SUPERVISOR'S OPINION OF FINAL THESIS

I. IDENTIFICATION DATA

Thesis name:	**Methods of Use of Engage Movements in Milling**
Author's name:	**Mohamad Ghaith Almasri**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of machining, process planning and metrology
Thesis supervisor:	Ing. Jan Tomíček, Ph.D.
Supervisor's department:	Dept. of machining, process planning and metrology, FME CTU in Prague

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

Evaluation of thesis difficulty of assignment.

Assignment combines a theoretical approach with practical experiment using software and devices that are not included in the bachelor degree study plan.

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 points of assignment are included in the thesis. Some of them are short of information but they are present. What is missing is the comparison of measured values with theoretical values but this point was given to student as part of evaluation and it is not directly pointed out in assignment.

Activity and independence when creating final thesis **C - good.**

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.

Student started the work on thesis fast and he was consulting quite often. But in fact he was just gathering information, not sorting it or arranging to meet the thesis assignment. In the middle part, there was very limited activity. The activity increased again at the end when there was already not enough time to think out all possible steps in solving the thesis so the thesis is impacted with this lack of 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.

At the thesis the student present some general facts that don't have closer connection to the thesis assignment. Some of facts are funny (like the first sentence in chap. 1.5) some of them are so general that they are practically telling nothing. First 15 pages can be skipped for this reason. The explanation of engage movements in the following part is better it is summarizing known facts but already to the topic and with connection to the software that was used.
But again there are large sentences telling simple facts together with quotations from sources that are not explained (like pg. 18 bottom)
Experiment description is quite good. Evaluation of experiment is inadequate. Experimental facts are presented in non-transparent form (like in Tab 12 there are two values of Ftotal – not explained why there are such big differences) Tables are presenting force measurement with values with three decimal places! Without explanation how the student get them from the charts showing that the force was not constant! What kind of reading method was used is not explained.
The work is missing the explanation why the coolant was not used.
If the values are so changing, what should be the real value? Comparison of any kind with the theoretical value is missing.

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

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

Typographical level of the thesis is quite good. Format level is on average level including some mistakes or not well described or presented facts. The picture description is sometimes not precise, sometimes confusing. i.e. the description

of pic 54 and 55 and 61 and 62 is way too long and yet not correct. There is not "pocket milling" on picture but there is "Force measurement record during pocket milling"
Force measurement records must be evaluated using some graphical method. Like middle value on interval, Average value from selected points. In this thesis there is no explanation just table of values. Values are presented with three decimal places even if they are changing so much.
Titles on 3rd level are missing empty space after numbering.
The Czech abstract is actually so bad translated that it is not understandable.

Selection of sources, citation correctness **B - very 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.

The thesis presents 64! sources. Some of them have very limited connection to thesis topic but some of them show coincidence with the thesis topic. Bibliographic citations are not made according the standard ISO 690 but seems to follow some other standard. Use of a better standard will help to easily read the data. This style is not mentioning author's name (just surname) not showing difference between names and title. Also the date of quotation is not clearly defined (i.e. source 1)

Additional commentary and evaluation

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

Summarize thesis aspects that swayed your final evaluation.

The thesis is on one hand wide description of machining and the theory behind the machining especially milling. But on the other hand this theory is not used to explain the measured experimental results. The conclusion is just giving some ideas about what have happened in the experiment, not supporting it with some numbers, calculations etc. Student shows that he is able to find information and data (wide theory, lots of citation sources) and to work alone with this material.

But the process of getting from measured data to results and support it with some documented explanation is not adequate. It is obvious that time was missing in the final part to finish the thesis with a distant view and revision.

Still the thesis presents a completed process and its documentation. It can serve as a basic step for further research in this area and as a source for planning of experiments using CAM and dynamometer in field of milling.

I recommend this thesis to defense.

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

Date: **16.8.2019** Signature: