

Course Description – Winter Semester

Title	Digital Signal Processing
Faculty	Electrical Engineering
Professor	Prof. Dr. Carsten Roppel
ECTS	5
Level	Bachelor
Requirements	Basic knowledge in signals and systems and programming in C is recommended.
Add. Information	Lecture and laboratory experiments
Content	<ol style="list-style-type: none"> 1 Introduction 2 DSP Development Tools 3 Sampling und Quantization <ul style="list-style-type: none"> Sampling Theorem Sampling of Bandpass Signals Quantization ADC Parameters and Types 4 Discrete-Time Signals and Systems <ul style="list-style-type: none"> Impulse Response and Convolution Fourier-Transform of Discrete-Time Signals Discrete Fourier-Transform (DFT) The z-Transform 5 Finite Impulse Response (FIR) Filters <ul style="list-style-type: none"> Structure of FIR Filters Design Methods Implementation of FIR Filters 6 Infinite Impulse Response (IIR) Filters <ul style="list-style-type: none"> Structure of IIR Filters Bilinear Transform 7 Representation of Numbers and Quantization of Filter Coefficients 8 Sampling Rate Conversion <ul style="list-style-type: none"> Decimation Interpolation