ADDITIONAL TOPICS OF RESEARCH PROJECT

- **Linear algebra** (vectors, matrices, linear systems, determinants, etc.).

  Adviser: assoc. prof. Alar Leibak

  Literature:

  1. Lang, S. *Linear algebra* Addison-Wesley, 1971.

  2. *Linear Algebra in Twenty Five Lectures.* Lecture notes.

     `https://www.math.ucdavis.edu/~linear/linear.pdf`

- **Fourier series and Fourier transform**.

  Adviser: sen. researcher Gert Tamberg

  Literature:

  1. *The Fourier Transform and its Applications.* Lecture notes.

  `https://see.stanford.edu/materials/lsoftaee261/book-fall-07.pdf`

  2. Beerends, R. J. *Fourier and Laplace transforms.* Cambridge, 2003.

  `http://www.hittamara.com/pdffiles/Fourier_Laplace_Transforme.pdf`

- **Differential equations** (basics of ordinary differential equations: equations with separable variables, linear differential equations etc.).

  Adviser: prof. Jaan Janno

  Literature:

  1. *Introduction to Differential Equations.* Lecture notes.

     `https://www.math.ust.hk/~machas/differential-equations.pdf`

  2. Braun, M. *Differential equations and their applications : an introduction to applied mathematics.* Springer, 1993.

- **Numerical methods** (approximate solution of equations, systems of equations and optimization problems, interpolation, method of least squares, numerical differentiation and integration, approximate solution of differential equations)

Adviser: prof. Jaan Janno

Literature:

1. Smith, W.A. *Elementary numerical analysis.* Prentice Hall, Englewood Cliffs, 1986.

2. Epperson, J. F. *An introduction to numerical methods and analysis.* Wiley, 2002.

3. Gustafson, G.B., Wilcox, C.H. *Analytical and computational methods of advanced engineering mathematics.* Springer, 1998.

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