SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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UNDERGRADUATE SPACE SCIENCE CURRICULUM IN PAKISTAN: ADDRESSING PRESENT CONCERNS TOWARDS MEETING FUTURE CHALLENGES

Abstract

Space science education requires setting up multidisciplinary and interdisciplinary experiences towards an enriching experience for students, especially in a undergraduate degree. However, another pressure within an undergraduate degree in Space Science is developing a focus on a specialization which also has career and economic concerns for students studying and later working in this area. Another competing pressure is related to allied engineering programs and requirements as compared to scientific courses for the undergraduate degree. Balancing these concerns is non-trivial in a space science degree as compared to conventional science and engineering degree. I present these issues in the context of a developing country, Pakistan, and the case of a developing Space Science department at the Institute of Space Technology. I explicate the concerns and challenges faced in setting up an undergraduate program, which requires an intricate assembly of disciplines such as astronomy, astrophysics, atmospheric science, remote sensing and geographic information science. In this talk, besides the IST curriculum I also present three other space science undergraduate curricula presently providing undergraduate degrees in Space Science in the country, namely by two universities and the national standardized curricula put out by the Higher Education Commission (HEC). Addressing the issues found earlier, I present various balanced scenarios which can be applied towards curricular reform such that the various demands are met for students and also the various stakeholders involved. In particular, the richness of the breadth of space science disciplines are balanced with developing a focus in a particular area of interest chosen by the student.