

Advanced Computing Workshop (1100-11F22)

45 hours (15 lecture hours, 30 lab classes hours), summer semester

Recommended preceding courses:

- Computing Workshop (1100-1006)

Students who complete the course will know how to:

- create simple, informational Web pages
- prepare documents (e.g. scientific publications) using LaTeX
- carry out computations and process experimental data with the help of commercial and non-commercial software available on the market

Main topics:

1. Web design basics
 - a) HTML and CSS
 - b) Web pages and graphics
 - c) Interactive components of Web pages, JavaScript basics
2. Creating documents using LaTeX
 - a) Alternative approach to the creation of documents – the author cares about contents
 - b) Document structure, types and classes of documents
 - c) Environments and forced text formatting, special characters
 - d) Typesetting mathematical formulas
 - e) Including graphics into documents
 - f) Cross references, table of contents and bibliography
 - g) Documents with active links
3. Computer assisted computations
 - a) Computational software – Maple, Maxima
 - b) Computing integrals, derivatives and sums of series
 - c) Solving algebraic and differential equations
 - d) Solving systems of linear equations, diagonalizing matrices
 - e) Graphs of functions
4. Processing experimental data
 - a) Fitting functions to experimental data
 - b) Statistical data processing