

BACHELOR'S THESIS ASSIGNMENT

I. Personal and study details

Student's name: **Štefka Ladislav**

Personal ID number: **469913**

Faculty / Institute: **Faculty of Electrical Engineering**

Department / Institute: **Department of Measurement**

Study program: **Cybernetics and Robotics**

II. Bachelor's thesis details

Bachelor's thesis title in English:

Advanced Machine Condition Monitoring System

Bachelor's thesis title in Czech:

Systém pro pokročilé monitorování stavu zařízení

Guidelines:

1. Design and implement a system for monitoring the condition of rotating machines using the temperature measurement and vibration analysis module connected to the IoT network using the LoRa or NB-IoT interface.
2. Use the low-power STM32 series microcontroller and develop software for interfacing the temperature sensor and accelerometer, signal pre-processing and analysis, feature computation, and wireless transmission to the IoT system.
3. Focus on implementation of advanced signal analysis methods.
4. Evaluate the performance using the rotary mechanism simulator.
5. Create a demo application for manipulation with the data.

Bibliography / sources:

- [1] Randall, Robert Bond: Vibration-based Condition Monitoring, John Wiley & Sons, Ltd. 2011
- [2] firemní literatura Analog Devices, STmicroelectronics, LoRa alliance, ThingsNetwork
- [3] George Vachtsevanos et al.: Intelligent Fault Diagnosis and Prognosis for Engineering Systems, 2006 John Wiley & Sons, Inc.

Name and workplace of bachelor's thesis supervisor:

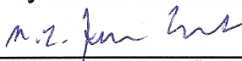
doc. Ing. Radislav Šmíd, Ph.D., Department of Measurement, FEE

Name and workplace of second bachelor's thesis supervisor or consultant:


Date of bachelor's thesis assignment: **24.01.2019** Deadline for bachelor thesis submission: _____

Assignment valid until:

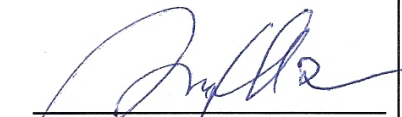
by the end of summer semester 2019/2020



doc. Ing. Radislav Šmíd, Ph.D.
Supervisor's signature



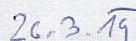
Head of department's signature



prof. Ing. Pavel Ripka, CSc.
Dean's signature

III. Assignment receipt

The student acknowledges that the bachelor's thesis is an individual work. The student must produce his thesis without the assistance of others, with the exception of provided consultations. Within the bachelor's thesis, the author must state the names of consultants and include a list of references.



Date of assignment receipt



Student's signature