

GSAW 2016 Tutorial J:

Introduction to Satellite Communications: Telemetry and Command Paths

Length: Half day

Overview:

This half-day course provides attendees an introduction to digital satellite communications with a focus on the telemetry and command paths. Attendees will follow the flow of satellite telemetry and commands between the space-vehicle and the operator. Each step in the path (spacecraft, space link, antenna site, ground network and control center) is described; areas of complexity discussed; criteria for architectural decisions are highlighted; and technology trends are presented.

This session focuses on the digital processing of telemetry and command data as well as the ground network equipment. This half-day session extends last year's tutorial with the following:

- telemetry and command processing, including common CCSDS recommendations, SLE, and decommutation
- WAN and other networking considerations
- IP encapsulation
- Timing throughout the ground system

Instructors Rob Andzik and Randy Culver, AMERGINT Technologies

Biographies:

Rob Andzik:

I love working in the space industry. I graduated from CU with a BS in Aerospace Engineering and Computer Science. Previous experience at Lockheed Martin and RT Logic. I am co-chair of the OMG Space Domain Task Force and co-author of the Ground Equipment Monitoring Service (GEMS) specification.

Randy Culver:

I enjoy working with our customers to understand what they need to implement their systems. Systems Architect/Manager for 25+ years. MSEE – Purdue, BS – VA Tech. Prior Experience at IBM and RT Logic

Description of Intended Students and Prerequisites:

Students should be familiar with the space domain and have a basic understanding of satellite operations. Upon taking the course, students will have an understanding and appreciation of the ground and space communication links and the complexities involved.

What can Attendees Expect to Learn:

Upon taking the course, students will have an understanding and appreciation of the ground and space communication links and the complexities involved.