COURSE DETAIL

PEER-TO-PEER SYSTEMS
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Computer Science
UCEAP Course Number 175
UCEAP Course Suffix
UCEAP Official Title PEER-TO-PEER SYSTEMS
UCEAP Transcript Title PEER TO PEER SYSTMS
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course is part of the Laurea Magistrale program. The course is intended for advanced level students only. Enrollment is by consent of the instructor. The course focuses on relevant research themes related to peer-to-peer systems, blockchain technologies, cryptocurrencies and novel applications that can be built over the blockchain. Nowadays, the most prominent peer-to-peer systems are related to the blockchain and distributed ledgers. Thus, the main part of this course is devoted to these topics. Bitcoin and novel cryptocurrencies gathered momentum in the last months. More and more investors look with interest to these technologies, while others label them as a dangerous speculative bubble. The truth is that the blockchain, and the alternative implementations of a distributed ledger, represent very interesting technologies, that can be exploited to build novel distributed applications. The underlying building blocks are related to many concepts and research areas of computer science in general. This course illustrates the main principles and conceptual foundations of the blockchain and the Bitcoin network. Topics covered: Introduction to peer-to-peer systems; Overlay topologies and decentralization; Introduction to Crypto and Cryptocurrencies; The blockchain: how to achieve decentralization; Transactions and transaction scripting languages; Mining; Attacks to the blockchain; Anonymity; Smart contracts.

Language(s) of Instruction
Italian

Host Institution Course Number
77804

Host Institution Course Title
SISTEMI PEER-TO-PEER (LM)

Host Institution Course Details

Host Institution Campus
SCIENZE

Host Institution Faculty
Host Institution Degree
Host Institution Department Informatica
Course Last Reviewed

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