Network Security and Secure Communication

🌐 Learn via: **Classroom / Virtual Classroom / Online**

🕐 Duration: **3 Days**

Overview

Implementing a secure networked application can be difficult, even for developers who may have used various cryptographic building blocks (such as encryption and digital signatures) beforehand. In order to make the participants understand the role and usage of these cryptographic primitives, first a solid foundation on the main requirements of secure communication – secure acknowledgement, integrity, confidentiality, remote identification and anonymity – is given, while also presenting the typical problems that may damage these requirements along with real-world solutions.

As a critical aspect of network security is cryptography, the most important cryptographic algorithms in symmetric cryptography, hashing, asymmetric cryptography, and key agreement are also discussed. Instead of presenting an in-depth mathematical background, these elements are discussed from a developer's perspective, showing typical use-case examples and practical considerations related to the use of crypto, such as public key infrastructures. Security protocols in many different areas of secure communication are introduced, with an in-depth discussion on the most widely-used protocol families such as IPSEC and SSL/TLS.

Finally, as XML technology is central for data exchange by networked applications, the security aspects of XML are described.

Prerequisites

There are no prerequisites for this course.

Who Should Attend

Network engineers and developers.

What You Will Learn

- Understand basic concepts of security, IT security and secure coding
- Understand the requirements of secure communication
- Learn about network attacks and defenses at different OSI layers
- Have a practical understanding of cryptography
- Understand essential security protocols
- Understand some recent attacks against cryptosystems
- Learn about typical coding mistakes and how to avoid them
- Get information about some recent vulnerabilities in the Java framework
- Learn about XML security
- Get information about some recent related vulnerabilities
- Get sources and further readings on secure coding practices

Outline

- IT security and secure coding
- Requirements of secure communication
- Network security
- Practical cryptography
- Security protocols
- Cryptographic vulnerabilities
- Common coding errors and vulnerabilities
- Knowledge sources