



CCSDS TUTORIALS

COMPREHENSIVE TRAINING PROGRAMS FOR USERS OF CCSDS STANDARDS

Ingenicomm’s CCSDS tutorial series delivers a comprehensive training program that covers the body of standards developed by the Consultative Committee for Space Data Systems (CCSDS). The program is targeted towards individuals and groups working in the fields of ground system architecture and development as well as spacecraft design and integration, and allows students to effectively support domestic and international missions that employ CCSDS protocols.

Taught by industry leaders in CCSDS interpretation and implementation

Taught by industry leaders in the interpretation and implementation of CCSDS recommendations, the tutorials cover a broad range of core topics:

One-, two-, or three-day classes

SPACE LINKS

- Telemetry Space Link protocol
- Advanced Orbiting Systems (AOS) protocol
- Telecommand Space Link protocol
- Communications Operation Procedure-1 (COP-1)
- Proximity-1 protocol
- Space Packet protocol
- Encapsulation protocol
- Channel coding and synchronization
- Modulation and RF
- Pseudo-Noise (PN) ranging

CROSS SUPPORT

- Space Link Extension (SLE)
- Cross Support Service Management (SCCS-SM)

MISSION OPERATIONS

- Standard Formatted Data Units (SFDU)
- Data Description Language (EAST)
- Data Entity Dictionary Specification Language (DEDSL)
- XML Formatted Data Units (XFDU)
- XML Telemetric and Command Exchange (XTCE)
- Orbit and tracking data messages

Customized training programs available on request

SPACE INTERNETWORKING

- Space Communications Protocols (SCPS)
- File Delivery Protocol (CFDP)
- Next Generation Space Internet (NGSI)
- Delay Tolerant Networking (DTN)

MISCELLANEOUS TOPICS

- Data compression
- Time code formats
- Space mission security

Ingenicomm’s training classes range from one to three days in length, and may be split over multiple sessions if desired. Fully customized training programs are also available.

Ingenicomm specializes in the standardization of ground network elements, enabling interoperability while providing customized solutions to meet the unique requirements of individual missions. For more information, or to request a price quote, please contact us at info@ingenicomm.net or at +1-703-943-7236.