THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Implementation of Industry 4.0**
Author's name:	**Karunanayakage Saradha Tharusha De Silva**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Department of Instrumentation and Control Engineering
Thesis reviewer:	Ing. Tomáš Kellner
Reviewer's department:	Department of Machining, Process Planning and Metrology

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

How demanding was the assigned project?

The topic of the thesis was quite broad and therefore, it was quite hard to grasp properly. To solve the goals in the thesis, student needed to analyze the company and the process, which are different from normal company, for example Machining company.

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 completely fulfilled in all points.

Activity and independence when creating final thesis **B - very good.**

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.

Student worked independently and after frequent meeting sessions was able to correctly incorporate the changes. Only downside was, that sometimes between the sessions, there were bigger time gaps – student could have worked more consistently.

Technical level **A - excellent.**

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?

From the beginning, student worked very well with the topic and literature, even if his initial knowledge of the topic was very low. Through self study he was able to overcome this knowledge gap and to come up with his own ideas of the optimization designs in different parts of the production in the company. For the analysis and design he used appropriate tools and chain of though which leads to very good technical level of the thesis, for a bachelor thesis definitely.

Formal level and language level, scope of thesis **A - excellent.**

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 structure of the thesis is logically build, with meaningful chapters and text. The language in the thesis is on very good level. The length of the thesis is big for bachelor thesis, it could be magister's thesis based on the length and data itself. The thesis has all the formal properties, that it should have.

Selection of sources, citation correctness **A - excellent.**

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?

In the thesis, student uses almost 40 literature sources, mainly of very good quality. For bachelor's thesis it is more then enough. The literature references are correctly used in the thesis, following the ISO 690 standard. It is very clear, which text is citation and which is the author's text.

Additional commentary and evaluation (optional)

Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

Please insert your comments here.

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 goal of the bachelor's thesis was to design optimization in company in such way, that in the future, the production system of the company could be automatic in terms of self-regulation, which is the main idea behind Industry 4.0 concept. The company produces refractory materials, therefore the production system is different then usual and with different challenges. To propose the optimization design, student had to do complex analysis of current state of the company. Based on the analysis, student was able to apply the data from the analysis and his own knowledge accompanied with logic thinking on the optimization design. Because of that, the design is reasonable from technical and economical point of view, especially in regard of the current state of the company. The design does not depict the end state of automatic company (Smart Factory), but more importantly, it discusses some of the biggest problems in the company right now, that prevents the future growth of the company on the field of automation, quality and production. The worked that student did on the thesis was logic, thorough and based on the data he had at the time of completion. This topic can be solved further in the future in form of research or magister's thesis.

Based on the summary of all the facts written above, I evaluate the thesis with best grade.

The grade that I award for the thesis is **A - excellent.**

Date: **17.1.2022** Signature: