

Abstract Submitted
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Developing a New CFD Course Based on Open Source Tools: Design Experience and Student Outcomes DEBANJAN MUKHERJEE, University of Colorado Boulder — Computational fluid dynamics (CFD) education comprises a fundamental component in training modern engineering students. CFD educators commonly explore fundamental aspects of the underlying methodology in conjunction with hands-on experience in using CFD techniques via commercial packages and tools. In addition to the (often significant) associated costs and hardware/system requirements associated with these tools, striking the right level of exposure to the intricacies behind these packages becomes critical to avoid student perception of these tools as a black box. Harnessing the open source wave provides a suitable alternative, enabling greater exposure to the underlying methods while providing the valuable hands-on simulation experience. However, integration of open source tools into educational components requires careful design considerations. We recently developed a new CFD technical elective in the mechanical engineering curriculum at the University of Colorado Boulder. Our course was successfully developed entirely based on open-source software tools and components. The class was composed of graduate and senior undergraduate students. Here we will share our experience designing the course, examples of student projects, and student learning outcomes.

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