Numerical Methods for Partial Differential Equations Introduction to laboratory lectures

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Installation of required software

1. Install the software required by the course as described at the following link: https://github.com/HPC-Courses/AMSC-Labs/blob/main/Labs/2025-26/00-environment_setup/README.md. The software is the same used in the courses "Numerical Linear Algebra" and "Advanced Methods for Scientific Computing", so if you already installed it for those courses you can move to the next step.
2. For Docker users only: make sure you read the section "Troubleshooting Docker issues" of the guide linked above.
3. Install the Paraview visualization software, downloading it from the official website (https://www.paraview.org/download/). Install Paraview on the host system (not inside the container or WSL).

Laboratory material

The material for the laboratories will be uploaded to this GitHub repository: https://github.com/michelebucelli/nmpde-labs-aa-25-26. The file 'README.md' in that repository describes its contents and organization.

Additional useful material

1. The documentation for `deal.II` v9.5.0: https://dealii.org/9.5.0/doxygen/deal.II/index.html.
2. `deal.II`'s tutorial collection: https://dealii.org/9.5.0/doxygen/deal.II/Tutorial.html. This page contains a very large collection of tutorials for the

deal.II library that we use in the course.

3. deal.II's video tutorials: https://www.math.colostate.edu/~bangerth/videos.html. This page lists a series of video lectures given by Prof. Wolfgang Bangerth of Colorado State University, founder and developer of deal.II.

4. A recorded seminar on how to use Paraview: https://polimi365-my.sharepoint.com/:v:/g/personal/10461512_polimi_it/EQIf-g1cYM1EiadfOKJGoAgBWo1EQfw8VVCpZ1dp4CvsJw?e=aFEzpt.

5. An introductory course to git: https://www.udemy.com/course/intro-to-git/.