

EC602 Design By Software
Fall 2022, College of Engineering, Boston University
Course Information

Motivation

This course is about learning to apply software to solving problems in electrical and computer engineering. The word *design* is interpreted broadly to mean “the process of doing Electrical and Computer engineering”, including activities such as analysis, research, modeling, visualization, simulation, and prototyping.

Course Structure

The course is designed to provide you the maximum opportunity to master software skills within the context of Electrical and Computer Engineering. Therefore, all of our time will be focused on mastering skills in a real-world setting.

In each class session, the first half will be more or less a traditional lecture. This will conclude after 50 minutes.

The second half will be more flexible active learning time. I will either ask you to work on exercises, or I will followup with questions from the lecture, or you can work on your assignments and I will offer help as you work.

What to bring to class

Please bring a laptop and charger to each and every class, including your first one.

This laptop should have Python 3.10 and Visual Studio Code and it should be configured with English as the system language if you want help getting it working.

Course Staff:

Instructors: Prof. Jeffrey Carruthers
Section A1, Mondays and Wednesdays, 2:30pm-4:15pm
Office Hours: Fridays, 4:00-5:00pm, Zoom
Meeting ID: 941 8825 7748 Passcode: sweep
Email: jbc@bu.edu

Course Websites:

Main: <https://curl.bu.edu:9999/ec602/fall2022/>
Discussion Board: <http://edstem.org/>

Ed Discussion: This semester we will be using Ed as a discussion board. The system is highly catered to getting you help quickly and efficiently from both the course staff and your fellow classmates. *Please use the discussion board for all conceptual, logistical, and other course-related issues. Emailing instructors should be reserved for issues of a personal nature.*

Prerequisites: Graduate Student Standing in Engineering

Corequisites: None.

Grading:

Letter grades are given only for the entire course, not for individual assignments or tests.

Numerical grades will be calculated for every student, based on the following percentages:

- Class (participation, quizzes) 10%
- Assignments 50%
- Exam 1 20%
- Exam 2 20%

Student Goals

There are a wide range of backgrounds for students in EC602. We strive to make the course a worthwhile experience for beginning, intermediate, and advanced students.

- **Beginners.** If you have little or no experience with software development, then here are your goals:
 - learn about how to develop software
 - learn two great new languages, Python and C++
 - improve your problem solving skills with computers and software
 - learn from the staff and your fellow students
- **Intermediate.** Most students in the class fall into this category. They have maybe learned Java or Matlab, or may have some limited experience with Python or C. Perhaps this was several years ago and you are looking for a refresher. Your goals are:
 - prepare for future software courses and future research/development situations involving software
 - strengthen your abilities in two great languages, Python and C++
 - learn from the staff and your fellow students
 - share some of your knowledge with beginners
- **Advanced.** Perhaps you are a former professional software engineer, but you only used COBOL or FORTRAN. Perhaps you should have taken the EC602 placement exam but forgot or bombed it. At any rate, you think you know a lot about software development. Here are our goals for you:
 - challenge yourself to write better code and hone your development process
 - learn new and powerful features of Python and C++ you may not have already mastered
 - try to write code that is more beautiful and elegant than Prof Carruthers' own code or anything else he has ever seen before
 - share your knowledge and experience with the beginning and intermediate students. Teaching is a great way to really master something.
 - make productive suggestions to the staff about the instructions or software provided (checkers, etc)
 - engage with Prof Carruthers: lets learn from each other.

General Policies:

- Academic misconduct: The student handbook defines academic misconduct as follows:

Academic misconduct occurs when a student intentionally misrepresents his or her academic accomplishments or hurts other students' chances of being judged fairly for their academic work.

This basic definition applies to EC602. If you are ever in doubt as to the legitimacy of an action, please talk to an instructor immediately. The penalty for academic misconduct at BU is severe. For further information on the BU Academic Code of Conduct, visit the following website: <https://www.bu.edu/academics/policies/academic-conduct-code/>

- Incomplete grades: Incomplete grades will not be given to students who wish to improve their grade by taking the course in a subsequent semester. An incomplete grade may be given for medical reasons if a doctor's note is provided. The purpose of an incomplete grade is to allow a student *who has essentially completed the course* and who has a legitimate interruption in the course, to complete the remaining material in another semester. Students will not be given an opportunity to improve their grades by doing extra work.
- Drop dates: Students are responsible for being aware of the drop dates for the current semester. Drop forms will not be back-dated.
- COVID 19 & BU Community Health Expectations: All students are expected to follow all university guidelines with respect to symptom checks, testing, social distancing, and mask wearing when they leave their dorm or home. For a detailed description of official BU policies regarding COVID, please visit: <https://www.bu.edu/shs/covid-19/>
- Inclusion: This class is to be a place where you will be treated with respect, and it welcomes individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and non-visible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.
- Accommodations for Students with Documented Disabilities: If you are a student with a disability or believe you might have a disability that requires accommodations, requests for accommodations must be made in a timely fashion to Disability & Access Services, 25 Buick St, Suite 300, Boston, MA 02215; 617-353-3658 (Voice/TTY). Students seeking academic accommodations must submit appropriate medical documentation and comply with the established policies and procedures <http://www.bu.edu/disability/accommodations/>