

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

Author: Mr. Angel Arcia Gil  
Space Generation Advisory Council (SGAC), Panama

Ms. Saira Williams  
Space Generation Advisory Council (SGAC), Costa Rica

SUCCESS CASE OF THE SGAC OPEN-COURSE INTRODUCTION TO SPACE ENGINEERING, AS  
A MEDIUM FOR CAPACITY BUILDING IN EDUCATION AND SPACE WORKFORCE  
DEVELOPMENT IN EMERGING COUNTRIES OF CENTRAL AMERICA

**Abstract**

The world as we knew it has drastically changed due to the global pandemic of COVID-19, impacting many areas of the economy and society. The Educational sector has also been affected worldwide, with suspension of classes, school dropouts, and creating uncertainty to parents, teachers and students who now have to quickly adapt to new methodologies such as online learning. This scenario is worse in developing countries where a significant percentage of the population lacks access to reliable internet and communications infrastructure.

On the other hand, this new trend of remote education has caused professors to get more familiar with IT resources, and has given students an opportunity to attend a myriad of webinars and online workshops globally, about complex topics in Science and Engineering, which otherwise would be inaccessible or at a high cost.

The Space Generation Advisory Council has promoted several initiatives, both globally and regionally, such as Space Webinars in Asia and Africa. In the Latin America region, a series of online activities has also been introduced, featuring subject matter experts in different areas, to discuss about the steps required to develop the Space industry in Latin American countries. One common conclusion in these events, is that Latin America, especially Central America and the Caribbean region, are still lacking a clear Capacity building strategy, and limited Educational programs for space workforce development exist.

The initiative of an Introduction to Space Engineering course was created by Prof. Angel Arcia Gil in 2019 at University Santa Maria la Antigua in Panama to address this problem. The course was the first in Central America, almost in parallel with a separated program of The Costa Rica Institute of Technology (TEC). The initiative, that quickly evolved into an Open-Course, has grown and expanded to other countries in Central America such as Nicaragua, Costa Rica and El Salvador, within the collaborative framework of Space Generation Advisory Council and its National Point of Contacts.

After its 3rd Edition, the Open course has provided more than 100 students with an overview of Space technical concepts, a historical background of Space Exploration and new trends of Space Commercialization.

This paper will explain the pedagogic approach, curriculum development, and the methodology used to successfully implement the Open-Course in Central America, showing KPIs for self-assessment such as percentage of approval vs percentage of withdraws, along with lessons learned and recommendations.

The paper will highlight the best practices for implementing an Open-Course in developing countries, and it is intended to be a reference for future initiatives.