



## THESIS EVALUATION OPPONENT EVALUATION

Author name: Pavan Lakkamaneni Madhusudhana Rao

Thesis title: The controller for the temperature chamber with Peltier cell

Opponent: Ing. Josef Petřivalský

Opponent workplace: ESY Liberec s.r.o.

A. Abstract quality, keywords matching.....	Excellent (1)
B. Research scope and processing .....	Excellent (1)
C. Level of theoretical part .....	Excellent (1)
D. Appropriateness of the methods .....	Excellent minus (1-)
E. Results elaboration and discussion .....	Excellent minus (1-)
F. Students own contribution .....	Excellent minus (1-)
G. The conclusion statement.....	Excellent (1)
H. Fulfilment of Thesis tasks (goals) .....	Fulfilled
I. Structure, correctness and fulness of references .....	Excellent minus (1-)
J. Typographical and language level.....	Very good (2)
K. Formal quality..... (text structure, chapters order, clarity of illustrations)	Excellent minus (1-)

Comments, remarks:

... continue on page 2



Overall assessment:

The work is easy to understand and I was very pleased with the content, especially the step-by-step explanation of the history of the discovery of the thermoelectric phenomenon up to the development of the printed circuit board and the program. The second part of the overview of thermoelectric controllers down to the ideology and how to control via ESP32 and Arduino Uno is clear and versatile. In the thesis I discovered minor errors e.g. inappropriately divided words, incorrect prefix unit. The main results were expected and satisfying.

Questions for the defense:

1. How would you improve your program/algorithm?
2. Have you considered implement autotuning to obtain the variables to the PID equation (regulator)?
3. If you were to continue this topic, what would you improve considering the lessons learned from this project?

**Overall classification and recommendation:**

Work meets the Master degree requirements and therefore I recommend it for the defense  
I suggest to classify this work by grade: Excellent minus (1-)

By signing I certify that I am not in any personal relationship with the author of the thesis

In Liberec

date 17.01.2024

Opponent signature