

45 hours / 1.5 ECTS Credit

Count of points: 91/118

**Distributed Lab**

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Issued on: 22.06.2023

# Certificate

This certifies that

**Yaroslav Kishchuk**



*has successfully completed Course "Basic aspects of programing with Solidity"*

*Exam passed*

## TOPICS

Ethereum capabilities and differences from Bitcoin • Ethereum basics (ether currency, gas, EOA, contracts) • Must-know components (Metamask, Etherscan) • Transaction structure (nonce, value, receiver, gas price, gas limit, data, signature) • Public and private keys for ECDSA  
Block structure (timestamp, gas limit, nonce, header) • Lifecycle of the smart contract • Hardhat & Remix • Smart contract ABI  
Working with money • Single-threaded development • Constant & static & dynamic data types • Functions (view, payable) • Events and error handling • Calling other contracts • Stack, memory, storage, calldata, returndata • Inline assembly brief • Libraries (external, internal)  
Proxy, delegatecall • Working with signatures & precompiled contracts • Bytecode structure • What is tokens ERC20, ERC721, ERC1155



Artem Chistyakov  
Solidity developer at Distributed Lab

Olena Voloshchuk, PhD  
Education Manager at Distributed Lab