Budapest University of Technology and Economics
Faculty of Mechanical Engineering
Department of Fluid Mechanics
http://www.ara.bme.hu/

FINAL PROJECT ASSIGNMENT

CLASSIFIED

Identification

Name: **Gyöngyösi Mátyás**			ID: **79610944947**
Code of the Curriculum: 2N-MW0		Specialisation: 2N-MW0-FM	Document ref. number: GEÁT:2021-T:2N-MW0:AQFUG9
Curriculum: Master Program in Mechanical Engineering Modelling			
Final Project issued by: Department of Fluid Mechanics		Final exam organised by: Department of Fluid Mechanics	
Supervisor: Dr. Csaba Horváth (71949162105), senior lecturer			

Project Description

Title	**Flow around finite wings: tip vortices, winglets and their investigation with CFD** Véges szárny körüli áramlás: szárnyvégi örvények, wingletek és ezek CFD vizsgálata
Details	1. Carry out a literature survey regarding CFD simulations, airfoils, variable geometric parameters of an airfoil and their influence on the flow, winglets, wing tip vortices, wind tunnels, wind tunnel measurements, measurement instrumentation. 2. Introduce and summarize the operation of the CFD simulations carried out in an earlier phase of the project, the goals and results! Show why and in what manner should the topic be further investigated. 3. Investigate and introduce the different methods for the CFD investigation of finite wings and wing tip devices – winglets. 4. Perform CFD simulations with which the wing tip vortices can be investigated in fine resolution. 5. Investigate the effects of various winglets regarding the flow field around the wing, the wing tip vortices and their effects on the finite wing's performance with the help of CFD simulations. 6. Draw conclusions from the evaluated investigations. Show how these simulations can be used in different applications and why might they be important to do so. 7. Summarize the work in the required document format of the MSc Thesis!
Advisor	Advisor's Affiliation: eCon Engineering Kft. 1116 Budapest, Kondorosi út 3. Advisor: Ákos HORVÁTH, CFD Teamleader

Final Exam

1st subject (group)	2nd subject (group)	3rd subject (group)	4th subject (group)
ZVEGEÁTNW02 Computational Fluid Dynamics	**ZVEGEÁTNW03** Fluid Mechanics Measurements	**ZVEGEÁTNW22** Aero-Elasticity	**ZVEGEVGNX27** Áramlások stabilitása

Authentication

Handed out: 8 February 2021		Deadline: 14 May 2021
Compiled by: Dr. Csaba Horváth (71949162105) 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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Gyöngyösi Mátyás