

Module name					
Computer Systems I					
Module nr. 18-hb-1020	Credit points 6 CP	Workload 180 h	Self-study 120 h	Module duration 1 Term	Module cycle Summer term
Language German			Module owner Prof. Dr.-Ing. Christian Hochberger		
1	<b>Teaching content</b> Types of instruction sets, memory organization and its impact on the runtime, pipelining, instruction level parallelism, superscalar processors, VLIW processors, floating point numbers and operations, memory subsystem, cache types, virtual address spaces, benchmarking and performance prediction, system architecture and bus systems, peripheral devices				
2	<b>Learning objectives</b> Upon successful completion of the module, students can analyze and evaluate processors, memory systems and bus systems. They can transform structures of high-level programming languages like subroutine calls into sequences of machine instructions. They are able to measure the performance of computers. They know how instructions are executed in modern processors and thus, they can predict the influence of a specific memory hierarchy onto the execution time of a given program. They know how internal and external bus systems work and can define the essential parameters for their dimension and operation.				
3	<b>Recommended prerequisites for participation</b> Basic knowledge of digital design as it can be obtained by the lecture "Logic Design".				
4	<b>Form of examination</b> DefaultModule exam: <ul style="list-style-type: none"><li>DefaultModule exam (Technical examination, Examination, DefaultDuration: 90 Min., Default RS)</li></ul>				
5	<b>Prerequisite for the award of credit points</b> Passing the final module examination				
6	<b>Grading</b> DefaultModule exam: <ul style="list-style-type: none"><li>DefaultModule exam (Technical examination, Examination, Weighting: 100 %)</li></ul>				
7	<b>Usability of the module</b> BSc ETiT, BSc Wi-ETiT				
8	<b>Grade bonus compliant to §25 (2)</b>				
9	<b>References</b> <ul style="list-style-type: none"><li>Harris &amp; Harris: Digital Design and Computer Architecture</li><li>Hennessy/Patterson: Computer architecture - a quantitative approach</li></ul>				
Courses					
	DefaultCourse nr. 18-hb-1020-vl	Course name Computer Systems I			
	Instructor Prof. Dr.-Ing. Christian Hochberger			Type Lecture	SWS 3

	<b>DefaultCourse nr.</b> 18-hb-1020-ue	<b>Course name</b> Computer Systems I		
	<b>Instructor</b> Prof. Dr.-Ing. Christian Hochberger	<b>Type</b> Practice	<b>SWS</b> 1	