

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Structures for Space Education (2)

Author: Mr. Hooman Jazebizadeh
Beihang University, China, hooman.jazeby@gmail.com

Ms. Maryam Tabeshian
Iranian Space Agency (ISA), Iran, maryam.t5@yahoo.com

A SYSTEM ENGINEERING APPROACH TO DEVISE A MASTER'S DEGREE PROGRAM IN
SPACE TECHNOLOGY IN DEVELOPING COUNTRIES**Abstract**

Although more than half a century is passed since space technology first developed, developing countries are just beginning to enter the arena, focusing mainly on educating professionals. Space technology by itself is an interdisciplinary science, is costly, and developing at a fast pace. Moreover, a fruitful education system needs to remain dynamic if the quality of education is the main concern, making it a complicated system. This paper makes use of the System Engineering Approach and the experiences of developed countries in this area while incorporating the needs of the developing countries to devise a comprehensive program in space engineering at the master's level.

The needs of the developing countries as regard space technology education may broadly be put into two categories: to raise their knowledge of space technology which requires hard work and teamwork skills, and to transfer and domesticate space technology while minimizing the costs and maximizing the effectiveness. The requirements of such space education system which include research facilities, courses, and student projects are then defined using a model drawn from the space education systems in universities in North America, Europe, and Southeast Asia that has been modified to include the above-mentioned needs.

Three design concepts have been considered and synthesized through functional analysis. The first one is Modular and Detail Study which helps students specialize in a particular area in space technology. Second is referred to as Integrated and Interdisciplinary Study which focuses on understanding and development of space systems. Finally, the third concept, which has been chosen for the purpose of this study, is a combination of the other two, categorizing the required curriculum into seven modules, setting aside space applications. This helps students not only to specialize in one of these modules, but also to get hands-on experience in a real space project through participation in summer group projects and also work in space systems laboratory or chose to write a thesis based on experiences gained through an internship program.