

ASSIGNMENT

MSc MAJOR PROJECT (BMEGEÁTMWD1)

Title: **Phased array microphone measurement of a fan in an industrial environment.**

Author's name (code): **István KESZTE (RV9A83)**
Curriculum: MSc in Mechanical Engineering Modelling
Fluid Mechanics major + Solid Mechanics minor

Curriculum's code: 2N-MW0-FM; 2N-MW0-FM

Supervisor's name, title: Csaba HORVÁTH, assistant lecturer
Affiliation: Department of Fluid Mechanics / BME
H-1111 Budapest, Bertalan L. 4-6.

Advisor's name, title: Tamás BENEDEK, Ph.D. student
Affiliation: Department of Fluid Mechanics / BME
H-1111 Budapest, Bertalan L. 4-6.

Description / tasks of the project:

1. Review of the literature regarding phased array microphone technology, including beamforming algorithms.
2. Review of the literature, executed tests, and processed results regarding the already completed phased array microphone measurements and beamforming evaluations of the fan which is located in the wind tunnel of the Hungarian Institute of Agricultural Engineering (Gödöllő).
3. Review of the literature regarding the implementation of phased array microphone measurements in non-ideal industrial environments and for turbomachinery research, focusing on innovative and unique techniques and technologies for implementing the measurements as well as for processing the results. Emphasis should be placed on techniques which will improve the results attained on the previously mentioned fan, which are to be used for the validation of broadband noise source models implemented in the CFD analysis.
4. Completion of a SWOT analysis regarding the implementation of the techniques and technologies reviewed in 3.
5. Preparation and proposal of a plan regarding the methods which should be tested and then implemented in the measurement of the given fan. (Multiple approaches should be outlined.)
6. Preparation, execution, and evaluation of the tests outlined in 5. This task includes the design and manufacturing as well as testing of any support hardware which will be needed for the tests.
7. Preparation of a final measurement plan for the investigation of the previously mentioned fan.

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%;"> The proposed final grade* of the Project Report: </div> <p style="text-align: center; font-size: small;">* Please, select one: excellent (5), good (4), medium (3), acceptable (2), fail (1)</p>
Date:	Budapest, 17 th of May, 2013.
Name / Signature:	<p style="text-align: center;"> supervisor </p>

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