

Course title	<i>Real-Time Signal Processing with Lab (Native Signal Processors)</i>
Course code	<i>EIFB632</i>
Module coordinator	<i>Miriam Heinrich</i>
Lecturer	<i>Prof. Dr. Christian Langen</i>
Level of course	<i>Bachelor</i>
Recommended prerequisites	<i>Knowledge in Digital Signal Processing</i>
Type of course	<i>Lecture</i>
Weekly lecture hours (SWS)	<i>2</i>
ECTS credits	<i>2 ECTS</i>
Workload	<i>In total 60h, 30 h course attendance, 30 h self-study</i>
Assessment (grading; pass/fail)	<i>graded</i>
Regular cycle	<i>Winter semester</i>
Language of instruction	<i>English</i>
Contents:	<i>After a brief explanation of the architecture and characteristics of digital signal processors, the focus of this lecture is on programming real-time applications and the implementation of typical algorithms in digital signal processing, such as filtering, the generation of sinusoids etc. The usage of interrupts, DMA and serial ports is an important topic</i>
Learning outcome (competencies):	<i>After having successfully completed the course, the students should</i> <ul style="list-style-type: none"> • <i>be able to choose the signal processor which suits the needs of the application,</i> • <i>be able to implement DSP algorithms on the processor, to profile them and to get them working in real time.</i>
Teaching methods	<i><input checked="" type="checkbox"/>Lecture <input type="checkbox"/>Group work <input checked="" type="checkbox"/>Exercises <input type="checkbox"/>Simulation <input type="checkbox"/>Video feedback <input type="checkbox"/>Others:</i>
Assessment methods	<i>Oral exam, Presentation, Project work</i>
Recommended reading	<ul style="list-style-type: none"> • <i>Doblinger Gerhard: Signalprozessoren: Architekturen, Algorithmen, Anwendungen, Schlembach, Weil der Stadt, 2000.</i> • <i>Dahnoun, Naim: DSP implementation using the TMS320C6000 DSP plat- form, Prentice Hall, Harlow, 2000.</i> • <i>Bateman, Andrew: The DSP handbook : algorithms, applications and design techniques, Prentice Hall, Harlow, 2002</i> • <i>Kehtarnavaz, Nasser, Simsek, Burc: C6x-Based Digital Signal Processing, Prentice Hall, Upper Saddle River, NJ, 2000.</i>
Additional information	
Recognition of credits	