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Author: Dr. Ondrej Doule
Space Innovations, v.o.s., United States

Prof. Olga Bannova
University of Houston, United States
Dr. Sandra Haeuplik-Meusburger
Vienna University of Technology, Austria
Prof. Guy Boy
Florida Institute of Technology, United States

SPACESHIP DESIGN: A SUBJECT WITHIN INTERDISCIPLINARY DESIGN CURRICULUM

Abstract

This paper discusses the rationale and importance of integrating the subject of Spacecraft Design into existing interdisciplinary curricula (architectural, engineering and industrial design). Examples and possibilities for such integration are based on successful academic and industrial practices and design aspects that space and terrestrial architecture are sharing. These aspects include: systems sustainability; human-system integration; ergonomics; man-machine interaction etc.

In particular this paper examines design requirements that will be demanded for future space tourism missions as a new field of space tourism has been emerging during last few years. A spacecraft for tourists has to be efficiently designed in a way that would not require passengers to accomplish months of training prior to the mission, it has to be focused on clients' needs and comfort with conveniently integrated engineering and support systems. Spaceship designers will be required to cope with specific and complex space related, human-centered issues that are quite similar to car or airplane industries but much more environmentally challenging and hazardous. At the same time concepts have to be safe, functional, well integrated and attractive.

The paper will summarize human-centered design principles and their possible integration into related educational subjects and curricula.