

Components & Devices II						
Module Code	Workload 180 hrs.	Credits 6	Semester 2	Frequency of Module Only summer semester	Duration 1 Semester	
1	Module Components a) Electronic Devices & Circuits		Teaching Language a) English	Contact Hours a) 67,5 hrs.	Self Study a) 112,5 hrs.	Class Size a) 24
2	<p>Learning Outcomes</p> <p>After successful participation in the module the students</p> <p>Knowledge (1) ... can describe fundamental microelectronic devices ... can repeat functionality and concepts of basic microelectronic circuits ... know relevant systems with applications of integrated circuits</p> <p>Comprehension (2) ... are able to explain the physical functionality of devices ... understand different concepts of circuit design ... understand the relevant parameters of devices</p> <p>Application (3) ... are able to design electronic circuits in CMOS technology ... are able to run and asses simulation ... can describe circuits with netlist files</p> <p>Synthesis (5) ... apply modern EDA (electronic design automation) ... perform complete design and verification process</p> <p>Evaluation (6) ... can check specification of devices and circuits ... can adjust device parameters ... can localize layout failures and improve performance weakness</p>					
3	<p>Individual Component Content</p> <p>a) - Submicron Devices (MOS, Bipolar, BICMOS, Floating Gate) - Technologies (Full-Custom Design, Standard Cell Design, Programmable Logic Devices) - Concepts for Design Automation (CAD Systems, Behavior Specification, State-Machines, Synthesis) - Design Specification (Modeling and Verification, Analog-Simulation, Digital-Simulation) - Layout (Verification, Design Rule Check) - Gate Level Analysis and Sythesis (Network Analysis, PSPICE)</p>					

4	Teaching Methods a) Lecture / Practical
5	Prerequisites Modules Integration, Components & Devices I
6	Methods of Assessment a) Graded Assessment 1K (Written Exam) (6 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) a) Non Graded Assessment 1sbL (Laboratory)
7	Applicability of Module Smart Systems M.Sc. (SMA)
8	Person Responsible for Module Prof. Dr. Gerald Higelin (Module Responsible)
9	Reading List (Core Texts and Recommended Texts) a) Hodges, David A.; Jackson, Horace G.: Analysis and design of digital integrated circuits, 2. ed, McGraw-Hill 1988 Sze, S. M.: Physics of semiconductor devices, 2. ed., Wiley 1981 Pucknell, Douglas A.; Eshraghian, Kamran: Basic VLSI design : systems and circuits, 2. ed., 4. print., Prentice-Hall 1989 Higelin, G.: Lecture Notes