

## I. IDENTIFICATION DATA

|                               |  |
|-------------------------------|--|
| <b>Thesis title:</b>          | <b>Protection of driving corridor with respect of various road conditions</b>                                    |
| <b>Author's name:</b>         | <b>Bohdan Kashel</b>   |
| <b>Type of thesis :</b>       | master   |
| <b>Faculty/Institute:</b>     | Faculty of Electrical Engineering (FEE)  |
| <b>Department:</b>            | Department of Control Engineering  |
| <b>Thesis reviewer:</b>       | Ing. MSc. Martin Klaučo, PhD.  |
| <b>Reviewer's department:</b> | Institute of Information Engineering, Automation, and Mathematics, Slovak University of Technology in Bratislava |

## II. EVALUATION OF INDIVIDUAL CRITERIA

|  |                    |
|--|--------------------|
| <b>Assignment</b>  | <b>challenging</b> |
| <i>How demanding was the assigned project?</i>   |                    |
| The particular tasks are challenging for a master level student, however, the concepts of application of MPC to control the cars behavior is a standard practice nowadays. |                    |

|   |                  |
|---|------------------|
| <b>Fulfilment of assignment</b>   | <b>fulfilled</b> |
| <i>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.</i> |                  |
| The student has addressed all tasks from the assignment in the thesis.  |                  |

|  |                |
|--|----------------|
| <b>Methodology</b>   | <b>correct</b> |
| <i>Comment on the correctness of the approach and/or the solution methods.</i>                           |                |
| The student chosen appropriate methods for constructing the control algorithms and optimization solvers. |                |

|   |                  |
|---|------------------|
| <b>Technical level</b>  | <b>C - good.</b> |
| <i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>  |                  |
| The thesis contains several illogical statements and paragraphs mainly resulting from directly writing down "train of thoughts", like in section 6.2. Presenting original plan with YALMIP and GUROBI that was immediately abandoned degrades the overall positive feeling from the document.<br>Student also uses symbols and terms in concrete statements, without proper prior definition. |                  |

|   |                  |
|---|------------------|
| <b>Formal and language level, scope of thesis</b>   | <b>C - good.</b> |
| <i>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?</i>   |                  |
| The student mixes present and past tense, passive and active voice, and writes the thesis in first person which is unusual for a scientific document. The thesis contains several misplaced and floating single figures on a blank page which just inflates the page count. On the other hand, I consider the document length in terms of content and scope adequate. |                  |

|   |                       |
|---|-----------------------|
| <b>Selection of sources, citation correctness</b>   | <b>A - excellent.</b> |
| <i>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?</i> |                       |
| The thesis contains suitable set of references, including top-level scientific papers and other practical publications. The student has included wide range of literary sources.  |                       |

**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.*

The thesis is full of many inconsistencies:

1. Somewhere referenced figure or equations labels are in parenthesis, and somewhere not.
2. Somewhere table caption is on the top of the table, somewhere not.
3. Some of the equations are not referenced nor explained in the text.
4. Units are often written as full text, but many times are written as abbreviations.

**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. Pose questions that should be answered during the presentation and defense of the student's work.*

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

I pose the following questions, which should be answered during the thesis's presentation and defense:

1. Is it possible to approximate the non-linear constraints by a convex hull or some other form of convexification procedure?
2. Is the approximation of IPG CarMaker simulator as a single track model viable? Was some sort of a comparison made?

Date: **22.8.2022**

Signature: