

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

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TRIAL ON OBJECTIVE EVALUATION OF STUDENTS COMPETENCE FOR PARTICIPATING IN  
THE SPACE PROGRAM

**Abstract**

Since the first launch of the CubeSat in 2003, many universities have been conducting the engineering educational programs using CubeSat. Many of those were implemented as advanced PBL (Project-Based Learning) for learning very practical systems engineering. Mentors and facilitators of these programs often report that these highly practical programs could effectively cultivated the student's abilities not only for engineering skills but for the skills of project management. However, there is still no established method for objectively and quantitatively assessing the abilities acquired by students participating in these programs. The difficulty of participating in CubeSat development has decreased significantly, so that, in recent years, some CubeSat developments have been conducted mainly by undergraduate students. In these programs participated by younger student, the appropriate assessment of the abilities that students could obtain is much important, because the younger students need more careful guidance, taking into account their abilities and level of understanding. In this paper we report a trial run of the evaluation method for students participating educational programs on space technology, which are outreach program to understand the systems engineering using CubeSat model and program by actual development of CubeSat. This method is based on a questionnaire targeting to seven pre-defined perspectives on attitudes and abilities that are required for a space engineer. In the result of the trial run, the score shows significant dependence on grade and major of the students. These characteristics can be interpreted by the subject's knowledge and proficiency in the composite technique. This suggests that the proposed evaluation technique has a potentially good enough to apply to the actual space engineering education after some improvements.