Course: Introduction to Smart Systems Engineering — credits: 5

Course code	SEVM19SSE
Name	Introduction to Smart Systems Engineering
Study year	2026-2027
ECTS credits	5
Language	English
Coordinator	S.S. Ahmed
Modes of delivery	Lecture Project-based learning
Assessments	Introduction to SSE - Assignment

Learning outcomes

At the end of this module the student is able to:

- manipulate matrices to solve a linear system of equations.
- analyse a dynamical system using determinants to find eigenvalues and eigenvectors.
- solve least squares problems.
- apply singular value decomposition to problems in data analysis and signal Processing.
- manipulate and visualize numerical data using typical Python packages, such as Numpy and MatPlotlib.
- calculate and apply discrete Fourier transform.
- apply sampling theorem of Shannon, the Nyquist frequency, the concepts of aliasing and windowing.

Content

The course covers the following topics:
the aim of this course is to introduce or refresh your knowledge on digital signal processing, basic software development and linear algebra. This should prepare you for the technical courses taught throughout the rest of the master.

Included in programme(s)

Smart Systems Engineering

School(s)

Engineering, Life Sciences & ICT

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