SUPERVISOR'S OPINION OF FINAL THESIS

I. IDENTIFICATION DATA

Thesis name:	**Gasoline Engine Emissions and TWC Modeling in Axisuite**
Author's name:	**Shanmughanathan Shankar Balaji**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Dpt. of Autom., Comb. Eng. & Railway - 12120
Thesis supervisor:	Vojtěch Klír
Supervisor's department:	Dpt. Of Autom., Comb. Eng. & Railway - 12120

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

Evaluation of thesis difficulty of assignment.

In order to be able to fulfill the assignment of the diploma thesis student had to gain knowledge about TWC principle, ageing effect. Last but not least he had to learn and understand to software used for simulation of TWC systems.

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.

All defined tasks have been fulfilled.

Activity and independence when creating final thesis **D - satisfactory.**

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.

Based on contact with student and supervisors at TME I must say that student was not able to abide defined dates. He was also not able to propose the layout of the thesis according to obtained results from his activities. He needed a lot of support from TME supervisors in order to finalize his thesis in defined time.

Technical level **C - good.**

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 is very global and the student's required knowledge about TWC topics is obvious. There is possible to find some formal mistakes (for example concerning of conversion reactions) but they have no direct influence on the quality of the work. All outputs are clearly described if the confidentiality factor is taken in to the account. Deeper discussion about the effect of DI or MPI system on exhaust gas composition is missing.

Formal and language level, scope of thesis **B - very good.**

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

The thesis structure is very well defined. There are no fundamental mistakes in the text part of the work. Sometimes it is possible to find a worse quality of some images.

Selection of sources, citation correctness **C - good.**

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.

Sources used and stated in the work are sufficient, however for example SAE technical papers are missing. Sometime it was difficult to recognize between student ideas and knowledge obtained from the literature sources.

Additional commentary and evaluation

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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.
Please insert your commentary (voluntary evaluation).

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Student was very interested in the topic. There were many new things he must not only to learn but also understand to. Thanks to the support from the supervisors from TME he was able to make analysis and finalize the diploma thesis. The thesis has good quality as it is expected for master degree program.

Question:
Could you briefly describe the experimental data used for the development/calibration of the ageing law?

I evaluate handed thesis with classification grade **C - good.**

Date: **9.2.2018** Signature: