Military Satellite Communications In A Net-Centric Communications World –Four Day Class

Satellite communications dominate current and planned military and government communications systems and make Net-Centric Warfare possible. This course provides a review of current and future military satellite communications, including the commercial constellations used for military command and control. Internet protocol (IP) and IP over Satellite (IPoS) are addressed showing this protocol's strengths and weaknesses as a facilitator of Net-Centric warfare. All of the current and future military and commercial satellite systems are described including MILSATCOM's evolution. The topics provide a perspective of satellite communications for military applications.

OBJECTIVE

This course describes the fundamental aspects of satellite communication systems engineering with emphasis on the description of current and projected satellite networks in a net-centric and transitional communications environment.

WHO SHOULD ATTEND

The course is designed for military communications systems planners, engineers, managers, operators, system analysts, and decision makers who need a review of military satellite communications concepts and implementations. A general background in communications is recommended.

COURSE OUTLINE:

Military Satellite Communications in a Net-Centric Communications World.

Introduction and System Review

• Basic Principles of Satellite Communications, frequencies, orbits, design rationale

• Overview of Military Satellite Communications Systems, including UHF, SHF & EHF architectures and associated issues such as the Resiliency and the SATCOM data base.

Satellite Links

• Model of a satellite communications system

• Link calculation components

SATCOM Terminals

• Terminal View of Link Equations

• UHF, SHF and EHF Terminals

• Future Terminals Planned

CDMA & IP over Satellite (IPoS)

• Code division multiple access and anti-jam formulas

• IP, Transmission Control Protocol (TCP) & Universal Datagram Protocol (UDP)

• Performance Enhancement Protocols

Net-Centric Warfare Workshop

• OSD Philosophy and Directions

• Impact of Technologies on Net-Centric Warfare

• Latency and Remote Access Exercises

COMMUNICATIONS TECHNOLOGIES

- Multiple access technologies
- Anti-jam Communications Technologies

WIDEBAND COMMUNICATIONS CONSTELLATIONS

- Spacecraft
- Defense Satellite Communications System Design Details
- Wideband Global System Design Details
- Trends

EHF AND SUPPLEMENTARY SYSTEMS

- Milstar Design Details
- Advanced EHF Design Details
- Global Broadcast System

COMMERCIAL SATELLITE CFOMMUNICATIONS

- Fixed Satellite Systems
- Mobile Satellite Systems
- Government Mobile Systems

UHF Military Satellite Systems

- Fleet Satellite Communications System
- UHF Follow-On System
- Mobile User Objective System

Course Coordinator and Lecturer
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Mr. James A. Mazzei provides consulting services to DoD and Intelligence Community customers under a contract with a Federally Funded Research & Development Center. His principal areas of expertise are DoD satellite systems, commercial satellite systems, satellite earth stations and distributed networks. He has over 30 years satellite communications experience in the Air Force and industry, in technical and management roles. He has held technical positions ranging from test engineer to Chief Technical Officer, and management positions ranging from Earth Station Manager to Senior Director & CIO. Mr. Mazzei's experience in industry includes employment with Harris

Corporation, COMSAT Corporation and Booz-Allen & Hamilton, Inc., and encompasses testing and production of major systems as well as systems engineering and technical assistance. In addition to his consulting services, Mr. Mazzei has served as an Adjunct Professor for the University of Maryland, George Mason University and Johns Hopkins University graduate programs in the areas of satellite communications, data communications, computer networks, network management and executive programs.