

Numerical software 1

Introduction

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Lecture 1

- lecture, on Monday at 12:20
- tutorial, on Monday at 14:00

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** at
`msekce.karlin.mff.cuni.cz/~dolejsi/Vyuka/NumSoft_26_ZS.html`
- **lectures**: presentations by the teacher, questions are warmly welcome
- **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
 - **Tutorials**: solution of several **Exercises** and two **Main tasks**
- **Exam**: discussion about the solution of **Main tasks**

- work on own laptops

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

Homework # 1 – git

- materials will be available through the faculty repository
- **create the git account**

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Homework # 1 – Installation of linux

Option 0

- complete installation
- recommend only to advanced users

Option 1

- using of **virtual box**, see msekcce.karlin.mff.cuni.cz/~dolejsi/Vyuka/tutorial1_linux.pdf
- installation on your notebook with pre-prepared linux image

⇒ requires a downloading of large files

Option 2

- on-line work using of **hill** server computer
- requires a simple installation on Windows
- requires an account on **hill**

⇒ **send me your first name, surname and email**

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