

ASSIGNMENT

MSc MAJOR PROJECT (BMEGEÁTMWD1)

Title: **Numerical modeling of turbulent flows using Large Eddy Simulation (LES), development of meshing methods**

Author's name (code): **Péter FÜLE (L10TQE)**
Curriculum: MSc in Mechanical Engineering Modelling / Fluid Mechanics
Curriculum's code: 2N-MW0-FM

Supervisor's name, title: **Zoltán HERNÁDI, PhD student**
Affiliation, address: Department of Fluid Mechanics / BME
H-1111 Budapest, Bertalan L. 4-6.

Advisor's name, title: -
Affiliation, address: -

Description / tasks of the project:

1. Literature survey on turbulence modelling, Large Eddy Simulation (LES), fully developed channel flow and existing research in relevant journals.
2. Implement Large Eddy Simulation of turbulent channel flow in OpenFOAM. Perform mesh dependency study and validate to DNS database.
3. Develop new meshing technique in order to maintain computational costs for reasonable accuracy. Investigate locally refined meshes.
4. Summarize results and make conclusions about advisable meshing technique parameters in case of locally refined mesh.
5. If possible, investigate further implications regarding turbulence modelling or passive scalar transport (e.g. heat transfer).

Handed out / Deadline: **11th of February 2013. / 17th of May 2013.**
Budapest, 11th of February 2013.

(L.S.)

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supervisor

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Dr. János VAD, associate professor
Head of Department

Received by:
Budapest, 11th of February 2013.

The undersigned declares that all prerequisite subjects of the Major Project have been fully accomplished. Otherwise, the present assignment for the Major Project and the subject's registration of BMEGEÁTMWD1 are considered to be invalid.

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student



Supervisor's declaration of acceptance:	The submitted Project Report fulfils all requirements of the Department of Fluid Mechanics, Budapest University of Technology and Economics.
Supervisor's proposal for final grade of the thesis:	<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"><p>The proposed final grade* of the Project Report:</p><p>.....</p></div> <p>* Please, select one: excellent (5), good (4), medium (3), acceptable (2), fail (1)</p>
Date:	Budapest, 17 th of May, 2013.
Name / Signature:	<p>.....</p> <p>supervisor</p>

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