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## ASSIGNMENT

### MSc THESIS (FINAL PROJECT BMEGEÁTMWD2)

Title:	<b>Large Eddy Simulation of a swept wing</b>								
Author's name (code):	<b>Márton NAGY (I08CDU)</b>								
Curriculum:	MSc in Mechanical Engineering Modelling / spec. Fluid Mechanics								
Curriculum's code:	2N-MW0-FM								
Supervisor's name, title:	László NAGY, assistant research fellow								
Affiliation, address:	Department of Fluid Mechanics / BME H-1111 Budapest, Bertalan L. 4-6., "AE" bld.								
Advisor's name, title:	-								
Affiliation, address:	-								
Handed out / Deadline:	<b>8<sup>th</sup> of September 2014. / 12<sup>th</sup> of December 2014.</b>								
Curriculum subjects (code), credits:	<table><tr><td>1. Flow Measurements</td><td>(BMEGEÁTMW03), 5 cr</td></tr><tr><td>2. Computational Fluid Dynamics</td><td>(BMEGEÁTMW02), 5 cr</td></tr><tr><td>3. Aerodynamics and its Appl. Vehicles</td><td>(BMEGEATMW19), 3 cr</td></tr><tr><td>4. Open Source Comp. Fluid Dynamics</td><td>(BMEGEÁTMW11), 3 cr</td></tr></table>	1. Flow Measurements	(BMEGEÁTMW03), 5 cr	2. Computational Fluid Dynamics	(BMEGEÁTMW02), 5 cr	3. Aerodynamics and its Appl. Vehicles	(BMEGEATMW19), 3 cr	4. Open Source Comp. Fluid Dynamics	(BMEGEÁTMW11), 3 cr
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Title of the Major Project (BMEGEÁTMWD1):	<b>Large Eddy Simulation of a swept wing</b>								
Description / refinement of the Major Project (BMEGEÁTMWD1):	<ol style="list-style-type: none"><li>1. Research the previous studies carried out at the Department and supplement it with literature from the research on swept wings.</li><li>2. Familiarization with the OpenFOAM software and creation of scripts for the swept wing case.</li><li>3. Create the 3D mesh of the swept wing and conduct RANS runs on it. Preparation for the LES runs.</li><li>4. Conduct a mesh independence study using the RANS model on the Department's cluster.</li><li>5. Create a report with the acquired literature and results.</li></ol>								
Description of the Final Project (BMEGEÁTMWD2):	<ol style="list-style-type: none"><li>1. Conduct a mesh independence study using the LES model on the department cluster.</li><li>2. Reduce the computational domain size using the hybrid-zonal method.</li><li>3. Investigate the simulation behaviour and results at different wing sweep angles.</li><li>4. Check the dependence of the flow structures on the span-wise size and resolution of the mesh.</li><li>5. Summarize the results in the appropriate format requirements and make a brief summary in English and in Hungarian.</li></ol>								



Budapest, 8<sup>th</sup> of September 2014.

(L.S.)

.....  
supervisor

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Dr. János VAD, full professor  
Head of Department

Approved by:  
Budapest, 8<sup>th</sup> of September 2014.

(L.S.)

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Dr. Tibor CZIGÁNY  
Dean of Faculty

Received by:  
Budapest, 8<sup>th</sup> of September 2014.

The undersigned declares that all prerequisite subjects of the Final Project have been fully accomplished. Otherwise, the present assignment for the MSc Thesis and the subject's registration for BMEGEÁTMWD2 are considered to be invalid.

.....  
student

<b>Supervisor's declaration of acceptance:</b>	The submitted MSc Thesis fulfils all requirements of the Department of Fluid Mechanics, Budapest University of Technology and Economics. The MSc Thesis is accepted for review process and public defence.
<b>Supervisor's proposal for final grade of the MSc Thesis:</b>	<div style="border: 1px solid black; padding: 5px; text-align: center;">                     The proposed final grade* of the MSc Thesis:                      .....                 </div> <p>* Please, select one: excellent (5), good (4), medium (3), acceptable (2), fail (1)</p>
<b>Date:</b>	Budapest, 12 <sup>th</sup> of December 2014.
<b>Name / Signature:</b>	..... supervisor

<b>Reviewer's proposal for final grade of the MSc Thesis:</b>	<div style="border: 1px solid black; padding: 5px; text-align: center;">                     The proposed final grade* of the MSc Thesis:                      .....                 </div> <p>* Please, select one: excellent (5), good (4), medium (3), acceptable (2), fail (1)</p>
<b>Date:</b>	
<b>Name / Signature:</b>	..... reviewer

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