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SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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SHAPING OUR FUTURE THROUGH INTEGRATE PRODUCT TEAM

Abstract

As used by The University of Alabama College of Engineering, Integrated Products Team (IPT) is a multidisciplinary, multicultural, multi-university, and multi-level space mission design project, which gives high school and undergraduate science and engineering students an opportunity to learn to translate stakeholder needs and requirements into visible engineering designs in a team environment. Established by Dr. Robert Frederick in 1993, Drs. Michael Benfield and Matthew Turner expanded the engineering senior design course into a two-semester project in 2010 in which competitive teams form with other partners such as undergraduate engineering students from Ecole Supérieure des Techniques Aéronautiques et de Construction Automobile (ESTACA) France, undergraduate science students from the College of Charleston, and multiple high school teams. Each year the technical mission changes with the purpose of developing and proposing concept system designs of interests to representatives from the National Aeronautical and Space Agency (NASA) and the aerospace community. Over the past twenty years, IPT has not only resulted in complex and functional systems, but have brought real-life design experiences to the undergraduate classroom and have recently shown high school students the possibilities within a Science, Technology, Engineering, and Mathematics (STEM) based field. The purpose of this paper is to outline the IPT program, its benefits on the students and the aerospace community, lessons-learned, and best practices that have developed through the years. Surveys from this year's IPT also produced feedback and challenges seen by the undergraduate students participating and the initial results of the STEM outreach on the high school participants. Conclusions and areas for future improvements are also included.