

## ASSIGNMENT

### MSc MAJOR PROJECT (BMEGEÁTMWD1)

Title: **Modelling of air dryer cartridge operation in air supply systems of commercial vehicles**

Author's name (code): **Balázs TÓTH (SOK0TT)**  
Curriculum : MSc in Mechanical Engineering Modelling / Fluid Mechanics

Supervisor's name, title: Dr. Gergely KRISTÓF, associate professor  
Affiliation: Department of Fluid Mechanics / BME

Supervisor's name, title: Gábor LICSKÓ, development engineer  
Affiliation: Knorr-Bremse Fékrendszerek Kft.

Description / tasks of the project:

1. Carry out a detailed literature review in the field of air treatment on commercial vehicles and the desiccant adsorption process in air dryer cartridges
2. Develop a simulation model in ANSYS Fluent that is able to describe the adsorption/desorption process qualitatively.
3. Develop a model in GT-Power that imitates the conditions at the previously prepared test-bench at Knorr-Bremse R&D Institute. Couple this model with the dryer cartridge model in Fluent.
4. Summarize the obtained results and suggest improvements for the regeneration strategy in actual air treatment systems.

Handed out / Deadline: **6<sup>th</sup> of February 2012. / 14<sup>th</sup> of May 2012.**  
Budapest, 6<sup>th</sup> of February 2012.

(L.S.)

Received by:  
Budapest, 6<sup>th</sup> of February 2012.

.....  
Dr. János VAD, associate professor  
Head of Department

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

.....  
student



<b>Supervisor's declaration of acceptance:</b>	The submitted Project Report fulfils all requirements of the Department of Fluid Mechanics, Budapest University of Technology and Economics.
<b>Supervisor's proposal for final grade of the thesis:</b>	<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;">                     The proposed final grade* of the Project Report:                       .....                 </div> <p>* Please, select one: excellent (5), good (4), medium (3), acceptable (2), fail (1)</p>
<b>Date:</b>	Budapest, 14th of May, 2012.
<b>Name / Signature:</b>	..... Dr. Gergely KRISTÓF supervisor

Copyright © Department of Fluid Mechanics 2012  
 Budapest University of Technology and Economics

*All rights reserved. No part of this publication may be reproduced without the written permission of the copyright owner.*

