Satellite Communication Systems Planning & Coordination

Telecom Engineering
Amsterdam (Netherlands)
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Introduction

Successful as they are today, satellite systems are on the brink of a revolution that is poised to significantly impact the future. With new and promising technologies emerging consistently, this advanced satellite communications course introduces the latest advancements in satellite communication systems. Participants will delve into crucial topics such as network topologies and VSAT, gaining a comprehensive overview of theory, practice, and operation that encompass all aspects of satellite communication systems.

Course Objectives of Satellite Communication Systems Planning & Coordination

- Being introduced to the comprehensive realm of satellite communication systems course.
- Acquiring knowledge about various satellite band frequencies.
- Examining potential security risks associated with AAA protocols within the context of satellite communication service.
- Gaining an understanding of wireless LAN alongside Other Access Technologies that intersect with satellite communications.

Satellite Communication Systems Planning & Coordination Course Outlines

Day 1: Introduction to Satellite Communication Systems

- Exploration of Advanced Satellite Communication Systems.
- Multiple Access Techniques: FDMA, TDMA, CDMA, Random Access.
- Overview of All Digital Modulation Techniques, including:
    - Amplitude Shift Keying ASK.
    - Frequency Shift Keying FSK.
    - Binary Phase Shift Keying BPSK.
    - Quadrature Phase Shift Keying QPSK.
- Concepts of Data Rate And Baud Rate.

Day 2: Earth Station Antenna

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- Understanding Earth Station Antenna Types.
- In-depth study of SNG Antennas, Fly Away Antennas, On-the-move antennas, Maritime Antennas, and TVRO Antennas.
- Fundamentals of Pointing/Tracking Mechanisms.

Day 3: Satellite Band Frequencies

- Usage of Small antennas at Ku band and their significance.
- FCC-Intelsat-ITU antenna requirements and EIRP density limitations.
- Detailed Overview of Satellite Band Frequencies.
- Insight into the electromagnetic spectrum and the radio spectrum.
- Identifying Windows to space.
- Learning about various bands:
    - L-band 1-2 GHz.
    - S-band 2-4 GHz.
    - C-band 4-8 GHz.
    - X-band 8-12 GHz.
    - Ku-band 12-18 GHz.
    - Ka-band 26-40 GHz.

Day 4: Satellite Communications System

- A comprehensive study on Satellite communications system design.
- Introduction to Basic Link Engineering.
- Mastery in Satellite Systems Planning and Link Budgets.
- Understanding Propagation Interference and Regulation.
- Thorough knowledge of Payload, Spacecraft, & Earth Station Engineering.
- Exploring Use cases involving communication satellites.
- Navigating Frequency Sharing Between GSO FSS Satellite Networks.
- Procedures for Coordination of GSO FSS Satellite Networks in Unplanned and Planned Bands.

Day 5: Orbit Types & Spectrum Allocations for Satellite Systems

- Investigating Orbit types, including GEO, LEO, MEO, and HEO.
- Mastery of Link budgets for single links and complex, multiple links.
- Effects of the propagation delay and how it impacts satellite communication.
- Grasping Spectrum allocations for various satellite systems.
- Analyzing Key parameters: EIRP, G/T, SFD, Input/Output Backoff, C/No, Eb/No.
- An inclusive perspective on System Architecture of Satellite Communications Payloads.
- Tracking the Evolution of Communications Payload Technologies.
- Discussing various Applications and Activity-Based Intelligence ABI in satellite communications.

Advanced Satellite Communication Training

These satellite communications training courses delve deep into the technological intricacies and operational procedures that are essential for a nuanced understanding of how satellite

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communication works. Participants will immerse themselves in a rich curriculum, interspersed with hands-on sessions and case studies that facilitate a thorough comprehension of communications satellite news and trends that resonate with professionals tasked to communicate with satellites across diverse applications and sectors.

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