2.1.4 Programming 1

Programming 1

Module Summary
Module code: EEIB140
Module coordinator: Prof. Dr. Thorsten Leize
Credits (ECTS): 6 Points
Semester: 1. Semester
Pre-requisites with regard to content: In terms of content none
Pre-requisites according to the examination regulations: Regarding to the examination regulations no pre-requisites are required
• Competencies: • The students learn to understand the structure of modern programs and the ideas of modern programming techniques. The process of creating simple algorithms and programs in C/C++ is known and can be applied. Students are able to • design programs using basic methods • implement programs in C/C++ in a structured or objectoriented way • apply basic algorithms • make use of external libraries and program parts • find and identify errors using appropriate tools • document programs • to be able to use and understand the functionality of micro controllers and general and specialised IT systems
This module is the base of several more advanced subjects in this course.
Assessment: Exam, 120 minutes. The exercises are considered passed if the exercise sheets have been successfully completed and a small project has been successfully completed
Usability: In this module, the fundamentals of the functionality of software development systems and the process flow during programming are laid. In particular, emphasis is placed on bringing out the peculiarities of digital computational processes (Finiteness and digitality of the value ranges and the system) in programming tasks.

Course: Computer Programming
Module code: EEIB141
Lecturer: Prof. Dr. Thorsten Leize

Scope of weekly semester hours (SWS): 2 SWS
Semester of delivery: Winter semester
Type/mode: Lecture, Compulsory subject
Language of instruction: English
Content: • Basics, hardware and software stacks, programming languages • Algorithms, C language examples • The build process: compile-link-run • Data types, variables, constants • Operators, terms and statements • Control statements, conditions, loops • Functions and their parameters • Pointers, pointer arithmetics, arrays • Structures
Recommended reading/ Development Software • See Ilias

Course: Computer Programming Lab
Module code: EEIB142
Lecturer: Prof. Dr. Thorsten Leize
Scope of weekly semester hours (SWS): 2 SWS
Semester of delivery: Winter semester
Type/mode: Excercises, Compulsory subject
Language of instruction: English
Content: The Exercises are done in one of the computer labs. Competencies to achieve are: • Know how to use development tools • Being able to design and implement C and C++ programs. Testing, error correction • Being able to create small algorithms
Recommended reading/Development Software: • See Ilias