

Module description: Computer Science 2	
Module Code	t.BA.XXI.INF2.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	InIT
Module Coordinator	Elio Bazzi
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.
Module Characteristic	Type 3a 2 lecture lessons per semester week and class+ 2 lab bi-weekly lessons per semester and half-class
Module Description	The students expand their programming knowledge from Computer Science 1 and acquire another programming language (Java) and another programming paradigm (object-oriented programming).
Module Content	<p>(1) More on C programming</p> <p>File I/O</p> <p>Module Concept and Preprocessor</p> <p>Dynamic memory management</p> <p>(2) From C to Java</p> <p>Similarities and differences</p> <p>Data types, strings, arrays, methods and parameters</p> <p>(3) Object oriented programming</p> <p>Objects and classes, instance- and class variables</p> <p>Methods, constructors, overloading</p> <p>Inheritance and polymorphism</p> <p>Abstract classes and interfaces</p> <p>Java library, Java API documentation</p> <p>(4) Applications</p> <p>Console applications</p> <p>Applications with GUI</p> <p>GUI-elements (label, button, scrollbar, textfield, menubar)</p> <p>Events and event listener</p> <p>(5) More on Java programming</p> <p>Exception handling</p>
Prerequisite Knowledge	

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Learning Objectives (Competences)	Students...	Competencies	Taxonomies			
	(4) The students are able to program applications with graphical user interfaces. They can make use of important GUI elements and handle the events of these elements by defining suitable event listeners.	F, M	K1, K2, K3, K4, K5			
	(1) The students understand more advanced concepts of programming in C like reading and writing files, preprocessor directives, the module concept of C, as well as dynamic memory management.	F, M	K1, K2, K3			
	(2) The students know how the programming concepts of C translate to Java and are able to write console applications in Java that correspond roughly to their C-counterparts.	F, M	K1, K2, K3			
	(3) They know the basics of object oriented programming, e.g., the differences between objects and classes, instance and class variables, also methods and constructors, inheritance, polymorphism, abstract classes and interfaces. They can make use of this knowledge when designing and implementing programs. They know how to find class descriptions of the Java library in the Java API documentation.	M, F	K1, K2, K3, K4, K5			
	(5) The students understand exception handling in Java and how it can be used in their programs.	M, F	K1, K2, K3, K4, K5			
Performance Assessment						
	End-of-module exam	Assessment	Length (min.)	Weighting	Form	
	written exam	Grade	90	100	acc. to module agreement	
	Performance assessment during the semester		Assessment	Length (min.)	Weighting	Form
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Classroom Attendance Requirement	None					
Learning material						
Comments						