

# UA 520- Signal Processing

<b>Course Code:</b>	UA-520
<b>UTAA Credit (Theoretical-Laboratory hours/week):</b>	3(3-0)
<b>ECTS Credit:</b>	6.0
<b>Department:</b>	Unmanned and Autonomous System Engineering
<b>Language of Instruction:</b>	English
<b>Level of Study:</b>	Graduate
<b>Offered Semester:</b>	Fall and Spring Semesters.

## Course Objectives

To define generally the concepts of signal and system, to teach the available methods for analyzing linear time invariant (LTI) system and signal representation. This is the course in which basic and theoretical analysis and processing of signals, experimental data, real-time control methods are explained. Spectral analysis, filter design, definition and simulation of continuous and discrete systems are covered in the course.

The course objectives can be summerized as follows: Introduction to signals and systems, time-domain analysis of continuous-time LTI systems, time domain analysis of discrete-time LTI systems, continuous time LTI system analysis using the Laplace transform, discrete time LTI system analysis using the z-transform, frequency-domain analysis of continuous time LTI systems / frequency domain analysis of discrete time LTI systems, MATLAB applications.

## Course Learning Outcomes

- 1-Learn to model fundamental signals and systems.
- 2-Gain ability to constitute the continuous time and discrete time system models and make transient and steady-state analyses.
- 3-Analysis of discrete time LTI systems using z-transform
- 4-Frequency domain analysis of continuous time LTI systems

8-be able to apply root locus analyze method to the displacement autopilots

9-Understand pitch and acceleration aircraft control system design methods

10-To have a knowledge of MATLAB/SIMULINK programming in aircraft dynamic and control systems