

Module Description for Module 8: Computer Architectures

Module title	Computer Architectures
Module number	M8
Programme	Computer Science
Applicability of the module	Applicable to other Computer Science Bachelor programmes
Module duration	1 semester
Status	Compulsory module
Recommended semester during the programme	2
Credit points (Cp) of the module	5
Prerequisites for module participation	None
Prerequisites for module examination	Active participation (min. 80%) in exercises of the unit "Exercises for Computer Architectures and Assembler Languages"
Module examination	Independent programming in the form of an exam, partially at the computer 120 minutes
Intended learning outcomes /acquired competences of the module	<p>The students acquire theoretical and practical competencies in the following areas:</p> <p>Digital technology:</p> <ul style="list-style-type: none"> • Knowledge of the electronic boundary conditions during the operation of digital switching mechanisms • Knowledge of the systematic design of digital switching mechanisms. <p>Computer Architectures:</p> <ul style="list-style-type: none"> • Understanding of the most important architectural principles for the design of computer systems • Knowledge of the different levels of command processing <p>Assembler Languages:</p> <ul style="list-style-type: none"> • Understanding of the most important principles of the assembler languages • Basic knowledge of programming in a suitable assembler language <p>Furthermore, the following extracurricular skills are acquired: structured problem solving, creative problem solving.</p>
Contents of the module	<p>Lecture Computer Architectures and Assembler Languages</p> <p>Exercises for Computer Architectures and Assembler Languages</p>
Teaching methods of the module	Lectures, Exercises
Total workload	150 h (5% extracurricular skills)
Language of the module	English

Frequency of the module	Always in the summer semester
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Unit Description for Module 8: Lecture Computer Architectures and Assembler Languages

Name of the unit	Lecture Computer Architectures and Assembler Languages
Code	
Corresponding module	Computer Architectures and Assembler Languages
Lecturer	Pitka, Rauch, Selder, Wolf ...
Contents of the unit	<ul style="list-style-type: none"> • Digital Technology <ul style="list-style-type: none"> - Digital logic blocks - Digital logic circuits - Sequential circuits • Computer Architectures <ul style="list-style-type: none"> - Architectural principles - Levels of command processing • Assembler Languages <ul style="list-style-type: none"> - Assembler language elements - Programming tools
Teaching methods	Lecture
Contact hours per week	2
Total workload of the unit (h)	70
Total time of contact hours (h)	30
Total time of examination incl. preparation (h)	10
Total time of practical training (h)	0
Total time of self-study (h)	30
Language of the unit	English
Recommended reading	<ul style="list-style-type: none"> • Digital Technology: <ul style="list-style-type: none"> • Schiffmann / Schmitz: Technische Informatik 1 • Borgmeyer: Grundlagen der Digitaltechnik, Hanser Verlag • Computer Architectures: <ul style="list-style-type: none"> • Coy, W.: Aufbau und Arbeitsweise von Rechenanlagen, Vieweg 1994 • Oberschelp, W.; Vossen, G.: Rechneraufbau und Rechnerstrukturen, Oldenbourg Verlag München 1997 • Tannenbaum, A.; Goodman, J.: Computerarchitektur, Prentice Hall • Assembler Languages: <ul style="list-style-type: none"> • Handbücher zu den verwendeten Prozessoren
Type and form of assessment	None
Grading of the assessment	
Further information	

Unit Description for Module 8: Exercise Computer Architectures and Assembler Languages

Name of the unit	Exercise Computer Architectures and Assembler Languages
Code	
Corresponding module	Computer Architectures and Assembler Languages
Lecturer	Pitka, Rauch, Selder, Wolf, ...
Contents of the unit	<p>Tasks and examples on the topics of the Unit Lecture Computer Architecture and Assembly Language</p> <p>The exercises serve to ensure that the students learn to deal with the abstract concepts learned in the lecture and to be able to apply these concepts in concrete examples.</p> <p>Exercises on the computer for programming in an Assembler language.</p> <p>The students shall learn to work on easy tasks with the help of Assembler programs.</p>
Teaching methods	Exercise
Contact hours per week	2
Total workload of the unit (h)	80
Total time of contact hours (h)	30
Total time of examination incl. preparation (h)	0
Total time of practical training (h)	0
Total time of self-study (h)	50
Language of the unit	English
Recommended reading	See Unit Lecture Computer Architectures and Assembler Languages
Type and form of assessment	None
Grading of the assessment	
Further information	