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Course : Blockchain, overview

Seminar - 2d - 14h00 - Ref. BON
Price : 2170 CHF E.T.

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This seminar addresses application security needs through the implementation of blockchain. A detailed study will enable you to understand the inherent mechanisms. You'll then have a clear vision of the usefulness of blockchain and how you can integrate it into your applications.

Teaching objectives

At the end of the training, the participant will be able to:

- Evaluating blockchain and related security services
- Understanding the type of candidate application for blockchain
- Specify how the security services provided by blockchain are achieved
- Applying blockchain to evidence-based applications in the legal sense
- Master the state of the art and make blockchain technology choices

Intended audience

CISOs, CIOs, architects, developers, project managers, financial staff, system and network administrators, decision-makers, engineers, consultants, advanced technicians.

Prerequisites

Knowledge of application architecture fundamentals and basic security requirements.

Course schedule

1 Introduction to blockchain

- Analysis of blockchain structure. Definition of entities: miners, wallets, routing node, complete node.
- The different application categories. ICOs. Regulation of the blockchain market (RGPD, PACTE law).
- Governance typology and impact on trust.
- Types of consensus algorithms.

Demonstration

Presentation of some blockchain-based applications.

PARTICIPANTS

CISOs, CIOs, architects, developers, project managers, financial staff, system and network administrators, decision-makers, engineers, consultants, advanced technicians.

PREREQUISITES

Knowledge of application architecture fundamentals and basic security requirements.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Cryptographic foundations of blockchain

- Elements of asymmetric cryptography.
- RSA and ECDSA digital signatures: design and verification.
- Public keys: encryption and address.
- General cryptographic principles and services.

Demonstration
Case study of an encrypted system.

3 Blockchain applications: Bitcoin

- Protocols and entity types: miners, wallets, routing node, complete node.
- Principles of chaining, autonomy and mining. Consensus in Bitcoin.
- Bitcoin forks. Bitcoin alternatives. Bitcoin-based applications: colored coins.
- Bitcoin and competing solutions: Litecoin, Bitcoin Cash, Bitcoin Gold, ecc, Stablecoins, Tezos and EOS, Monero, Zcash.

Demonstration
Implementation of an electronic money blockchain with Multichain.
Implementation of monetary transactions with Ganache and Metamask.

4 Blockchain applications: Ethereum

- The origins of Ethereum. Ethereum in figures. Ethereum (architecture, Ether, Gas...).
- Consensus in Ethereum. Tokenization.
- Competing solutions to Ethereum (EOS, Tezos, ecc, Hyperledger).

Case study
Example of smart-contract implementation with Ganache.

5 Blockchain applications: Hyperledger Fabric and Iota

- Analysis of Hyperledger Fabric innovations. Architecture, blocks, transactions, protocols, entities, consensus.
- Hyperledger Fabric use cases.
- Analysis of Iota innovations. Architecture, blocks, transactions, protocols, entities, consensus.

Demonstration
Example of smart-contract implementation with Hyperledger Fabric.

6 Blockchain platforms and applications

- State of the art and blockchain API offerings.
- Definition of criteria for comparing blockchain implementation platforms.
- Application sectors: analysis and outlook.
- Implementing blockchain: from API selection to implementation.

Demonstration
What are the business models for blockchain?

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

Dates and locations

REMOTE CLASS
2026 : 11 June, 22 Sep., 26 Nov.