THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**CFD MODELLING AND SIMULATION OF A CENTRIFUGAL FAN**
Author's name:	**Tao JIANG**
Type of thesis :	master
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of Environmental Engineering
Thesis supervisor:	Martin Barták, Ing., Ph.D.
Supervisor's department:	Department of Environmental Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **ordinarily challenging**

How demanding was the assigned project?

The level of difficulty and complexity of the assignment is appropriate for a Master degree candidate at the Faculty of Mechanical Engineering at CTU in Prague. The student had to adapt the fan geometry obtained from the manufacturer, generate a numerical mesh and perform CFD simulations using the Multiple Reference Frame method which is available in ANSYS Fluent software. All the solution tasks could be achieved based on standard methods as described in study courses or in the software documentation and tutorials. The main difficulty of the project was that the grid generation and simulations were time demanding.

Fulfilment of assignment **fulfilled**

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 task was to create a CFD model of the ALTEKO RFE-200L radial fan and to generate the fan performance characteristics (p-V characteristics) using CFD simulations in Fluent. The thesis assignment was fulfilled.

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

Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.

The student was quite active and hard working. However he has shown only a slow progress in some phases of the project. His independence was limited and he needed quite some support from me and from the co-supervisor Dr. Zelenský.

Technical level **D - satisfactory.**

Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?

The thesis is technically sound, although the results analysis and discussion could have been much more detailed. Unfortunately this was beyond the student's skills (theoretical or language, or maybe both). The student ability to synthesize the pieces of knowledge gained during his studies and to apply this knowledge in the solution process was limited.

Formal level 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 thesis contains 50 pages including tables and figures. The thesis structure is organized in a logical way. The student's original work is clearly separated from information acquired in literature. The student's English language skills were far from excellent. Some parts of the thesis text would not be clearly presented without major revisions. Due to the level of English language, the student had also difficulties when analyzing and interpreting the simulated outputs.

III. OVERALL EVALUATION, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading.

The thesis contains original results obtained by the Master degree candidate. Mr. Jiang proved that he can implement the knowledge gained in the study program as well as to gain new skills by self-learning, although in a limited measure. His ability to solve independently engineering problems and to make relevant conclusions about the obtained results is also limited. In general, the thesis fulfills the criteria for the Master degree in Mechanical Engineering at CTU in Prague.

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

Date: **16.8.2021** Signature: