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| BLOCK NAME | BLOCKCHAIN |
| BLOCK CODE | CS-L5B2 |
| COURSE | 3 |
| LEVEL | 5 |
| CREDITS | 2 |
| CLASS HOURS | 20 |
| HOMEWORK | 30 |
| TOTAL HOURS | 50 |

DESCRIPTION

This block introduces the basic concepts of blockchain technology.

PRE-REQUISITES

Basic programming skills are needed. Knowledge about networking is desirable.

CS-L1B1, CS-L3B1

OBJECTIVES

The goal is for students to be familiar with blockchain technology (protocol, components of a blockchain, operations and underlying algorithms).

We will face the challenge of creating our own (basic) cryptocurrency based on blockchain. For this to be done, the student will need to first understand the basis of blockchain technology and be able to implement basic algorithms and techniques regarding blockchain blocks and transactions.

SKILLS TO BE DEVELOPED

1 - Blockchain fundamentals.

- 1.1 - Understand the principles of Blockchain and how trust is provided.
- 1.2 - Differentiate distinct types of blockchains.
- 1.3 - Know the different algorithms and techniques used.
- 1.4 - Understand the consensus protocol.

2 - Transactions, blocks, block headers and the chain.

- 2.1 - Implement and make use of the algorithms and techniques that provide security to blockchain blocks and transactions.

3 - Operation.

- 3.1 - Create and manage a blockchain ledger.
- 3.2 - Perform operations over a blockchain ledger.

SYLLABUS

- 1 - Blockchain fundamentals.
- 2 - Transactions, blocks, block headers and the chain.
- 3 - Operation.

METHODOLOGY

Resolution of practical activities supervised by the mentor. Compulsory attendance.

DEDICATION AND EVALUATION

The student must pass the mandatory activities (challenges/projects) that are covered in the block.

Each challenge/project produces its own score and has been designed to cover certain block percentages.

Such score is 80% objective (the program that solves the challenge/project works without errors and producing the expected results) and 20% subjective (solution elegance, how clean the code is, documentation).

Block scores are finally calculated by prorating individual activities with respect to their block coverage percentages.