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Author: Dr. Jackelynne Silva-Martinez
NASA, United States

Mr. Michael Etchells
NASA, United States
Mrs. Teresa Bradshaw
NASA, United States

IMPLEMENTATION OF HUMAN SYSTEMS INTEGRATION TECHNICAL AND MANAGEMENT PROCESS FOR THE LUNAR GATEWAY PROGRAM

Abstract

NASA recognizes Human Systems Integration (HSI) as part of the overall systems engineering and acquisition strategy for space systems. The Lunar Gateway Program is implementing HSI technical and management process across the lifecycle of the mission, as required by NPR 7123.1C NASA Systems Engineering Processes and Requirements, and led by the Gateway HSI team as required by NPR 8705.2C Human-Rating Requirements for Space Systems. Although NASA has been using HSI principles for many of its previous programs, Gateway is the first one formally implementing it as part of the Artemis Program, with guidance from the NASA/SP-20210010952 NASA HSI Handbook. This paper will discuss how HSI is being implemented in the Gateway Program, challenges faced with its implementation during the development phase, and strategies/approaches used to overcome those. The paper will also cover HSI implementation for flight systems, vehicle processing, and interfaces across the six identified NASA HSI domains: human factors engineering, operations, safety, training, maintainability and supportability, habitability and environment. The goal is to provide an overview of the roles and implementation process of HSI for the Gateway Program as an example for other programs/missions that are looking to implement HSI.