

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate And Postgraduate Space Education (2)

Author: Dr. Markus Pietras
Technische Universität München, Germany, markus.pietras@gmail.com

PRACTICAL TRAINING ON SPACECRAFT OPERATIONS FOR UNIVERSITY STUDENTS

Abstract

Typically, university courses in the field of aeronautics are focused in the fields of astrodynamics, launcher and spacecraft technology and in-depth lectures of specific problems like attitude control or communications. This provides the necessary education that is usually needed throughout early project phases up to spacecraft production and testing. However, challenges of the spacecraft utilization during the operations and disposal phase are difficult to teach and often neglected in the curriculum. As a reaction on this shortcoming, the Institute of Astronautics at the Technical University of Munich (TUM) has established a co-operation with the DLR German Spacecraft Operations Center (GSOC) for a practical course on Spacecraft Operations. DLR provides the knowhow and professional infrastructure by providing on-console training opportunities in dedicated control rooms and by introducing flight dynamics and spacecraft simulation tools and procedures while TUM provides accompanying lectures and tutorials.

This paper describes how students are educated within a practical course at TUM and GSOC and presents the assessment of training success. In addition, a new concept is presented that allows students to gain practical experience in the field of advanced mission operations for on-orbit space robotics complementary to the already established course.