

Course: Introduction to Smart Systems Engineering

credits: 5

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

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