

Abstract Submitted
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Teaching CFD as a Black Box: A Validation and Verification Approach JEAN HERTZBERG, University of Colorado, Boulder — There are a number of good reasons for NOT teaching computational fluid dynamics to undergraduates: a reluctance to make room in an already-compressed curriculum, the sophistication of the computational techniques and mathematics involved, the cost of licensing a professional quality code, and above all, the danger that a shallow understanding of CFD will lead to blithely accepted incorrect results. Nevertheless, as today's students enter the workplace they are routinely expected to be able to use CFD and other high level software packages. Industry's response to the necessity of minimally trained engineers using such software is a series of tests prior to accepting the results: verification and validation (V&V), or more specifically independent software verification and validation (ISVV). The verification question asks "is the software producing correct answers, given the inputs?" while the validation question asks "is this the right set of inputs, are the right physics being addressed?" A recent attempt to implement a V&V approach to CFD in the required undergraduate curriculum at the University of Colorado will be described.

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