Course Name	Fourier-Analysis
Contents and Objectives	<u>Content</u>: • Fourier series (properties, convergence, discrete Fourier transformation, fast Fourier transformation) • Fourier transformation (definition, properties, Poisson's formula) • window Fourier transform • Application in digital signal processing and the solution of partial differential equations • <u>Objectives of the course</u>: Students are able to describe the basic concepts of Fourier analysis. They know properties of the discrete and the continuous Fourier transform and are able to apply them to different problems. In addition to a basic understanding of the theoretical issues, they can describe the associated algorithms of Fourier analysis and apply them to more advanced problems in analysis and numerics.
Teaching	This course consists of lectures and exercise classes. • Lecture: Fourier Analysis (4h/week) • Exercise class: Fourier Analysis (2h/week) This class can be taught remotely.
Prerequisites	Basic notions of Analysis, Linear Algebra and Higher Algebra
Verwendbarkeit des Moduls	-
Examination	Oral exam (30 minutes)
Credits	8 ECTS points
Frequency	This course is given at least every second year.
Workload	The estimated total working time for this course is 240 hours.
Duration	This course is given during one semester.