Level: bachelor

Course title: Applied analysis (code I351)

Status: optional

ECTS: 6

Requirements: none

Learning objectives

Introduction to theoretical foundations of applied analysis and basic properties of orthonormal bases and frames. Understanding the notion of analysis and synthesis of a signal. Application of the theory to digital signal processing.

Learning outcomes

Students are expected to learn theoretical foundations and practical applications of certain parts of contemporary mathematical analysis.
Students should acquire knowledge and become capable for a research in possible applications of mathematical analysis tools.

Syllabus

Theoretical instruction

Hilbert spaces, orthonormal bases and frames. Fourier series and its convergence properties. Fourier transform and inverse Fourier transform with applications.

Practical instruction

Seminar papers of theoretical and/or practical content. The use of the Internet in research of topics in signal analysis and understanding its techniques.

Weekly teaching load				Other:
Lectures: 2	Exercises: 2	Other forms of teaching:	Student research:	