Tomas Bata University in Zlín
Faculty of Applied Informatics

OPPONENT´S EVALUATION OF THE DIPLOMA THESIS

Student: Joseph Soliman   **Opponent: prof. Ing. Jiří Hirš, CSc.**

Study program: **Engineering Informatics**
Study discipline: **Integrated Systems in Buildings**
Academic year: **2019/2020**

Thesis topic: **Design of lighting system control in buildings based on KNX**

Evaluation of the thesis:
Based on the study of the submitted diploma thesis, I performed the following evaluation according to the recommended criteria:

▪ The thoroughness of the elaboration, its validity and the difficulties resolved in the thesis
The student worked on a current topic in terms of one component of the quality of the indoor environment of buildings and energy efficiency. He elaborated the theoretical part for the solution of lighting, including the control system to the necessary extent, used the corresponding and valid regulations and the laws of physics and mathematics. To solve the topic, he chose a more difficult procedure using computer modeling and a real room.

▪ The method and level of the concepts resolved in the thesis
The solution procedure and methods used in the work correspond to the current trend and were chosen appropriately.

▪ The level of the student´s thesis topic and elaboration and its contribution(s)
During the elaboration of the topic of the diploma thesis, the student focused (in accordance with the assignment) on the study of lighting requirements while respecting day and artificial lighting, means for room lighting and the control system. He optimized the windows in terms of lighting, including blinds. He designed a system for artificial lighting and determined the parameters of a control system for controlling the operation of lighting. The benefits are the results of dynamic simulation of lighting and energy behavior and their practical use in design.

▪ The formal aspects of the thesis, errors and mistakes in the technical aspects
The thesis is elaborated clearly has a logical structure does not contain significant errors and technical defects.

▪ Questions relating to the defence of the thesis:

1. Have you considered the question of financial investment in the proposed system and savings during operation?
2. What change would occur if the blinds were placed on the inside of the windows? From the point of view of lighting and from the point of view of energy.
3. Did you have to deal with the collision of multiple requirements and the need to set priorities when designing the lighting control process?

- <u>Final evaluation of the overall quality of the submitted work and classification according to the evaluation scale</u>

The diploma thesis was prepared in accordance with the assignment. The formal and content page is at a very good level. The student has demonstrated knowledge and ability to solve a given topic.

Overall evaluation of the thesis:
The Opponent shall grant a mark according to the ECTS classification scale:
A – Excellent, B – Very Good, C – Good, D – Satisfactory, E – Sufficient, F – Insufficient
An "F" grade also means "I do not recommend the thesis for defence."

I recommend this thesis to be defended and suggest the following evaluation:

A - Excellent

In the case of an evaluation grade of "F – Insufficient", please supply the main shortages and reasons for this assessment.

Date: 1. 8. 2020   Thesis Opponent's Signature: