmindful of the fact that most significant work in engineering and computer science is done by teams of people working together. But, because of our need to assign individual grades, we are forced to impose an otherwise artificial requirement for individual work. In some classes, it is possible to allow and even encourage collaboration in ways that do not interfere with the instructor's ability to assign grades. In these cases, your instructor will make clear to you exactly what kinds of collaboration are allowed for that class.

For EE 312 the policy on collaboration is modified as follows:

If you are repeating the course you may reuse code you completed on your own. You may NOT use code from a program you worked on as part of a pair or code that was from a program involved in an academic dishonesty case. You must start from scratch on any and all programs that:

- were part of an academic dishonesty case
- you worked with a partner during a previous semester
- you are working with a partner this semester

You are encouraged to study for tests together, to *discuss* methods for solving the assignments, to help each other in using the software, and to discuss methods for debugging code. **Essentially if you talk about an assignment with any one else you are okay, but the moment you start looking at someone else's source code or showing someone else your source code you have crossed the line into cheating.** You should not ask anyone to give you a copy of their code or, conversely, give your code to another student who asks you for it. Similarly, you should not discuss your algorithmic strategies to such an extent that you and your collaborators end up turning in exactly the same code. Discuss high level approaches together, but do the coding on your own.

Examples of cheating are many and include accessing another student's account, looking at someone else's solution code, copying or downloading someone else's solution code, referring to solutions from previous semesters, having another student walk you through the solution and how to code it, having another student perform significant debugging of your code, having another student write your code for you and / or allowing others to copy or access your solution code. This means you shall not look on the internet for code to solve your problems unless we explicitly permit it.

Examples of allowable collaboration include discussions and debate of general concepts and solution strategies and help with syntax errors.

The code you can reuse in this course are:

1. You may use any code you develop with the instructor, TAs, or proctors.
2. You may use code (with attribution) from the class slides and the class coding examples.
3. You may share additional test cases and expected results of test cases. You may not share solution code or experiment code.

You shall not make use of code you find from other sources including the world wide web. Materials from the web should only be used for educational purposes. Thus, you can read about linked lists and look at examples of linked list code, but you must not copy any code from the web or be looking at any of this code from the web when writing anything you turn in. If you discuss an assignment with another student or look at examples from the web you should employ the League of Legends Rule:

League of Legends Rule: After a discussion with another student or looking at example code you should do something that has nothing to do with computer science or programming for at least half an hour -- playing League of Legends or other similar activity. (Watching a sitcom, reading a book, working on another class.)

You are also allowed to post short segments of code (2 lines or less) of code that are giving you syntax errors to the class discussion group in order to get help on fixing the syntax error.

If you have any doubts about what is allowed, ask the instructor.

Plagiarism detection software will be used on assignments to find students who have copied code from one another.

For more information on Scholastic Dishonesty see the [University Policy on Scholastic Dishonesty](#).

Religious Holidays: By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Students with Disabilities: students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, <http://diversity.utexas.edu/disability>. **Please present written proof of your special need from the above-mentioned office by 9/13/19.** If your accommodation includes a longer duration or quiet facilities for the midterms or final, it is your responsibility to secure a spot in the SSD facilities on the day of the exam, overlapping with the regular exam time (if possible). You will have to request these facilities a month in advance of the test. The spots fill up fast!

[Back to the EE 312 webpage](#)