EDUCATIONAL BENEFITS, CHALLENGES, AND LESSONS LEARNED IN STARTING AND ADVISING A STUDENT VEHICLE DESIGN COMPETITION TEAM

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Abstract

One of the most challenging tasks for an instructor is to relate the material that is covered in the classroom to something in the 'real world'. Questions that students might ask during lectures, or at least are thinking about, include a wide range of topics, from 'is this going to be beneficial in my future job' to 'where would I see this in real world'. For instructors, answers might be obvious, but how do we convince our students that we are telling the truth! Besides regular examples illustrating important engineering concepts and solving realistic problems, one of the best ways to capture student's attention is by having them do those things.

In this paper, an approach of applying engineering knowledge to the design, analysis, manufacturing, and testing of the Baja vehicle for SAE competition will be described. Examples from several undergraduate courses will be presented and discussed. The main goal was to involve students from all undergraduate levels and with various levels of experience in the above mentioned fields, to solve a 'real world' problem with clear objectives, constraints, and goals. There were challenges that needed to be overcome and a tremendous opportunity for learning along the way. A number of lessons that were learned from currently going through such process will be presented as well.

Keywords: Undergraduate experience, project based learning, teamwork, design, extracurricular activities.