THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Development of software for motor controller of an electric formula**
Author's name:	**Vojtěch Michal**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Control Engineering
Thesis reviewer:	Ing. Denis Efremov
Reviewer's department:	Department of Control Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**extraordinarily challenging**

How demanding was the assigned project?

The student had to get familiar with the characteristics and mathematical model of the three-phase permanent magnet synchronous motor (PMSM). The thesis had to be aimed at developing of software controller for these types of engines used in the new eForce formula prototype. The controller had to be implemented in low-level programming language and verified on simulations and real laboratory hardware.
I'm marking the assignment's difficulty as extraordinarily challenging for a bachelor thesis. The thesis assignment is suitable for master's students.

Fulfilment of assignment	**fulfilled**

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

All assignment tasks are fully fulfilled without any exception.

Activity and independence when creating final thesis	**A - excellent.**

Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.

The student activity was outstanding. He did the work very well, managing all the time limits. Our consultations were regular and efficient because Mr. Michal always had a prepared list of questions and possible solutions to discussed issues. Working with him could only be evaluated positively. The student worked independently and communicated with experts in the field of PMSM modeling and control on his initiative.

Technical level	**A - excellent.**

Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?

The technical level of the thesis could be compared with short dissertations or books in the field of PMSM modeling and control field. All the theory behind implementing the proposed solution is well covered in the thesis. The student clearly explains each detail in his implementation.

Formal level and language level, scope of thesis	**A - excellent.**

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

The work is well-structured and well-organized. Each chapter covers its particular subject. The language is clear and understandable.

Selection of sources, citation correctness	A - excellent.
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	
The thesis adequately references all the required sources. The selection of sources is satisfactory. The student's original work is distinguished from the used bibliography. The bibliographic citations meet the standards.	

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.
The quality of the thesis is high. It covers all needed parts from the physics behind the three-phase synchronous motors and system modeling to control development and its implementation on digital hardware. I want to admit that the result of this work will be used in an actual Formula Student vehicle, which is a self-describing achievement of the work.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading.

The work results are absolutely satisfactory. I marked this work with the highest possible grade in each part of this evaluation.

The grade that I award for the thesis is **A - excellent.**

Date: **29.5.2022**   Signature: