

## IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)

## On Track: Undergraduate Space Education (3)

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COMPREHENSIVE LOCAL SPACE CAPACITY BUILDING USING A CUBESAT MODEL AND  
MICROSATELLITE DEVELOPMENT EXPERTS MENTORING

**Abstract**

Thailand, represented by GISTDA, successfully launched THEOS-2, a very high-resolution Earth observation satellite in October 2023. This marks a major milestone in Thailand's remote sensing capability since the THEOS-1 (Thaichote) satellite launch back in 2007. Besides national resource management, GISTDA also prioritized local capacity building in both industrial and educational sectors for more than three years with great successful outcomes. This year GISTDA focuses the knowledge transfer activities for undergraduate students in engineering and related fields to participate in the cube satellite development. The program has organized a national competition to select six regional teams around Thailand to attend hybrid online and in-person study and train with the Engineering Model satellite for a duration of 4 months. With project-based learning (PBL), students are involved in hands-on projects that were developed specifically for a small satellite project. Furthermore, the students will learn about project management, business case analysis, as well as entrepreneurship suitable for cube-satellite, sub-systems, payload, and micro-satellite development. The program is now advertised to regional partners and will be started on Apr 2024. The best team out of six regional representatives will have the opportunity to develop the Flight Model, which is planned to be launched at the end of 2025. This paper will explain the process of selecting and evaluating participants throughout the training program, The undergraduate Research Student Self-assessment (URSSA) tools are guidelines for the evaluation of this program. In addition, the lessons learnt, and the hands-on training process framework will be present for other space emerging nations that are interested in developing space human resources.

Keywords: Project base learning (PBL), hands-on training, capacity building, space education, Undergraduate Research Student Self-assessment (URSSA), entrepreneurship, cubesat