KTH Royal Institute of Technology
School of Architecture and the Built Environment
Division for Transport Planning

CERTIFICATE

I undersigned, Albania Nissan, member of teaching staff at the Division for Transport Planning at KTH Royal Institute of Technology, certify that the exchange student Alberto ROMERO LÓPEZ, coming from Universitat Politècnica de València, Spain, has developed an independent graduate project, equivalent for his home university to a master's degree project (master thesis), in the academic year 2019-2020.

The title of the thesis was:

Optimal operating strategies for first/last mile feeder services due to the arrival of automated vehicles
  - Case study: suburban areas around tunnelbana, pendeltåg and lokalbana corridors in Stockholm.

The project was accomplished with the academic guidance of Mr. Hugo Badia with independent and supervised study as a master thesis/degree project equivalent to 30 credits.

The degree project was presented orally in English on 03/06/2020 and assessed by a jury chaired by [Associate professor Albania Nissan, Associate professor Erik Jenelius, and research Engineer Anders Lindahl. The grade obtained is A.

For more information about the student's performance, please see attached certificate in next page.

Stockholm 01-07-2020

Associate professor Albania Nissan

KTH Royal Institute of Technology
School of Architecture and the Built Environment
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Stockholm 11-06-2020

Master thesis AH203X
<u>**Grades level**</u>
A= min 7,0 cr.
B= min 5,7 cr.
C= min 4,0 cr
D= min 2,3 cr.
E= min 1 cr.

<u>**Master thesis by:**</u> Alberto Romero López

<u>**Title in English:**</u>
Optimal operating strategies for first/last mile feeder services due to the arrival of automated vehicles (Case study: suburban areas around tunnelbana, pendeltåg and lokalbana corridors in Stockholm)

<u>Thesis grading</u>
The thesis was judged as Excelent (8 of 9) and graded with grade A.

Criteria of thesis assessment:

Process – 8 out of 9:
The student was enough independent in the development of this thesis. In front of the initial limitations of data and simulation tools, he was resolute in order to find and treat open data and to manage the extension of the simulation tool license for the analysis of demand responsive transport. He showed enough skills to work with different approaches. He initially faced the study by analytical models and later using a simulation tool.

Content – 8 out of 9:
The final document is well organized and clearly written and consequently it is easy to read. The student provides a systematic way for the analysis of the implementation of last-mile solutions for public transport systems and how it should be operated. The thesis compares two operating strategies: fixed routes or door-to-door trips. In my opinion, the main limitation would be a deeper comparison between the analytical and

simulation results, trying to identify the main differences between both approaches with regard to the results obtained.

Presentation – 8 out of 9:
Clear presentation where the student summarized the main aspects of his work. In general, the comments from the examiners and the audience were positive. Although I missed a discussion about the different results obtained by the two approaches. However, it was appreciated the effort of the student to face the same problem by means of two different methodologies.

Examinar- KTH: Associate professor Erik Jenelius
Supervisor- KTH: PhD. Hugo Badia Rodriguez
Responsible for degree project: Associate profesor Albania Nissan

Associate profesor Albania Nissan