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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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MULTI-DISCIPLINARY UNDERGRADUATE SPACE EDUCATION PROGRAM DESIGN TO DELIVER POSITIVE GRADUATE EMPLOYMENT OUTCOMES FOR AUSTRALIAN STUDENTS.

Abstract

Fostering space workforce development through undergraduate education programs is crucial for the Australian space industry and establishes a strong foundation for a skilled and diverse talent pool. Early engagement at high school level, provides students with a unique opportunity to explore their interest in space-related fields and develop essential skills. Additionally, multi-disciplinary programs are crucial for shaping the future of space workforce development by cultivating a versatile skill set among students including collaboration across diverse disciplines. This educational model ensures graduates possess the adaptability and versatility needed to excel in an ever-evolving industry landscape. The Swinburne Multidisciplinary Undergraduate Space Education program, an innovative first in Australia, has successfully completed its fourth year of operation. This suite of undergraduate programs allows students from various disciplines to undertake elective units, a minor, co-major, or advanced minor in Space Technology as part of their undergraduate degree. Distinguished by collaborative curriculum development with key Australian and International industry partners, the program features innovative teaching methods that blend theoretical knowledge with hands-on applications for industry projects. The Swinburne space education ecosystem has expanded to include vertically integrated experiences and courses for Year 10, 11, and 12 High school students, as well as collaborations with undergraduate students. By vertically integrating various education levels and multidisciplinary experiences into Swinburne's space education ecosystem, students are empowered to design and send research to the International Space Station, handle Australian legal compliance documentation, and gain comprehensive insights into the theoretical and practical aspects of space operations. This expansion has created three distinct pathways for high school students to enter space education programs before graduating from Year 12, including direct entry through Victorian Higher Education Studies (VCE), enrollment via The Centre for Higher Education Studies (CHES) for exceptional students, and participation in the Swinburne Youth Space Innovation Challenge (SYSIC). By offering these additional pathways, high school students can embark on a trajectory toward space-related careers and continue their journey at Swinburne for their undergraduate degree. This proactive approach, addresses the growing demand for skilled professionals in the Australian space sector and ensures a pipeline of innovative and well-prepared individuals who can contribute to the industry's advancements and competitiveness on a global scale. An overview of graduate outcomes and lessons learned in curriculum development and program delivery will be presented. This offers a roadmap for nurturing the next generation of graduates who will drive the Australian space industry forward.