ME 431A/538A/538B Handout 10 October 2019

Information for the Computer Project

Select a topic of interest in fluid mechanics that can be readily solved using the STAR-CCM+ software. Before working on the project discuss the topic with the instructor either by email or in his office in order to determine the appropriateness of the topic (see the comments below).

Schedule

- November 8: Hand in a brief description of the topic, including a sketch of the computational domain and supporting facts (about 1 page).
- November 22: Based upon feedback from the instructor, hand in a revised description of the topic (again about 1 page). You need to meet with the instructor before this date.
- December 6: Hand in your report on the computer project (about 5 to 10 pages including figures). In particular the report should include:
  - introduction/background
  - approach, including equations solved, initial conditions, boundary conditions, sketch of computational domain, and other relevant facts
  - results
  - conclusions
  - references

Comments

Consider the report as one that you would give to your boss as work on a job. Therefore, the report should look very presentable, with neatness and clarity of exposition.

Due to the short time available in the course to complete this project, it is necessary to limit the scope of the of the computer simulations. For example, the project could be considered the first step in a longer range project. Because of the short time period, and because of limited computer resources, it is usually necessary to limit simulations to more simplified, two-dimensional (or axisymmetric) geometry and to laminar flow. If you have any questions about whether the problem you are considering is too difficult to complete during the time available, discuss this with the instructor as part of a conversation on the appropriateness of the suggested project.