



## Review of Doctoral Thesis

<b>1. PhD candidate</b>
Houssam Mahmoud / mahmoud@fme.vutbr.cz
<b>2. Name of PhD programme</b>
Design and Process Engineering
<b>3. Title of PhD thesis</b>
Diagnosis of Pneumatic Cylinders Using Acoustic Emission Methods
<b>4. Principal supervisor</b>
doc. Ing. Pavel Mazal, CSc. / mazal@fme.vutbr.cz
<b>5. Co-supervisor</b>
doc. Ing. Michal Černý, CSc. / michalc@mendelu.cz
<b>6. Reviewer</b>
Dr. Serge Dos Santos / serge.dossantos@insa-cvl.fr
INSA Centre Val de Loire
<b>7. Overview of the scope of PhD thesis<sup>1</sup></b>
<b>Good</b>
The scope of the thesis is presented in a good way. The thesis intends to progress beyond the state of the art by developing suitable techniques and technology solutions for investigating the possibilities of implementing AE system for pneumatic cylinder leakages detection. The concept of the development of innovative techniques and models for use in the AE community is very positive and has the potential to improve leakage detection in pneumatic cylinders.
<b>8. Significance of the topic and clarity of problem statement</b>
<b>Satisfactory</b>
Significance of the topic and clarity of problem statement are presented in a satisfactory way.
<b>9. Knowledge of existing literature</b>
<b>Satisfactory</b>

<sup>1</sup> Overview of the scope of PhD thesis is a short description of objectives of PhD thesis's research and summary of main findings and scientific achievements.



Existing literature has been taken into account in a satisfactory way.

**10. Choice of methods and technical soundness**

**Very good**

Choice of methods and technical soundness have been oriented in a very good way. Signal processing methods used were relevant and produced results perfectly adapted to pneumatic cylinder leakages detection. The choice of methods addresses crucial research question and knowledge gap, and has a significant impact for testing leakage. The technical ideas are original and innovative, competitive and cutting-edge nationally. The proposed solution is scientifically motivated, the hypotheses and research objectives are very well addressed.

**11. Quality, originality and significance of the results**

**Excellent**

**Quality, originality and significance of results are excellent**

**12. Quality of attached papers**

**Good**

Attached papers quality is good since they have been published in several conference proceedings (13) (5 international and 8 national) where Mr MAHMOUD is the first author for 8 conference proceedings. Results of the PhD thesis have been published in one (1) impacted journal where Mr MAHMOUD is the first author. Two other papers are under review.

**13. Overall assessment, strengths and weaknesses (based upon the above evaluation categories 8–12)**

**Very good**

Overall assessment, strength and weakness of the Thesis is very good.

**14. Questions and comments**


**15. Conclusion**

PhD thesis is an independent scientific work that presents a novel solution to a significant problem in the research area and demonstrates the candidate's ability to conduct independent research.

YES

**16. Date and signature**



30/06/2019	
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Please note

- A. Evaluate categories 7 to 13 using the following scale: unacceptable, acceptable, satisfactory, good, very good, excellent. The qualification of 'excellent' should only be given for a PhD Thesis in the top 3% of the research in your field of expertise.
- B. E-mail the completed form to: [Klara.Javorcekova@vut.cz](mailto:Klara.Javorcekova@vut.cz)