Numerical software 1
Introduction

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Lecture 1

Introduction

- courses Numerical software 1 & 2
- lecture, each Monday at 10:40 (starting from October 5)
- tutorial, each Tuesday at 9:00 (starting from September 29)
- via ZOOM platform
- each registered student will receive the login instructions before each course, wait in the waiting room, please

Style of the lecture

- lecture notes are available at `msekce.karlin.mff.cuni.cz/~dolejsi/Vyuka/NS2018.html` together with other sources
- plan for each week, see `msekce.karlin.mff.cuni.cz/~dolejsi/Vyuka/COVID19_NS_20.html`
- lectures: commented reading of the lecture notes
- tutorials: learning and solution of several tasks under the supervision of the teacher

The aim of these courses

- this lecture fill a gap in lectures given at our faculty
- implementation of numerical methods is also a non-trivial task
- we need efficiency, accuracy and robustness
- important aspect is an adaptation
- it is advantageous to use software libraries (subroutines written in Fortran, C++, etc.)
- we learn
  - to understand the basic principles of numerical software
  - to use public software for basic tasks
  - to employ public software for your own project
- a practical introduction to more advanced numerical methods
- role of exercises: students have to solve several Exercises and main tasks

Tutorials

General aims

- passive learning of linux and fortran – very frequently used in scientific computations
- solution of simple problems demonstrating the given subject
- basic level: using the pre-prepared code by me
- middle level: a minor modification of the given code (with my interaction)
- advanced level: a major modification of the given code – optional

First step – installation of linux

- either: complete installation
- or: more easier using of virtual box, see `msekce.karlin.mff.cuni.cz/~dolejsi/Vyuka/tutorial1_linux.pdf`
- requires a donwloading of large files