BLACKBIRD FOR TRAINING

Satellite Link Budget Training Using SatMaster

Baku (Azerbaijan)

30 March - 3 April 2026

Satellite Link Budget Training Using SatMaster

Code: GC28 From: 30 March - 3 April 2026 City: Baku (Azerbaijan) Fees: 5900 Pound

Introduction

Understanding and designing satellite communication systems is essential for modern communication networks. Satellite link budget training is a cornerstone of this understanding, enabling professionals to analyze and optimize satellite communication systems effectively. This course covers link budget analysis in satellite communication, focusing on practical applications using SatMaster, a leading tool in the field.

Participants will explore concepts such as what is link budget analysis, satellite communications network design, and the types of satellite communication systems. This program combines theory with hands-on workshops to ensure participants gain a comprehensive understanding of satellite engineering, link budget calculation, and interference management strategies.

Whether you're a satellite communications engineer or interested in learning the advantages of communication systems using satellites, this course offers in-depth insights and practical skills to excel in the field.

Course Objectives

By completing this course, participants will:

- Master the principles of link budget analysis and its application in satellite communication systems.
- Use SatMaster to design and optimize satellite links for various services, including VSATs, digital television, and mobile terminals.
- Understand the fundamentals of satellite communication systems, their types, and the significance of different frequency bands.
- Analyze the impact of interference and apply strategies to mitigate it effectively.
- Build proficiency in satellite communications network design and analysis, including transponder loading and optimization techniques.

Course Outlines

Day 1: Principles of Satellite Links and SatMaster Introduction

- Session 1: Fundamentals of Satellite Link Budgets
    - Introduction to satellite link budget concepts: Purpose, structure, and components.
    - Overview of frequency bands: UHF, L, S, C, X, Ku, and Ka bands.

- Session 2: Satellite Footprints and Propagation Effects

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- Understanding satellite parameters: EIRP, G/T, and SFD.
- Propagation challenges: Atmospheric effects, troposphere, and ionosphere.

- Session 3: Introduction to SatMaster
  - Hands-on exploration of SatMaster's features, interface, and applications in satellite communications network design and analysis.

Day 2: Advanced Principles and Practical Applications

- Session 1: Rain Models and Modulation Techniques
  - Application of DAH and Crane rain models in link budget calculation in satellite communication.
  - Modulation techniques: QPSK, 8PSK, 16 QAM, and advanced error correction methods.

- Session 2: Link Budget Fundamentals
  - Crafting a one-way digital link budget using DVB-S2 standards and SatMaster tools.

Day 3: Detailed Link Design - Computer Workshop Part 1

- Session 1: Earth Station Design and Antenna Characteristics
  - Overview of basic satellite communication systems and earth station components.
  - Key antenna parameters: Beamwidth, polarization, and efficiency.

- Session 2: Uplink Design and Transponder Loading
  - Workshop on satellite link budget analysis, including SCPC design with SatMaster.

Day 4: Detailed Link Design - Computer Workshop Part 2

- Session 1: Optimization Techniques for Link Budgets
  - Strategies for maximizing bandwidth and minimizing costs.
  - Techniques for ensuring high availability and throughput in satellite communication systems.

- Session 2: Interference and Mitigation Strategies
  - Identifying and addressing interference sources in satellite communication networks.
  - Utilizing spread spectrum and power flux density controls.

Day 5: Interference Considerations and Case Studies

- Session 1: C/I Estimation and VSAT Operations

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- Advanced satellite communications network design and analysis for VSAT systems.

- Session 2: Case Studies and Final Workshop

  - Designing a digital VSAT link budget using SatMaster.
  - Reviewing real-world case studies and discussing best practices.

Why Attend this Course: Wins & Losses!

- Hands-on experience with SatMaster for professional satellite link budget training.
- Expertise in designing and analyzing basic satellite communication systems and advanced networks.
- Knowledge of satellite engineering principles and practical applications.
- Insight into the latest technologies and methods for interference mitigation.
- Competitive edge in the job market with skills in link budget analysis and satellite communications network design.

Conclusion

This satellite engineering course offers an unparalleled opportunity to delve into the intricacies of satellite link budget analysis. By mastering tools like SatMaster and gaining a deep understanding of what is link budget analysis, participants will be equipped to excel in the fast-evolving field of satellite communications.

Join this course to unlock the potential of satellite communication training, enhance your expertise, and lead with confidence in designing and managing advanced satellite communication systems. Whether you're a professional seeking to elevate your career or a student aspiring to break into the industry, this course is your gateway to success!

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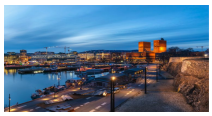
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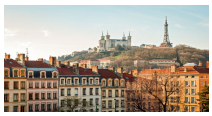
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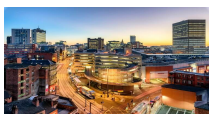
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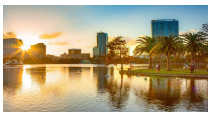
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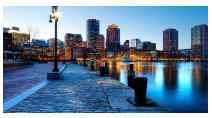
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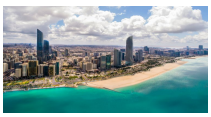
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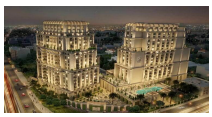
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