

I. IDENTIFICATION DATA

Thesis title:	Electric Vehicle Powertrain Simulation
Author's name:	Farhaan Hussain
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Automotive, Combustion engine and Railway Engineering
Thesis reviewer:	Skarolek Pavel, Ing.
Reviewer's department:	Electrical Drives and Traction

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
The theoretical part of the assignment goals is very wide for master thesis. Begins with EVs and HEVs mechanical design and leads to deep study of AC motor control.	

Fulfilment of assignment	fulfilled with minor objections
<i>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.</i>	
I miss direct comparison between simulated and measured data that can be expected in the last assignment goal "Calibration of simulation model on motor powertrain functional example".	

Methodology	correct
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
The wide theoretical part required an extensive research work and probably took majority of the time. Simulink results are presented better than real measured data from the powertrain.	

Technical level	C - good.
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
Most part of the thesis is based on literature research however, most graphs in this part are over 10 years old which is not sufficient for the fast development in EV's technology. Measured data from the powertrain could have been better processed and compared with the simulation results.	

Formal and language level, scope of thesis	C - good.
<i>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?</i>	
There are some formal mistakes that makes it harder to read. The language is quite informal on many places and uses a lot of superlatives however, it is clear to understand.	

Selection of sources, citation correctness	B - very good.
<i>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?</i>	
Some figures are not clear if they are drawn or copied at the first sight but the sources are cited in the text correctly.	

Additional commentary and evaluation (optional)
<i>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.</i>
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III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The student gave good attention to the theoretical aspect of the thesis, exceeding expected requirements. I highly appreciate that the experimental part of the work is not just about simulation but contains real world data measured in the vehicle powertrain simulator laboratory. However, I would like to have seen comparison between the simulation and real world measurements.

Question:

Please explain briefly the problems of data acquisition on the powertrain simulator you worked with compared to data obtained from the MATLAB Simulink model. For example, which parameters cause the real measured data to be less smooth? How can we minimize these disturbances?

The grade that I award for the thesis is **C - good**.

Date: **31.1.2023**

Signature: