I. IDENTIFICATION DATA

Thesis title:	**Modeling of a spark ignition engine systems architectures**
Author's name:	**Yassine Haï**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of automobiles, IC engines and railway vehicles
Thesis reviewer:	Ing. Václav Jirovský, Ph.D.
Reviewer's department:	Department of automobiles, IC engines and railway vehicles

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**easy**

How demanding was the assigned project?

The assignment aims on analysis and upgrade of currently modelling architecture of diesel powertrains control systems to the spark ignition powertrains.

Fulfilment of assignment	**fulfilled with major objections**

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.

Student has described the method for system architecture modeling (SysML), but has not applied any system approach to the analysis of current powertrain models used. The only outcome of this type opponent has found is presented on page 32, resp. 33, which shows chaotically organized system diagram of some Supervisor subsystem.

Furthermore, the optimization of the functional architecture described in the thesis proposes switching from the functional diagrams to component diagrams, which completely changes the purpose of the diagrams. It is later confusing that the annexes contain newly created functional schemes of SI engine.

Methodology	**partially applicable**

Comment on the correctness of the approach and/or the solution methods.

The methodology applied to the solution is rather unclear from the whole text of the thesis. Student only used another software to create diagrams. Because the input sample diagrams, described as unsatisfactory, are not readable (not only on purpose to show the untidiness), it is not clear how are the proposed diagrams enhanced.

Technical level	**F - failed.**

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?

The first chapter of the thesis is focused on the literature research of system engineering description methods. Further, the student is only describing the functions of single software MagicDraw, which he has used for the modeling of the new diagrams. The thesis does not contain any analytical part, which would show student's approach to the solution of the task assigned. Beginning the chapter 2, it is not possible to distinguish between parts realized by the student and the knowledge gathered from other sources. The rest of the thesis has more or less nature of software manual, rather than engineering deep dive in the topic of system engineering.

It is also rather unclear, why the proposed upgrade leads to the change from functional diagrams (referring to functions) to physical diagrams, related to connections between components. This, in some cases might be very similar, but cannot be applied as a global modeling approach. Nevertheless, as mentioned above, the annexes contain functional schemes. Whole thesis is completely confusing.

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 thesis is written on 44 pages including table of contents, list of figures etc. Thus, the thesis itself is written only on 36 pages, which is very short. It would be acceptable, if it would contain condensed outputs of engineering work. Unfortunately, it can be stated that the thesis contains almost nothing.	

Selection of sources, citation correctness	**C - good.**
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?	
Used sources (the list contains only 9 sources) are cited according to citation norm and well-arranged list of used references is at the end of 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.
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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. Pose questions that should be answered during the presentation and defense of the student's work.

The opponent was very confused with the engineering contents of the thesis, as he found rather none. Thus, he would like to hear from the student, what was the work he has pursued during his internship? As the thesis does not give very clear answer to such question, opponent looks forward to be informed during the defense.

Based on the major insufficiencies mentioned above, the thesis is evaluated with the grade **F - failed.**

Date: **3.9.2019**   Signature: