

**Name of programme:** International Semester Information Technology / System Engineering

<b>Title of Module</b>	<b>Applied Digital Signal Processing</b>
Responsible person	Prof. Dr. Ansgar Kern
Teacher	Prof. Dr. Ansgar Kern
Module Code	E2F230
Type of Module	O obligatory module (Pflichtmodul), x elective module (Wahlpflichtmodul)
Level (BA / MA)	Bachelor
Language	English (German on demand)
Related Degree Programme/s	General Electrical Engineering, Communications Engineering and Computer Networks, Mechatronics
Department	IEM
Location	O Gießen, x Friedberg
Availability/frequency of module	O every semester, O annually in the Winter Semester, x annually in the Summer Semester,
Hours per Week / Workload	4 HpW, contact hours per week 150 H in total
Number of CrP/ECTS	5 ECTS/CrP
Forms of instruction	x lecture O seminar x supervised training O Laboratory Practical Course
Qualifications and Goals	Learning outcomes:  Students can design and assess digital filters, they are able to compare analogue and digital systems.
Short Description of Contents	Content:  Correlation, discrete Fourier transformation, windowing, filter design
Description of Contents	Content:  Correlation, Convolution, Discrete Fourier Transformation, Window functions, windowing, Signal to Noise Ratio, FIR filter design, IIR filter design, properties and spectra of clocked systems
Prerequisites	English level B2, basics of control theory, numerical mathematics, basics of electrical circuit design
Assessment	O oral (O examination of xx minutes, O presentation), x written (x examination of xx minutes, O term paper), other:
Literature/Textbooks	Understanding digital signal processing, Richard G. Lyons, Prentice Hall 2011
Other	