

Abstract Submitted  
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**How to get students to love (or not hate) MATLAB and programming** SHANON RECKINGER, Fairfield University, SCOTT RECKINGER, Brown University — An effective programming course geared toward engineering students requires the utilization of modern teaching philosophies. A newly designed course that focuses on programming in MATLAB involves flipping the classroom and integrating various active teaching techniques. Vital aspects of the new course design include: lengthening in-class contact hours, Process-Oriented Guided Inquiry Learning (POGIL) method worksheets (self-guided instruction), student created video content posted on YouTube, clicker questions (used in class to practice reading and debugging code), programming exams that don't require computers, integrating oral exams into the classroom, fostering an environment for formal and informal peer learning, and designing in a broader theme to tie together assignments. However, possibly the most important piece to this programming course puzzle: the instructor needs to be able to find programming mistakes very fast and then lead individuals and groups through the steps to find their mistakes themselves. The effectiveness of the new course design is demonstrated through pre- and post- concept exam results and student evaluation feedback. Students reported that the course was challenging and required a lot of effort, but left largely positive feedback.

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