

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Interactive Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (IP)

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PREPARING STUDENTS FOR THE INTERNATIONAL NEW SPACE ECONOMY

Abstract

Firefly Academy, Inc. is a nonprofit dedicated to giving students experience in the space industry. As the space industry becomes more commercialized, students entering the workforce will have opportunities for new careers. However, recent graduates often lack the hands on skills and experience to enable them to excel in commercial space companies. To better prepare students to succeed, and to help them become drivers of innovation, incorporating non-traditional, practical programs into undergraduate courses is necessary. This paper looks at the approach taken by the flagship company-university partnership undertaken by Firefly Academy, in partnership with Firefly Aerospace and the University of Texas, to illustrate the benefits of an interdisciplinary, project based approach to educating students from the schools of engineering, law, policy, and business. The flagship program is designed around a corporate-university collaboration facilitated. First, the students are given a practical, commercially applicable goal of launching a student-made rocket above the Karman line (100km). Working on this project, whether successful or not, provides real world experience of the technical problems and issues many space startups face in the design and development of new technology. Second, the program utilizes corporate resources from a private company to provide mentorship, expertise, facilities, and funding to provide the resources the students need to work on and complete the project. The project will span multiple years and involve students from many engineering disciplines. Students can engage in the project both as a class or as a club. The curriculum of both covers a broad range of topics and practical problems faced by commercial companies in the RD process, including engineering, business, compliance, and regulatory issues faced by companies. At first the education focuses primarily on technical concepts necessary for the design and building of a rocket but will eventually include compliance and business curriculum. By giving students a problem to solve which mirrors the issues faced by commercial space corporations, and combining an interdisciplinary curriculum with commercial partnerships, students can be better prepared working in the commercial space industry. The success of the program will be measured by the achievement of project goals, the number of students involved, and the percentage of students who matriculate to successful employment post-graduation. As the program proceeds, Firefly Academy will expand its partnerships to other universities, and to K-12 Education, using lessons learned from the flagship program.