THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Review of Methods for District Heating Modelling and Assessment**
Author's name:	**Karim K. A. Mahmoud Taha**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Dept. Environmental Engineering
Thesis reviewer:	Vojtěch Zavřel
Reviewer's department:	Dept. Environmental Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**ordinarily challenging**
How demanding was the assigned project?	

Please insert your comments here.

Fulfilment of assignment	**fulfilled**
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.	

The assignment was fulfilled. Student provided satisfactory literature review focusing on simulation tools for modelling of district heating system.

Activity and independence when creating final thesis	**D - satisfactory.**
Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.	

The student interest and activity were gradually increasing during the project period. In the first period of the project the student was rather passive with limited progress. In the later period of the project, student demonstrated good level of independent research. The work was consulted on monthly and later bi-weekly basis. In general, the proactivity of the student was satisfactory during the project. The work was delivered on time in sufficient quality.

Technical level	**C - good.**
Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?	

Student clearly depicted trends in district heating transformation and summarized well the software tools. In addition, one of the key tools EnergyPlan was tested. However, more theoretical topics (e.g. modelling approaches) discussed in the thesis are not clearly explained. These parts lack proper information synthesis and reveal limited understanding of the advanced theory. To note, the understanding of the advance theory may be challenging for the student in the bachelor level of the study. The technical level is considered as good.

Formal level and language level, scope of thesis	**C - good.**
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?	

The thesis is organized and satisfies all formal requirements. The thesis is well written. However, some of the section lacks link with the core text of the review. The thesis contains some confusing definition of symbols for KPIs. The formal level is considered as good.

Selection of sources, citation correctness	B - very good.
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?	
The citation management is very good. Thesis is supported with numerous international academic literature sources. The student distinguished the original and earlier work in the field. The bibliographic citations meet the standards	

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.

The thesis reviewed several simulation tools, that may aid the future revitalization of district heating networks. The student provided good overview of the state of the art in the field of district heating modelling and planning. He summarized and categorized well the main simulation tools. However, some of the sections are not coherent with the core text and lacks proper information synthesis. Especially description of the advanced modelling approaches and KPIs is somewhat confusing.

To conclude, thesis represents a good quality research. The study offers useful overview of the available tools supported by numerous international literature sources.

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

Date: **27.1.2020**   Signature: