

## I. IDENTIFICATION DATA

<b>Thesis title:</b>	GASEOUS FUEL INJECTION FOR ENGINE WITH A SCAVENGED PRE-CHAMBER
<b>Author's name:</b>	Akshay Kamane
<b>Type of thesis :</b>	master
<b>Faculty/Institute:</b>	Faculty of Mechanical Engineering (FME)
<b>Department:</b>	12120.
<b>Thesis reviewer:</b>	Supervisor Ing. Jiří Vávra, Ph.D., reviewer Ing. Marcel Škarohlíd, Ph.D.
<b>Reviewer's department:</b>	CVUM

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b> <i>How demanding was the assigned project?</i>	<b>ordinarily challenging</b>
The main goal of this work was a support of a design and implementation of a scavenged pre-chamber on a small automotive engine. The thesis deals with a combined thermodynamic and mechanical simulation of a check-valve used for a fuel metering into the pre-chamber. Therefore, an analysis of the check valve performance was assigned.	

<b>Fulfilment of assignment</b> <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>	<b>fulfilled</b>
The work more or less addressed all of the assigned tasks.	

<b>Methodology</b> <i>Comment on the correctness of the approach and/or the solution methods.</i>	<b>correct</b>
A literature search and the modeling part were covered by this work. The student built a mathematical model and calibrated it by the experimental data provided by his supervisor and his colleagues. Mr. Kamane first carried out the steady state simulations and then proceeded with the non-stationary ones. This methodology was accepted as the correct one. However, a number of investigated parameters is very limited.	

<b>Technical level</b> <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>	<b>D - satisfactory.</b>
The sensitivity analysis of the check valve model parameters was performed for two parameters only, the spring stiffness and the ball valve pretension. Therefore, the presented sensitivity analysis is extremely coarse and incomplete.	

<b>Formal and language level, scope of thesis</b> <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>	<b>C - good.</b>
The language is understandable, however clumsy. The use of capital letters in figure captions and section titles is strange and inconsistent.	

<b>Selection of sources, citation correctness</b> <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>	<b>D - satisfactory.</b>
Citation sources seem adequate. Unfortunately, there is a mess in references.	

<b>Additional commentary and evaluation (optional)</b>
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*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.*

Please insert your comments here.

### 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.*

Mr. Kamane in a quite short time managed to learn the basics of the GT Suite software package. However, he needed to be guided on a daily basis. It should be pointed out, that Mr. Kamane did not use a given opportunity to contribute at the engine laboratory during his five months' internship. The experimental verification of the predictive capabilities of the model will need to be performed by someone else.

However, the output of this thesis is beneficial.

The grade that I award for the thesis is **D - satisfactory**.

Date: **28.8.2019**

Signature: