

A diploma thesis review

Author: Thinesh Kumar Jayakumar

Reviewer: Ing. Pavel Hájek

Topic name: Testing of FLM 3D Printer

The diploma thesis deals with a performance of a 3D printer, testing various thermoplastic materials and finding the most suitable printing parameters for tested materials.

The diploma thesis evaluation

The theoretical part is focused on a description of additive manufacturing systems, their advantages and disadvantages. Author introduces various methods for a 3D print. This part of the thesis describes solved problem sufficiently and clearly. Author proved good orientation in the solved area. However, the theoretical part seems to be “over-chaptered” (too many chapters).

The experimental part of the thesis describes selected 3D printer, materials used for testing and their properties, advantages and disadvantages due to 3D printing. Author also solves some problem occurred during do a test on the 3D printer. The experiment is described in detail step by step. The main point of the experiment is based on changing the printing parameters for obtaining the best result. Result of every experiment is a printed model. There is a performance of several models printed from each tested material what is a good point in the thesis. Here author evaluated if a result correspond to his expectation. However, I do not know what his expectation means?! It is poor explanation say only *It is OK or not*. I suppose that author used a subjective evaluation. Moreover, author does not define which tested material is the most suitable for 3D printing on the selected printer.

A figure and table numbers are missing in text. Units of parameters are missing in a table on page 57 (author does not numbered the table). The reference style is a little bit chaotic.

Comments to author:

1. Please, explain more details about *the new printing head*.
2. Could you clarify how did you do a quality evaluation of the results? Does any standard, etalon or method exist for assessment of a print quality? How did you compare the results between each other?
3. Which from tested materials would you recommend as the most suitable for 3D printing on the printer? And opposite, which one you would not recommend for printing according to obtained results?

The diploma thesis has done all the rules of elaboration. The thesis fulfils requirements for a successful graduation. I recommend the thesis for a defense and grade as

„ very good “

28th of May 2018, Liberec

A handwritten signature in black ink, appearing to be 'Pavel Hájek', written in a cursive style.

Pavel Hájek
reviewer