

Supervisor evaluation of the master thesis

The title of the master: **Analysis of boundary conditions of ground heat exchangers**

Author of the master thesis: **Bc. Skarleta Floreková**

Supervisor of the master thesis: **Prof. Ing. Jiří Hirš, CSc.**

The master thesis description:

In accordance with the assignment of the master thesis, the student prepared an analysis of boundary conditions and the main factors affecting the design and heat transfer of a horizontal ground exchanger using geothermal energy. Numerical analysis was focused on study of dynamic processes of horizontal ground heat exchanger and saturated subsoil under the constant boundary temperature condition of the ground, dynamic process of ground heat exchanger and saturated subsoil under the inconstant temperature boundary condition and analysis to assessments the exchanger operation with possibility of groundwater flow in the same layers. A basic analysis of heat pumps needed for a correct analysis of the operation of the ground heat exchanger was performed. The theoretical solution was applied to real subsoil conditions in the locality of geothermal spa in Slovakia. Based on the solution in the diploma thesis, the dependencies of selected parameters, partial conclusions and overall conclusions were determined.

Evaluation of student work:

	Excellent	Very good	Good	Unsatisfactory
1. Level of elaboration of the solved topic	☒	☐	☐	☐
2. The author's approach when processing work	☒	☐	☐	☐
3. Use of professional literature and work with it	☒	☐	☐	☐
4. Formal, graphic and linguistic quality of work	☒	☐	☐	☐
5. Meeting the requirements of the assigned work	☒	☐	☐	☐

Overall assessment and conclusion:

During the elaboration of the topic of the diploma thesis, the student demonstrated very good theoretical knowledge, independence of own analysis, creative activities using the simulation

software COMSOL Multiphysics and the ability to apply the acquired knowledge to solve assigned tasks. I recommend accepting the diploma thesis for defense.

Classification according to ECTS: **A / 1**

Date: January 25, 2021

Signature of the supervisor: