

**Please answer the following questions in complete sentences in a typed manuscript and submit the solution on blackboard by August 23rd at 23:59:59.** I have attached the  $\text{\LaTeX}$  template I am using for this class. The files are `homework1.tex`, `homework.tex`, and `preamble.tex`. You should put all the files in the same directory before running the main file (`homework1.tex`) on  $\text{\LaTeX}$ . Please read the  $\text{\LaTeX}$  installation guide (end of this document).

### **Yourself**

1. Please tell me about yourself: name, MS/PhD objective, adviser (if you have one), year in program, research area, dissertation topic (if any), career objectives.
2. Why are you taking the class? What other classes are you enrolled in (course name and title)?

### **The course**

1. The homeworks will be a mix of examples, applications, coding, and theory. For instance, I might have a few easy “practice” questions about solving problems related to the analysis and design of CPSs. Then I might have a multi-step computational problem to design, for example, a dynamic estimator or to solve an optimization problem. There will also be some coding work, such as “write a program to solve a multi-objective optimization problem”. Finally, there will be a theory component to the homeworks.

Do you find you learn better with any particular type of problems? If so, which ones (coding, theory, applications, algorithms, etc...)?

2. Would you be interested in extra credit opportunities that extend the homework questions in more difficult ways? For instance, making your implementations fast or in C++.
3. Would you be interested in sharing any of the CPS problems you encountered with the class in a 3-5 minute presentation?
4. What have other professors done that you’ve found helps you learn?

### **Numerical computing software**

1. Have you used MATLAB before? Simulink?
2. Have you used C++ before?
3. Any other numerical computing packages?

### **The course**

1. Which of the topics from the syllabus are you most excited about?
2. Anything missing from the syllabus you were hoping to learn about?
3. Are you interested in turning your class project into a research paper that has the potential (in the future) of being submitted to a top-tier conference or a high impact factor journal?

## L<sup>A</sup>T<sub>E</sub>X installation guide

To install L<sup>A</sup>T<sub>E</sub>X on your machine, follow the next steps:

1. Download the full-package from <http://miktex.org/download>, <http://mirrors.ctan.org/systems/win32/miktex/setup/basic-miktex-2.9.5105.exe>. If you're installing L<sup>A</sup>T<sub>E</sub>X on a 64-bit machine, download the second file in the list (<http://mirrors.ctan.org/systems/win32/miktex/setup/basic-miktex-2.9.5105-x64.exe>). This is similar to downloading all the predefined toolboxes on MATLAB or predefined functions or classes in C++.
2. Install the downloaded file. Save it in an empty directory in your C: folder.
3. If asked whether you want to download packages on the fly, choose *yes!*
4. After that, you can download any L<sup>A</sup>T<sub>E</sub>X editor you want. I personally prefer TeXstudio. You can download it from <http://www.texstudio.org/>.
5. Install TeXstudio (TeXstudio is only the dummy editor that you use to run L<sup>A</sup>T<sub>E</sub>X).
6. If asked whether you want to download packages on the fly, choose *YES!* This basically means that whenever you don't have a class file that L<sup>A</sup>T<sub>E</sub>X is using, the editor will automatically look for it online and download it from an online server.
7. Open the .TeX file (`homework1.tex`) with TeXstudio and run it (the F1 button). You should be good to go!