

GSAW 2021 Tutorial N:

Model Based Systems Engineering for Ground Systems

Overview:

This tutorial will cover fundamental concepts of modeling for application to systems engineering. The tutorial will include an abbreviated introduction of SysML as one language that is commonly used in systems modeling. The tutorial will feature examples in the application to ground systems for space applications.

Outline: MBSE Introduction and Overview

- Overview of Model-Based Systems Engineering
- Fundamental Concepts of Modeling
- SysML as a Language for Systems Modeling
- Example Application of Models in Ground Systems

Instructor: Mark McKelvin, The Aerospace Corporation

Biography:

Dr. Mark McKelvin is a Senior Project Lead in Digital Engineering at The Aerospace Corporation and a Lecturer in the System Architecting and Engineering graduate program at the University of Southern California, Viterbi School of Engineering. In his current role at The Aerospace Corporation, he serves as the technical authority for implementing digital engineering across the space enterprise for a variety of customers. Prior to joining the Aerospace Corporation, he led the development of model-based engineering technology and techniques for space system development at the National Aeronautics Space Administration Jet Propulsion Laboratory as a software systems engineer, electrical systems engineer, and fault protection engineer. He is a Senior Member of the American Institute of Aeronautics and Astronautics, and a member of the leadership board for the International Council on Systems Engineering, Los Angeles Chapter. He earned a Ph.D. in Electrical Engineering and Computer Sciences from the University of California, Berkeley and a Bachelor of Science in Electrical Engineering from Clark Atlanta University.

Description of Intended Students and Prerequisites:

Familiarity with ground systems architecture and general systems engineering processes.

What can Attendees Expect to Learn:

- MBSE background and fundamentals, types and uses of SysML diagrams, use of SysML in an MBSE process