

The semester plan may be updated over the time. You will be informed of any relevant changes to the plan.

The module is organized in three main parts: **Time signals**, **Images**, and **Applications**. Each of the two first parts is completed with a graded written examination. In the last part, students have time to work on a project in groups.

1	CW	sw	Date	What	Topics
Time signal processing: Audio signals, superposition, sampling, autocorrelation 8.02.25	8	1	17.02.25	Practice	Introduction: Motivation, general information and setup
28.02.25 Lecture Fourier: Types of Fourier transforms, time-frequency duality, spectra 10 3 03.03.25 Practice O7.03.25 Lecture Filtering: Convolution, signal characteristics and noise, purpose 11 4 10.03.25 Practice Filtering: Time-domain behavior of different filters 14.03.25 Lecture Filtering: Common filters for (discrete) time signals 12 5 17.03.25 Practice Filtering: Frequency domain behavior of filters 13 6 24.03.25 Practice Images: Sampling, formats, spatial and color space transformations 13 6 24.03.25 Practice Examination 1: Signal processing / Basics about image processing 14 7 31.03.25 Practice Fourier in 2D: Amplitude (and phase) images, spectrogram 14 7 31.03.25 Practice Image processing: Gradients, noise removal, detection 15 8 07.04.25 Practice Image processing: Masks, morphological operations, contours, segmentation 16 9 14.04.25 Practice Image processing: Masks, morphological operations, contours, segmentation 16 9 14.04.25 Practice Image processing: Masks, / Group projects: Problem statement 17 10 21.04.25 Easter Monday 18 11 28.04.25 Industry visits / Brücke 19 12 05.05.25 Practice Group projects: Q&A Applications: Compression (JPEG / MPEG), demos 20 13 12.05.25 Practice Applications: From Bar- to QR-Codes 21 14 19.05.25 Practice Group projects: Q&A Applications: From Bar- to QR-Codes Summary / Buffer			21.02.25	Lecture	Time signal processing: Continuous and discrete signals, sampling
10 3 03.03.25 Practice Fourier: FT for own signal, spectra and visualizations	9	2	24.02.25	Practice	Time signal processing: Audio signals, superposition, sampling, autocorrelation
11			28.02.25	Lecture	Fourier: Types of Fourier transforms, time-frequency duality, spectra
11 4 10.03.25 Practice 14.03.25 Lecture Filtering: Common filters for (discrete) time signals 12 5 17.03.25 Practice 21.03.25 Lecture Filtering: Frequency domain behavior of filters Images: Sampling, formats, spatial and color space transformations 13 6 24.03.25 Practice 28.03.25 Lecture Fourier in 2D: Amplitude (and phase) images, spectrogram 14 7 31.03.25 Practice 04.04.25 Lecture Fourier in 2D: Spectral images, DIY kernels / Group projects: Topic fair Image processing: Gradients, noise removal, detection 15 8 07.04.25 Practice 11.04.25 Lecture Image processing: Masks, morphological operations, contours, segmentation 16 9 14.04.25 Practice 18.04.25 Fractice 18.04.25 Fractice 19 10 21.04.25 Lecture Image processing: Feature extraction 18 11 28.04.25 Practice 19 12 05.05.25 Practice 20.05.25 19 12 05.05.25 Practice 19 12 05.05.25 Practice 20.05.25 Lecture Applications: Matching / registration, stereo vision, demos 20 13 12.05.25 Practice 14 19.05.25 Practice 23.05.25 Lecture Applications: From Bar- to QR-Codes 23.05.25 Lecture Summary / Buffer 22 15 26.05.25 Practice Group projects: Q&A Filtering: Time-domain behavior of different filters Filtering: Common filters for (discrete) time signals Filtering: Common filters for (discrete) time signals Filtering: Common filters for (discrete) time signals Factorial processing Fourier in 2D: Amplitude (and phase) images, poetersing Nemical processing: From Bar- to QR-Codes Summary / Buffer 20 15 26.05.25 Practice Group projects: Q&A Applications: From Bar- to QR-Codes Summary / Buffer	10	3	03.03.25	Practice	Fourier: FT for own signal, spectra and visualizations
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23 16 02.06.25 Semester break	23	16	02.06.25		Semester break
06.06.25 Group projects: Submission of notebooks – Fr 06.06.25, 23:59			06.06.25		Group projects: Submission of notebooks – Fr 06.06.25, 23:59
24 17 09.06.25 Semester break	24	17	09.06.25		Semester break
13.06.25 Group projects: Submission peer feedback – Fr 13.06.25, 23:59			13.06.25		Group projects: Submission peer feedback – Fr 13.06.25, 23:59