

FLUID MECHANICS BMEGEÁTAG01, Semester 2010/2011/1

Information and requirements related to Fluid Mechanics measurements

- Venue: Department of Fluid Mechanics, Ae Building, Laboratory
 - At the first meeting, the students receive the safety instructions, and provide a signature acknowledging this. Students not providing a signature are not eligible for the measurements.
 - At the first meeting, the students are acquainted with the basic measuring principles and instrumentation.
 - At the first meeting, laboratory groups of 3 to 4 students are formed. Each student acts once as a Laboratory Leader. The Laboratory Leader is responsible for leading the group through the measurement, verifying his knowledge of the measurement to be made in an oral evaluation preceding the measurement and submitting a Report on the actual measurement. The other group members act as assistant personnel and are also expected to understand the measurement prior to beginning the measurement.
 - The basic aspect during the preparation of a Report should be that it has to include all information necessary for the **reproducibility of the measurement** and for the **verifiability of the calculations** used. The Report has to be prepared on **blank A4 paper** by computer.
1. The first page should be the properly filled out “Lab report cover”, which is downloadable from the webpage of the department (www.ara.bme.hu). **Without this, the Report is unacceptable.**
 2. The Report has to contain the aims of the measurement, and the summary of existing information pertaining to the measurement.
 3. The Report has to incorporate an illustration of the measurement which should contain:
 - The **actual** shape of the measurement setup /sketch of the facility/
 - All dimensions which are important for the measurement and the Report
 - Designations and information necessary for the overview of the system operation
 - Designation, type, and product number (if applicable) of the instruments and devices used, the density of the measuring fluid (e.g. alcohol in the manometers), etc.
 4. The Report has to provide a description of the measurement objectives, the equations used, and the explanations of the symbols used in the equations including the dimensional units.
 5. The Report has to enumerate all data which has to be measured or observed (e.g. room ambient temperature, barometric pressure, etc.).
 6. The Report has to present the collected measurement data and the results calculated from them in **tabular form**. The table header should state the letter symbol and the dimensional unit of a given column. The Report should include all the equations used for the calculations. It has to be clearly declared how all data was collected, or observed, and which equation(s) have been used for the calculation.
 7. All information necessary to understand the diagrams, has to be included (e.g. the letter symbols and the dimensional units on the axes, different markers for different data sets). The diagram type has to be selected carefully (typically “XY-type” charts on which

both the X and the Y axis is scaled). A diagram is acceptable only if prepared by computer on a blank paper, or by hand on a graphing (millimeter-scale) paper.

8. At the end of the Report, a short textual evaluation of the results should be provided, which should include the conclusions, remarks and suggestions gathered.
9. Annexes should be placed at the end (e.g. tables or charts used during the measurements, but **NOT** the measured or calculated data). In all instances, this should include the signed sheet on which the measured data was recorded.
10. Bibliography, if applicable, should be placed before the annexes.
11. Check the **final version** of the Report for typing or printing error, and to verify that the diagrams are still legible.

- Submission of laboratory report: one week after the measurement, Friday, 14.00, through the Poseidon network.
- Delayed submission of the Report results in the Laboratory Leader only receiving up to 50% of the deserved grade, except in the case of an officially justified health problem.
- The presence at the Laboratory measurement is obligatory, and no additional opportunity is provided for its execution, except in the case of officially justified health problems.
- Oral Evaluation: The oral evaluation preceding the lab will be deemed acceptable or unacceptable by the faculty member introducing the measurement. In the case of an acceptable evaluation, the group may continue with the measurement. In the case of an unacceptable evaluation, the group must repeat the measurement at a time which is given by the faculty member introducing the measurement.
- Report Evaluation: The reports will be deemed acceptable or unacceptable, with a percentage grade being given for the work which is submitted. In the case of an unacceptable report, which is submitted on time, the student has one chance to fix the report by Friday, 14.00, two weeks after the measurements were originally made. In the case that the measurement is deemed unacceptable, the measurement must be repeated at a time which is given by the faculty member introducing the measurement.
- Presentation: All students will be required to make PowerPoint presentations of the measurements they lead at the laboratory.
- Grades: The laboratory section of the subject is worth a total of 20 points. The grades will be determined based on the quality of the report and the presentation.

- Contact :

Horváth Csaba

horvath@ara.bme.hu

AE building, Ph.D. room

06-1-463-2546