inf458 - Term Rewriting Systems

Module label: Term Rewriting Systems
Module code: inf458
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master’s Programme Computing Science > Theoretische Informatik
- Master’s Programme Embedded Systems and Microrobotics > Akzentsetzungsmodule

Contact person:
Module responsibility
- Annegret Habel
- Die im Modul Lehrenden

Authorized examiners:
- Annegret Habel
- Die im Modul Lehrenden

Entry requirements:
The objectives of this module are an introduction to (term) rewriting systems, termination and confluence, the undecidable sets of termination and confluence problems, verification procedures of termination and confluence.

Skills to be acquired in this module:
Professional competence
The students:
- describe the basics of term rewriting systems
- characterise the undecidability of termination and confluence problems
- describe verification procedures of termination and confluence

Methodological competence
The students:
- apply verification procedures of termination and confluence
- apply Huet’s completion procedure

Social competence
The students:
- solve problems in a team
- present and discuss their results

Self-competence
The students:
- reflect their actions with regard to term rewriting systems and the methods of those

Module contents:
The module is an introduction to term rewriting systems and provides verification procedures for termination and confluence.
Term rewriting systems, termination and confluence are introduced, the undecidability of termination and confluence problems and the decidability for a set of special term rewriting systems are shown. For this purpose reduction and simplification orders, critical pairs, orthogonality and Huet’s completion procedure are introduced, examined and combined.

Reader’s advisory:

Links:
Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: im 2-Jahres-Zyklus
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<tr>
<th>Examination</th>
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<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>exercises and oral or written exam</td>
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<td>Exercises</td>
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Total time of attendance for the module: 56 h