



**Czech Technical University in Prague, Faculty of Biomedical Engineering**  
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Study program „Biomedical and Clinical Technology“  
 Study branch „ Biomedical Engineering“

### OPPONENT REVIEW OF DIPLOMA THESIS (MASTER THESIS)

student: Ana Carolina DAngeles Mendes de Brito  
 with title: Design of Construction of Intelligent Orthosis

	Evaluation criteria of the thesis	Points
1.	<b>Fulfillment of the tasks and appropriateness of the structure of the thesis. (0 – 30)*</b> <i>Each part of the master thesis assignment has to be processed in the final thesis. The full amount of points can be given to the excellent processed thesis only. The points are reduced according to the individual tasks of assignment that were not adequately processed. The aims of the thesis have to be included in the introduction of the thesis.</i>	27
2.	<b>Theoretical level and the use of available literature in the thesis. (0 – 30)*</b> <i>Opponent evaluates the quality of the theoretical part of the thesis and its relationship to the thesis assignment and a systematic order of the presented knowledge. Opponent of the thesis decreases the point about 15 points in cases where the cited knowledge is presented word to word. Insufficient amount of the theoretical knowledge or cited literature in the thesis can be a reason for lower point evaluation.</i>	27
3.	<b>Range of experimental work (SW, HW) and applied knowledge. Quality of used methodology, and level of conclusions of the thesis. (0 – 30)*</b> <i>The maximum number of points can be given in cases where the results are supposed to be published or it can be used in concrete company. Opponent decreases evaluation about 5 points for insufficiencies in the methodology. Inconsistency of used methods with theoretical part or inconsistent methodology approach can be a reason for decreasing evaluation about 15 points. Further decrease of evaluation can be given for insufficient discussion. 30 point can be given for excellent thesis and further activities as participation on grant solution or writing a publication.</i>	9
4.	<b>Formalities and finish thesis (level writing, markings structure of the text, graphs, tables, citations in the text, bibliography, etc.). (0 – 10)*</b> <i>Opponent evaluates formal part of the thesis according to the rules of writing, i.e. text formatting, structure of the text, a list of references, quality of charts and tables and the method of citation. The total points can be reduced for noncompliance of the rules by the maximum of 2 points for each disrespect attribute. Presence of grammatical errors, improper terminology and improper stylistics is a reason for reduction of point about 2-4 point. Standard terminology should appear within the thesis only (ability to express the technical language - 2 points), graphs are formed according to the common principles (see tolerance and the influence of statistical processing - 2 points). Graphs and tables are described by appropriate legends and everything is legible (2 points) and literature is cited according ISO690 and ISO690-2 rules (2 point).</i>	28
5.	<b>Total points</b>	91

\* Further comments can be left of the back side of the evaluation

#### Questions for a defense

1.	Which criteria did you consider in sensor selection?
2.	Why did you choose selected drive, did you also consider another type of drives, such as Maxon disk drive or pneumatic muscles?



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**The overall assessment of the diploma thesis:**

<b>A (excellent)</b>	<b>B (very good)</b>	<b>C (good)</b>	<b>D (satisfactory)</b>	<b>E (sufficient)</b>	<b>F (failed)</b>
100-90 points	89-80 points	79-70 points	69-60 points	59-50 points	< 50 points
<b>X</b>	<input type="checkbox"/> **	<input type="checkbox"/> **	<input type="checkbox"/> **	<input type="checkbox"/> **	<input type="checkbox"/> **

\*\* - check the appropriate classification level, in the case of evaluation of F (fail), please provide detail comments

Diploma thesis was evaluated at classification level **A** mentioned above.

**Comments**

Presented work is on content and graphical part on a very high level. There are only several formal imperfections (e.g. some paragraph aren't evenly aligned).  
Basic search was executed with relevant research resources.  
The work describes in detail design concept of intelligent orthosis for upper limb. The accent is also put on a very precise movement and suitable sensor selection. Aluminium alloy was chosen as a structure material.  
Simulation of resulting design was realized in final part. The accent was put on mechanical solidity and kinematic structure. Perspective of future work is as well sketched.  
I can observe, that student fulfilled all desired aims.

Name and Surname incl. degrees: Ing. Marie Stará, Ph.D.

Signature:

Institution: Technical University of Liberec

Departments Glass Producing Machines and Robotics

Date: 12. 9. 2017

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