

# LECTURE (KV)

Title: **Special Topics in Signal and Information Processing:  
Multirate Digital Signal Processing**

Lecturer: **Prof. Dr. Dietmar Wenzel  
Rohde & Schwarz Munich  
Honorarprofessor TU Munich**

Time: 13.04.18, 14:00 – 16:30  
14.04.18, 08:00 – 13:00  
27.04.18, 14:00 – 18:00  
28.04.18, 08:00 – 13:00

Location: TBD

## Contents:

The course offers a detailed insight in the digital signal processing domain with focus on multirate signal processing. Multirate digital signal processing is employed in almost all state-of-the-art communication systems for audio, video and data. In particular, due to Moore's law, complexity and speed of modern signal processing technology are increasing, and more and more parts of a communication system are shifted to the digital domain. There, sampling rate conversion is a key factor, especially when it comes to the coupling of digital systems or to the compression of data. Examples for implementations of multirate signal processing architectures are given for audio, video and mobile communication.

## Objective of the course:

Students shall learn in this course to design sampling rate converters, to understand the theory and background, to employ various implementation forms, and to understand the economical aspects of different architectures. Furthermore, at the end of the course students shall be able to combine sampling rate converters with other signal processing techniques, e.g. band-pass sub-sampling.

## Biography:

Dr. Wenzel studied electrical engineering and received his Dr.-Ing. degree from the University of Stuttgart in 1999. During his Ph.D. studies he cooperated with Bosch Telecom GmbH. He has worked in the field of multirate signal processing ever since. In 2000 he joined Infineon Technologies AG in Munich where he was responsible for specification and algorithm development in the department for wireless modem integrated circuits. Having held various system architect positions, Professor Wenzel served as chief architect and senior principal for the definition of multi-mode mobile platforms. After the acquisition of this department by Intel in 2011, he continued in this role at Intel Mobile Communications GmbH until he joined Rohde & Schwarz in Munich in 2017. Professor Wenzel holds numerous patents and has been a lecturer at TU Munich and the University of Applied Sciences of Upper Austria since 2004.

