Due: Will accept up to the start of the final exam	Name	PSU ID (abc1234)

ME 522
Spring Semester, 2019
OPTIONAL Homework Set # 11

Professor J. M. Cimbala

Comments (instructor use only)

***Note*: This HW is *optional*. It will not be returned; if you want a copy of your work, make a photocopy before handing it in. The score for this HW will not count unless you end up "on the border" between two final grades at the end of the semester. In such cases, your effort and the potential usefulness of your questions and solutions will be taken into account, and may in some cases push you to the higher final letter grade for the course.**

This homework set is designed to help you study for the final exam. It is also good practice for those of you who will go on to be faculty members one day. It is okay (not *required*, but *recommended*) that you get one or two other students in the class to try your question(s) to see if they are well posed, and to give those students some additional practice for the final exam. In other words, get one or two other students to "vet" your problems! [World Campus students – this may be more difficult for you, but you are welcome to contact other students electronically to trade off vetting each others' questions.]

As for the questions themselves, you are welcome to get inspiration from other courses, from our textbook, from other fluid mechanics books, or from the Internet, etc. I prefer *original* questions that you make up on your own; however, if your question is inspired by some other author, give that author the appropriate credit by writing down the reference (title, author, year, and page number, etc.). *In no case should you copy directly from some other source*.

You may create as many of either of these types of problems as you wish. The more the better, but I prefer a couple excellent problems rather than dozens of not-so-great problems. Try to be clever.

1. Make up your own ***homework*** problem(s). For each problem, provide the problem statement, the point value you would recommend, and a ***detailed* solution**. The problems can be from any subject covered in our course during the semester, and can be either analytical or computational. If your solution requires Matlab or Excel, send me your .m or .xlsx file as an attachment in an e-mail to me. If your problem involves CFD, provide enough details so that I can duplicate your work.
2. Make up your own ***closed-book exam*** problem(s). They can be True/False, Multiple Choice, Matching, or Completion problems. For each problem, provide the problem statement and its recommended point value, along with a ***detailed* solution**. The problems can also be from any subject covered in our course during the semester.
3. Additional options:
   - Construct a class demo that could be used in class to enhance learning. Note that the demo must be self-contained and small and light enough to carry easily to class.
   - Create a video that demonstrates and/or explains something that we discussed in class. I am looking here for original videos, not just a link to someone else's YouTube video, although you may get some inspiration from existing videos. [Note that I do appreciate being informed of existing YouTube videos that would enhance our class.]
   - Create a CFD tutorial similar to one we used in class this semester, but for a different geometry and/or flow.
   - Think of something else "outside the box!"