

Communications Security (COMSEC)

Course Syllabus Overview

Duration – 5 days (Estimate)

01. Introduction

- Elements of a Communications System
- COMSEC Objectives
- Trust
- Threats
- Trusted Platform
- Protected Communications
- Relay

02. Overview of Cryptographic Techniques

- Pseudorandom Sequence Generators
- Stream Cyphers
- Block Cyphers
- Hash Functions
- Message Authentication Code
- Public-Key Cryptography

03. Security Infrastructure

- Authentication
- Certificate Authority
- Key Generation
- Key Distribution
- Signing

04. Protected Communications

05. Network Security Protocols

- Internet Security Protocols
- Transport Layer Security
- Secure Shell
- Hop-by-Hop vs End-to-End
- Intra-Domain vs. Inter-Domain
- Cellular Systems

06. Network Access Authentication

- Authentication, Authorisation, and Accounting
- RADIUS
- Extensible Authentication Protocol

07. Wireless Network Security

- Special Aspects
- UMTS and LTE Air Link Protection
- IEEE 802.11

08. Security for Mobility

- Introduction
- Challenges
- Secure Handover
- Fast Authentication
- Secure BBS Transition
- Mobile IP Security
- Media Independent Handover

09. Broadcast and Multicast Key Distribution

- Logic Key
- Hash Chain
- Merkle Trees

10. Trusted Platform

- Threats
- Objectives
- Challenges
- Trust
- Technologies and Methods
- Trusted Platform Module

11. Physical Layer Security

- Wiretap
- Multiple Input Multiple Output

12. Spread Spectrum Techniques

- Basic Concepts
- Binary Phase Shift Keying
- Frequency Hopping Spread Spectrum
- Jamming Attacks
- Code Division Multiple Access

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