Programmierpraktikum: Wettbewerbsorientierte Algorithmik

Module title:
Programmierpraktikum: Wettbewerbsorientierte Algorithmik
Competitive Algorithmics

Credits:
6

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Display language:
German

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Learning Outcomes

On successful completion, students know:
- advantages and disadvantages of different data structures
- efficiency aspects of different programming languages
- how to implement suitable algorithms and data structures using suitable software development tools
- how to check software efficiently and effectively using self-created randomized black box tests

Furthermore, students will be able to:
- work in teams
- successfully participate in programming contests such as the ACM Programming Contest.

Content

The course
- teaches the abstraction of given problems
- teaches to design algorithms to solve these abstract problems
- teaches to implement these algorithms
- teaches to check the implementation efficiently and effectively using randomized black box tests

Module Components

Course Name	Type	Number	Cycle	SWS
Programmierpraktikum: Wettbewerbsorientierte Algorithmik	PR	0434 L 245	WS/SS	4

Workload and Credit Points

Programmierpraktikum: Wettbewerbsorientierte Algorithmik (Praktikum)	Multiplier	Hours	Total
Attendance	15.0	4.0h	60.0h
Pre/post processing	15.0	8.0h	120.0h
			180.0h

The Workload of the module sums up to 180.0 Hours. Therefore the module contains 6 Credits.

Description of Teaching and Learning Methods

The course has the following 3-week pattern: First, a lecture provides the necessary algorithmic basics. Second, a programming contest takes place where the students solve programming tasks in small teams (2-3 students). Third, solutions and problems occurred in the implementation will be discussed.

Requirements for participation and examination

Desirable prerequisites for participation in the courses:

Basic knowledge in algorithms, data structures, and programming is helpful.
We do not recommend participation without basic programming skills in Java or C++.

Mandatory requirements for the module test application:

No information

Module completion

Grading:
ungraded

Type of exam:
Portfolio examination
100 points in total

Language:
German

Grading scale:
At least 50 points in total needed to pass.

Test description:
4 contests 14 PP each; 4 homeworks 11 PP each; passed (ungraded) if more than 50 PP

Test elements	Categorie	Points	Duration/Extent
No information	practical	14	*No information*
No information	practical	14	*No information*
No information	practical	14	*No information*
No information	practical	14	*No information*
No information	practical	11	*No information*
No information	practical	11	*No information*
No information	practical	11	*No information*
No information	practical	11	*No information*

Duration of the Module

This module can be completed in one semester.

Maximum Number of Participants

The maximum capacity of students is 30

Registration Procedures

Please register at QISPOS or at the examination office.

Recommended reading, Lecture notes

Lecture notes:
unavailable

Electronical lecture notes :
unavailable

Assigned Degree Programs

This module is used in the following modulelists:

Informatik (Bachelor of Science)
- StuPO 2015
  - Modullisten der Semester: WS 2020/21

Wirtschaftsinformatik (Bachelor of Science)
- BSc Wirtschaftsinformatik StuPO 2015
  - Modullisten der Semester: WS 2020/21

Miscellaneous

No information