

I. IDENTIFICATION DATA

Thesis title:	Experimental and CFD analysis of feed pellets in fish tank
Author's name:	Ahsanulnas Miardi
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of Process Engineering
Thesis reviewer:	Ing. Štěpán Papáček, Ph.D.
Reviewer's department:	Jihočeská univerzita v Č. Budějovicích, FROV, Ústav komplexních systémů

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment <i>How demanding was the assigned project?</i>	ordinarily challenging
This work takes advantage of previous works on the similar topic related to CFD analysis of fish tanks, the first was made by Ing. Hanák J. (2016) and the last one by Ing. Ipek M. (2019).	

Fulfilment of assignment <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>	fulfilled
This work follows well prepared guidelines.	

Methodology <i>Comment on the correctness of the approach and/or the solution methods.</i>	correct
The CFD simulations (the methods used for CFD analysis) were well explained in the previous works (Hanák 2016, Ipek 2019), thus, Mr. Miardi took the same approach. The new concept, concerning the experimental feed pellets characterization, was introduced, although it needs further enhancement. Finally, both CFD-DPM modelling and simulation was presented.	

Technical level <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 - very good.
The thesis, mainly its structure, looks very well. The motivation for such a work is well explained, number of references is adequate (among them, one journal paper is describing recirculating aquaculture systems: Lika et al, 2015). The critical evaluation of simulated results (flow field quantities, mainly pellets distribution), was out of the scope of this thesis.	

Formal and language level, scope of thesis <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 - very good.
The level is high, but not equally high along this thesis, e.g. the chapter VI. Conclusion should be written with more attention. Last comment: on page 8, there is written ...three techniques... while 4 cases are listed afterwatrds.	

Selection of sources, citation correctness <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 - very good.
Citation ethics: This rather delicate point, i.e. how clearly are distinguished the propre results from that taken from the literature (or supervisor), is not entirely well treated, e.g. all author's predecosors are not cited.	

Additional commentary and evaluation (optional)
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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. Pose questions that should be answered during the presentation and defense of the student's work.

The thesis, mainly its structure, looks very well. However, this is not the first work on fish tanks, but the continuation or extension of previous works, all successfully defended in this Department of Process Engineering (starting in 2016 by Ing. Jaroslav Hanák). This work makes one step ahead, performing an experimental characterization of two feed pellets samples and afterwards employing CFD-DPM simulation. The discussion about the feed pellets optimization is a complex problem deserving further work. However, the first step has been made.

Questions:

1. The tables 4 and 5 nicely show the variability of feed particles (pellets) properties. Could you explain why you did not evaluate this variability numerically (e.g. calculating the standard deviation of respective quantities)?
2. Knowing the variability of the particle effective density, could you explain how should differ the methodology of CFD-DPM simulations?
3. Having the numerical results of CFD-DPM simulations for feed pellets with varying effective density (described as a distribution), could you propose how these results could be visualized (plotted)?

The grade that I award for the thesis is **B - very good**.

Date: **27.1.2020**

Signature: