IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future - Developing the Space Workforce (5)

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21ST CENTURY TRAINING FOR THE NEW SPACE WORKFORCE

Abstract

Space industry growth and ambitions for the future are significant, particularly with the advent of 'new space', involving concepts such as reusable launchers, mega constellations, space resource exploitation and large scale data fusion from space and terrestrial assets offering a host of direct to consumer applications. Many of these are being developed with the traditional or 'old space' community, but the demands on the current and future workforce are significant. The UK has set itself a space action plan which foresees a need for the workforce on space related projects to grow by 100,000 through 2030. Neither current recruitment into the industry, nor attracting existing skilled staff internationally can meet the predicted demand. The challenge for both the UK and all nations wishing to carry out space activities is training new staff to understand the challenges of engineering for the space environment (which have not changed since the advent of 'new space'), and training staff to manage the expectations of a range of new consumers of space technology. Catena Space targets early career professionals (including postgraduate students) for a unique approach to hands-on training, supporting in particular education and outreach goals of the UK European Space Agencies.

Since 2015 Catena Space have run traditional residential courses in space operations training, short (1 day) courses in Access to Space, & Space (systems) Foundations, and many public community events. These do not meet the wider needs of the space workforce due to small numbers and relatively low impact. So we sought the opinions of the European space at a workshop hosted by ESA ECSAT on the Harwell UK campus in September 2017. This indicated specific interest in space quality product assurance, i.e. specific design and testing approaches for the unique set of challenges posed by the space environment. Currently we are developing a blended learning curriculum that balances the highly visual, memorable and motivational aspect of hands-on training with actual space hardware, with a need to offer participants a set of material they can absorb, review and constructively align in their own time. Blended learning is not new to education, but it has not been widely trialled in the space industry. This paper will report on Catena Space's approach to blended learning for space engineering, some of the tools and platforms which we have tried, and will give a preliminary review of the success of this approach.