THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Planetary Gearbox for Electric Vehicle**
Author's name:	**Samed Ali Akköse**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of Automotive, Combustion Engine and Railway Engineering
Thesis reviewer:	Gabriela Achtenova
Reviewer's department:	Department of Automotive, Combustion Engine and Railway Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **ordinarily challenging**

How demanding was the assigned project?

The assignment covers important, but expectable amount of engineering knowledge.

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 primary goals have been achieved.

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

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

Samed worked on his thesis in Ricardo Prague. During his stay, he changed the supervisors. He informed in time about his achievements, or changes during his internship.

Technical level **D - satisfactory.**

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 have the following main remarks on the technical level of the thesis:

1) The graph on Fig. 25 initiate me the doubts if the ratios are rightly calculated.
2) Is the maximal slope of 18,5 % sufficient even for hilly towns like Prague, Lisbon etc.?
3) In the summary of deflections I noticed just maximal values, but it is not appointed where. To my opinion is not proven that the Ricardo criteria are fulfilled.
4) In the calculation of planetary gearset is not paid attention to the difference between the basic x real ratio, basic x real efficiency. This makes very hard to control the right procedure of calculation. Wrong value Eq. 18.
5) Chapter 4 represents the comparison of solutions done on bachelor level only. From an engineer I would expect guess of the values, I would expect weighting factors for different criteria, etc.
6) The main remarks I have with respect to the drawings (e.g. Manufacturing drawing: the same tolerance for lip sealing and bearing, detail A does not correspond to the real form on the shaft, tight tolerances where they should not be and other way around – positioning of lubrication holes; Assembly drawing: how is fixed the sun gear on the shaft?, how will you fabricate the "ears" inside the differential cage?, how is fixed the planet pin in the differential?, how are fixed the planets inside the spider of the PGS?, how do you expect that will act the lubrication of the gbx?)

Formal and language level, scope of thesis	**C - good.**
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 sentences used mainly in the chapters presenting the calculations of Samed's design are very hard to understand (e.g. last paragraph p. 80, paragraph under Table 17 p. 81, etc.).	

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?	
I appreciate very deep and nicely done literature survey of existing and patented solutions of electric vehicles gearboxes. Mainly valuable is Table 1, and all the schemes taken from the patent survey. The sources are well cited. The amount of used literature exceeds standard master thesis.	

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.
None

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

Date: **3.9.2020** Signature: Gabriela Achtenová