Learning Outcomes
Participants of this module know fundamental randomized methods for design and analysis of efficient algorithms. They can perform simple probabilistic analyses and are aware of the limitations of randomization.

Content
Introduction into the mathematical and algorithmic foundations of algorithm design and analysis using the resource "random bits". Particular topics are:
- randomized algorithms for graph problems and geometric problems
- the probabilistic method
- randomized complexity classes

Module Components

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Type</th>
<th>Number</th>
<th>Cycle</th>
<th>SWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomized Algorithms</td>
<td>IV</td>
<td>0434 L 236</td>
<td>k.A.</td>
<td>4</td>
</tr>
</tbody>
</table>

Workload and Credit Points

<table>
<thead>
<tr>
<th>Präsentzeit</th>
<th>Multiplier</th>
<th>Hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.0</td>
<td>4.0h</td>
<td>60.0h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vor-/Nachbereitung</th>
<th>Multiplier</th>
<th>Hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.0</td>
<td>6.0h</td>
<td>90.0h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prüfungsvorbereitung</th>
<th>Multiplier</th>
<th>Hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
<td>30.0h</td>
<td>30.0h</td>
</tr>
</tbody>
</table>

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 material is presented in lectures. The lectures are accompanied by tutorials in which distributed work sheets are solved together.

Requirements for participation and examination
Desirable prerequisites for participation in the courses:
obligatory: Basic knowledge of algorithm design and analysis

Mandatory requirements for the module test application:
No information

Module completion

<table>
<thead>
<tr>
<th>Grading</th>
<th>Type of exam:</th>
<th>Language:</th>
<th>Duration/Extent:</th>
</tr>
</thead>
<tbody>
<tr>
<td>graded</td>
<td>Oral exam</td>
<td>English</td>
<td>30 min</td>
</tr>
</tbody>
</table>

Duration of the Module
This module can be completed in one semester.

Maximum Number of Participants
This module is not limited to a number of students.
Registration Procedures

Please register at QISPOS or directly at the examination office.

Recommended reading, Lecture notes

Lecture notes: unavailable

Electronical lecture notes: available

Additional information:
Slides will be made available during the lecture period: www.isis.tu-berlin.de

Recommended literature:

Assigned Degree Programs

This module is used in the following modulelists:

Computer Engineering (Master of Science)
StuPO 2015
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018

Computer Science (Informatik) (Master of Science)
StuPO 2015
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018

Elektrotechnik (Master of Science)
StuPO 2015
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018

Informatik (Master of Science)
StuPO 2013
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018

Technische Informatik (Master of Science)
StuPO 2013
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018

Wirtschafts informatik / Information Systems Management (Master of Science)
StuPO 2013
Modulisten der Semester: SS 2017 WS 2017/18 SS 2018
StuPO 2017
Modulisten der Semester: WS 2017/18 SS 2018

Wirtschaftsingenieurwesen (Master of Science)
StuPO 2015
Modulisten der Semester: WS 2017/18 SS 2018 WS 2018/19

Miscellaneous

This course is not offered regularly, you will find detailed information on our website: http://www.akt.tu-berlin.de/menue/teaching/