THESIS SUPERVISOR'S EVALUATION OF STUDENT

ÚSTAV TECHNIKY PROSTŘEDÍ
České vysoké učení technické v Praze
Fakulta strojní

Thesis title:	**Solar Irradiance Decomposition Using the Erbs Model**
Author:	**Nihal Muhammed KANNANARI**
Thesis type:	Bachelor
Faculty:	Faculty of Mechanical Engineering
Department:	Department of Environmental Engineering
Thesis supervisor:	Ing. Martin Barták, Ph.D.

The bachelor thesis "Solar Irradiance Decomposition Using the Erbs Model" submitted by Mr. Kannanari deals with the decomposition of global solar irradiance (or solar energy incident on a horizontal surface) into diffuse and direct components. The calculation model developed by Erbs et al. estimates the diffuse fraction from measured values of global irradiance. This model is based on the clearness index which compares actual radiation data with the extraterrestrial radiation. The thesis topic represents an appropriate challenge for a bachelor student in terms of theoretical difficulty and demand on technical skills.

The main task for Mr. Kannanari was to get familiar with the solar energy calculation principles and to implement the Erbs model into a spreadsheet processor. MS Excel was used to process the measured solar data from the year 2007, kindly made available by dr. Jirka from ENKI, o.p.s. Třeboň.

The student worked on his thesis project with a reasonable interest and effort. He showed the ability to find and learn MS Excel tools which were necessary for his tasks. He had to work with a data-file of more than 35000 records (whole-year solar data measured in 15-minute intervals). On the other hand, Mr. Kannanari had problems in understanding some concepts of solar energy calculations. I think that he was a bit negligent of details when he was studying the recommended literature. When writing up his thesis, he tended to be fast rather then conscientious.

In conclusion, Mr. Kannanari proved that he is able to implement the knowledge gained in the study program as well as to gain new skills by self-learning. He is able to solve engineering problems under appropriate supervision. I would have expected him to be more careful in literature reading and more conscientious in thesis writing. In my opinion, the thesis fulfills the criteria for the Bachelor degree in Mechanical Engineering at CTU in Prague.

I suggest the overall evaluation grade for the thesis as **C (good)**.

Date: 6th August 2020   Signature: …………………………………….
Ing. Martin Barták, Ph.D.