REVIEWER'S OPINION OF FINAL THESIS

I. IDENTIFICATION DATA

Thesis name:	**Optimal Control Strategy of HEV SCADA System**
Author's name:	**Rahul Jaiswal**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of Automotive, Combustion Engine and Railway Engineering
Thesis reviewer:	Skarolek Pavel, Ing.
Reviewer's department:	Department of Electric Drives and Traction

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**ordinarily challenging**

Evaluation of thesis difficulty of assignment.

I classify the assignment as ordinarily challenging because there is no further description of how complex the control strategy should be.

Satisfaction of assignment	**fulfilled**

Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.

Assignment is fulfilled by developing a state machine for HEV combustion engine on/off decision.

Method of conception	**correct**

Assess that student has chosen correct approach or solution methods.

Starting with general topologies of HEVs the thesis leads to description of the laboratory equipment and ends with driving cycle evaluation.

Technical level	**A - excellent.**

Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.

The thesis contains in-depth analysis of energy conversion efficiency of hybrid electric vehicle simulator in various modes of operation. Most of it probably comes from the knowledge of the HEV team gained while attending the lab.

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

Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.

The thesis is very well written, only minor typos related to formatting of unit's indexes

Selection of sources, citation correctness	**E - sufficient.**

Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.

Overall not many references for the length of the thesis, basically no in text citations. Some formulas in chapter 6 need citations or better explanation in my opinion, picture sources are cited correctly.

Additional commentary and evaluation

Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.

-

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

The thesis brings in-depth analysis of hybrid electric vehicle propulsion system. The theoretical part is very well written and its style remains consistent over the whole length of the thesis. However, it is not always clear what is student's contribution and what comes from other people in the HEV laboratory the student was introduced to. If the goal really was just to summarize the knowledge created in the lab over the years, it is well done but not much new is introduced.

Question:
The efficiency of the supercapacitor storage calculated in the thesis is relatively low. Are there options how can we improve it?

I evaluate handed thesis with classification grade **B - very good.**

Date: **9.2.2023**   Signature: