Budapest University of Technology and Economics

Faculty of Mechanical Engineering

Department of Fluid Mechanics

http://www.ara.bme.hu/

FINAL PROJECT ASSIGNMENT

Publicly Available

Identification

Name: **Hou Jianfeng**		ID: **73361107658**	
Code of the Curriculum: 2NAMW0	Specialisation:		Document ref. number:
Curriculum: Master Program in Mechanical Engineering Modelling	2NAMW0-FM		GEÁT:2021-T:2NAMW0:UT7TF8
Final Project issued by: Department of Fluid Mechanics	Final exam organised by: Department of Fluid Mechanics		
Supervisor: Dr. Márton Balczó (72492387511), senior lecturer			

Project Description

Title

Wind tunnel measurement of drag force on railway catenary masts

Vasúti felsővezeték oszlopok légellenállásának szélcsatorna mérése

Details

The wind force acting on railway overhead line support masts has to be determined in a running project of the Department.

The precise determination of wind loads is necessary to ensure a safe railway operation but also can lead to savings in the construction of new electrified railway lines of the Hungarian State Railways MÁV.

While several guidelines and some earlier wind tunnel measurements exist, the drag coefficient of the 2D lattice-style overhead line mast type 'T' was not measured accurately and has to be determined in the wind tunnel.

The tasks include:

1. Review of English literature on drag force on beams and lattice structures

2. Calculate drag force on the 'T' type catenary masts based on existing literature

3. Participation in the full scale measurement

4. Analysis of full scale measurement data including:

5. Comparison to literature

6. Investigation of the effect of flow angle and solidity ratio

7. Summarize the work in the required document format of the MSc Thesis.

Advisor

Advisor's Affiliation:

Advisor: —

Final Exam

1st subject (group)	2nd subject (group)	3rd subject (group)	4th subject (group)
ZVEGEÁTMW02 Computational Fluid Dynamics	**ZVEGEÁTMW03** Flow Measurements	**ZVEGEÁTMW08** Building Aerodynamics	**ZVEGEVGMW06** Hemodynamics

Authentication

Handed out: 8 February 2021		Deadline: 14 May 2021
Compiled by: Dr. Márton Balczó (72492387511) Supervisor	Verified by: *Dr. János Vad* (signed) Head of Department	Approved by: *Dr. Péter Bihari* (signed) Vice-Dean

The undersigned declares that all prerequisites of the Final Project have been fully accomplished. Otherwise, the present assignment for the Final Project is to be considered invalid.

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Hou Jianfeng