

# Semestral Thesis

Master's study program **Information Security**

Department of Telecommunications

**Student:** Bc. Samuel Kopecký

**ID:** 211799

**Year of  
study:** 2

**Academic year:** 2022/23

## TITLE OF THESIS:

**Modular network communication using post-quantum cryptography**

## INSTRUCTION:

The topic of the thesis is focused on the implementation of the library of post-quantum algorithms for key exchange, public key encryption and digital signature. The student implements at least one algorithm from the selected category. The output of the semester project will be a functional implementation of the algorithm including performance testing and comparison with an existing solution.

In the diploma thesis, the student implements another algorithm from each category and implements post-quantum client-server communication. The client part of the application will contain an API for downloading and uploading files and exchanging messages with other users.

The thesis will compare the speeds and performances with other implementations of post-quantum algorithms.

## RECOMMENDED LITERATURE:

podle pokynů vedoucího práce

**Date of project  
specification:** 1.10.2022

**Deadline for  
submission:** 12.12.2022

**Supervisor:** Ing. David Smékal

**doc. Ing. Jan Hajný, Ph.D.**  
Chair of study program board

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