# Algorithms and Data Structures Level One Course

#### Module title
Algorithms and Data Structures Level One Course

#### Abbreviation
10-I-GADS-152-m01

#### Module coordinator
Dean of Studies Informatik (Computer Science)

#### Module offered by
Institute of Computer Science

#### ECTS
10

#### Method of grading
numerical grade

#### Only after succ. compl. of module(s)
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#### Duration
1 semester

#### Module level
undergraduate

#### Other prerequisites
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## Contents
Design and analysis of algorithms, recursion vs. iteration, sort and search methods, data structures, abstract data types, lists, trees, graphs, basic graph algorithms, programming in Java.

## Intended learning outcomes
The students are able to independently design algorithms as well as to precisely describe and analyse them. The students are familiar with the basic paradigms of the design of algorithms and are able to apply them in practical programs. The students are able to estimate the run-time behaviour of algorithms and to prove their correctness.

## Courses
(type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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## Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 to 120 minutes) or oral examination of one candidate each (approx. 20 minutes) or oral examination in groups of 2 candidates (approx. 15 minutes per candidate) creditable for bonus

## Allocation of places
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## Additional information
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## Referred to in LPO I (examination regulations for teaching-degree programmes)
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## Module appears in
Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2015)
Bachelor's degree (2 majors) Digital Humanities (2015)
First state examination for the teaching degree Realschule Computer Science (2015)
Bachelor' degree (1 major) Business Information Systems (2016)
Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)
Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)
Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2018)
Bachelor's degree (2 majors) Digital Humanities (2018)
Bachelor' degree (1 major) Business Information Systems (2019)