REVIEWER'S OPINION OF FINAL THESIS

I. IDENTIFICATION DATA

Thesis name:	**Simulation Model of Customer Center**
Author's name:	**Bc. Ozgun Saydanoglu**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Circuit Theory
Thesis reviewer:	Ing. Ewa Jareš, Ph.D.
Reviewer's department:	HEWLETT-PACKARD, s.r.o.

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

Evaluation of thesis difficulty of assignment.

The assignment of this thesis, in my opinion, is above ordinary challenging. The aim of this paper was to create a complete simulation model for call center. Another goal was to analyze how key parameters of the call center affect Grade of service.
My review of this paper is led by the fact that Queueing Theory is relatively important for telecommunication networks, but in practice it is not frequently used. Few understand it in details and therefore Queueing Theory is not popular. Studying and working with Queueing Theory is not common and deserves better assessment.

Satisfaction of assignment **fulfilled**

Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.

The assignment of the diploma thesis was fulfilled. Student created simulation model of call center in simulation environment OMNET ++. In the next step he verified the functionality of the created model. The student compared the calculated results with the results of a known analytical model. Later student created the simulation scenarios, performed the calculations and discussed the results.

Method of conception **outstanding**

Assess that student has chosen correct approach or solution methods.

From the above assessment in the Satisfaction of assignment section, it is clear that the chosen workflow of solution method was correct. Part of the thesis is also verification of correct function of the model.

Technical level **B - very good.**

Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.

Student, while fulfilling the goals of the thesis, has demonstrated the abilities that correspond with the level of the thesis. The critique of the work is shown below.

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

Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.

Formal level is correct. It would be recommended to proofread the paper, as English language is not the native language of the student. The scope of work is accurate. The thesis does not contain repetition of the known theory, but only original text of the assignment's solution.

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Selection of sources, citation correctness **B - very good.**

Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.

In my opinion, the student used appropriate resources and followed the citation rules.

Additional commentary and evaluation

Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.

It would be appropriate to proofread the text of the paper again. There are mistakes in the text, probably due to the missing time to proofread it. For example, in all CDF graphs an unsuitable "matplotlib" feature should be corrected, footnote no. 1, page 29.

Additional comments:
1) Page 13, picture 3.2, left scheme.
Outgoing call or email can end up in 'Stored in outbound queue'. Are calls or emails accumulating in 'Stored in outbound queue'? Or they are further processed? Correct/explain this, please.

2) Again picture 3.2, right scheme.
Why on the scheme there are two 'Any idle agent' blocks? Are those two independent agent groups? Correct/explain this, please.

3) Equation 3.18, page 20. The equation is not complete. Correct it, please.

4) Page 45, under picture 4.24 there is a sentence: 'Figure 4.24 shows that there is a 119.2 percent decrease in the...'. Was the decrease in range of 119,2% real? Correct/explain it, please.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Questions for discussion:

1) Please comment the above 4 errors during the exam discussion.

2) You performed a simulation with increasing number of agents in first group S_1 (chapter 4.4). Perform a comparison with the simulation, where the number of agents in the S_3 group would change. Are increasing agents in S_3 group better for call center?

I evaluate handed thesis with classification grade **B - very good.**

Date: **3.6.2019** Signature: