THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Pneumatic system for Gear and Clutch Engagement**
Author's name:	**Sai Kalyan Achanta**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Automotive, Combustion Engine and Railway Engineering
Thesis reviewer:	Gabriela Achtenová
Reviewer's department:	Automotive, Combustion Engine and Railway Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**ordinarily challenging**

How demanding was the assigned project?

The assignment can nicely prove the acquired knowledge during studies.

Fulfilment of assignment	**fulfilled with minor 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.

The assignment is written on relative general way. It seems the student fulfilled all the points, but the level is generally on very low base of elaboration using high amount of simplification and not clear description. I cannot imagine being the one who should follow the work of Sai Kalyan and have this thesis as main source of information.

Methodology	**partially applicable**

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

The steps how student proceed are correct. Anyhow the thesis is written in such a way, that I do not believe someone can really follow his work to continue with the project.
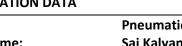
Technical level	**F - failed.**

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 student did already the first mistake in the first descriptive chapter 2.1.1, where is wrongly explained the function of clutch (in the description are mixed up the terms drive part and driven part). He states that the pressure plate is mounted on the gearbox input shaft. The introductory part comprises several figures of different clutch types, but no-one really appoints the type which should be automatized.

In chapter 3.1 are calculations for basic dimensioning of the pneumatic system. It is hard to follow the calculations. The reader has absolutely no idea if some values are calculated, found in technical specification of the product or it is the guess of the author (e.g. hydraulic pressure 9,459 MPa used in eq. 17 and 18).

For none of the proposed actuation systems the full scheme of the system is presented. The way of simplification is very high. In the chapter test bench are stated the requirements for the test bench, but as resulting solution is proposed "an iron box" as interface piece between pneumatic piston and master cylinder. No details about manufacturing, detailed drawing, list of measured values or scheme of measured values and function of the "test bench" – in real meaning of this term.

Simulink model: The student uses in the thesis the print screens from Sïmulink environment, which are often hard to read. The gearbox maps for upshift and downshift use very thin lines with unreadable description. No idea why for upshift there are 4 threshold curves, for down shift there are only 3 curves?! No comments or check of correct modeling of separate modules (e.g. engine model is described as used model from Simulink library with given data of real engine). Does the characteristic really match? The graphs from Simulation are presented. Is correct that when the neutral is shifted the clutch is disengaged? The graph of engine speed shows the drops below 500 rpm, can this happen in reality?

Formal and language level, scope of thesis	D - satisfactory.
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 English level is correct. The nomenclature is not in alphabetical order. The formatting is on ordinary level. The figures mainly describing the model do not contain the important information or are hardly readable.	

Selection of sources, citation correctness	E - sufficient.
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?	
The author used several sources, but in the master thesis are no citations. In the list of reference, many sources are not correctly referenced.	

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. Pose questions that should be answered during the presentation and defense of the student's work.

The student probably did a lot of work, but this does not appear in the master thesis. For the reader it does not make a clear picture how the pneumatic automation system of clutch and gearbox can work, the reader has even no idea how the clutch and gearbox look like. I cannot imagine being the one who should follow the work of Sai Kalyan and have this thesis as main source of information.

The grade that I award for the thesis is **E - sufficient.**

Date: **17.9.2021**   Signature: