Fog Computing

Module title:	Credits:	Responsible person:
Fog Computing	6	Bermbach, David
	Office:	**Contact person:**
	EN 17	*No information*
Website:	**Display language:**	**E-mail address:**
http://www.tu.berlin/mcc	Englisch	teaching@mcc.tu-berlin.de

Learning Outcomes

Students acquire a deep understanding of distributed systems concepts and their application in the context of cloud, edge, and fog computing. They are able to implement system prototypes and to evaluate them through experiments. After completing this course, students will be able to reason about technologies and abstractions in the field of cloud, edge, and fog computing, they are also able to understand implications of design choices on, e.g., privacy. Furthermore, they learn to clearly communicate insights from both research and practice.

Content

The course introduces the abstract concepts cloud, edge, and fog computing and their respective characteristics and application areas. Following this, students gain hands-on experience with state-of-the-art cloud, edge, and fog technologies and research results. For this, the course will include both reading and prototyping assignments.

Module Components

Course Name	Type	Number	Cycle	SWS
Fog Computing	IV		SoSe	4

Workload and Credit Points

Fog Computing (Integrierte Veranstaltung)	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

Lectures, prototyping phases, reading assignments, presentations

Requirements for participation and examination

Desirable prerequisites for participation in the courses:

Students are expected to have strong knowledge in distributed systems, to have had prior exposure to cloud computing concepts, to have good programming skills (preferably in Java or Kotlin), to understand REST and other web fundamentals, to know about messaging and other communication middleware. The required knowledge can be acquired in other MCC courses as well as courses offered by, e.g., DOS, ISE, or SNET.

Mandatory requirements for the module test application:

keine Angabe

Module completion

Grading:	Type of exam:	Language:
graded	Portfolioprüfung 100 points in total	English

Grading scale:

Note:	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0
Punkte:	95.0	90.0	85.0	80.0	75.0	70.0	65.0	60.0	55.0	50.0

Test description:

The final grade will be based on the individual results from the prototyping phase and reading assignments as well as the final test.
Depending on the number of participants, the final test may be written (ca. 60 minutes) or oral (ca. 15 minutes).
For organizational reasons, the second examination possibility before the start of the following semester (for students who failed in the first examination) will be in the form of an oral exam replacing all portfolio examination elements.

Test elements	Categorie	Points	Duration/Extent
(Examination) Final test	flexible	50	see below (written max. 60 min, oral ca. 15 minutes)
(Deliverable assessment) Prototyping results	practical	25	ca. 4 weeks
(Deliverable assessment) Reading assignment	practical	20	ca. 4 weeks
(Deliverable assessment) Short peer review	practical	5	ca. 1 week

Duration of the Module

The following number of semesters is estimated for taking and completing the module:

1 Semester

This module may be commenced in the following semesters:

Sommersemester

Maximum Number of Participants

The maximum capacity of students is 30

Registration Procedures

- This course is currently scheduled to be taught every summer term. Please check https://www.tu.berlin/en/mcc/study/current-semester/ before the start of the teaching period to check whether it is offered in that semester.
- This course requires a separate registration and participant selection procedure based on AllgStuPO §48(2) as the course (i) has only a limited number of slots and (ii) requires a certain knowledge state and skill level. Students must fulfill the requirements listed above under "Desirable prerequisites for participation in the courses". Usually, this will be checked based on a short ISIS questionnaire in the first week of the teaching period. All details will be announced in the respective ISIS course and in the kick-off session. The link to the ISIS course will usually be posted on the MCC website before the start of the teaching period.

Recommended reading, Lecture notes

Lecture notes:
unavailable

Electronical lecture notes :
available

Assigned Degree Programs

This moduleversion is used in the following modulelists:

- Computer Engineering (Master of Science)
  - StuPO 2015
    - Modullisten der Semester: WiSe 2022/23 SoSe 2023
- Computer Science (Informatik) (Master of Science)
  - StuPO 2015
    - Modullisten der Semester: WiSe 2022/23 SoSe 2023
- Elektrotechnik (Master of Science)
  - StuPO 2015
    - Modullisten der Semester: WiSe 2022/23 SoSe 2023
- ICT Innovation (Master of Science)
  - StuPO 2020
    - Modullisten der Semester: WiSe 2022/23 SoSe 2023
- Information Systems Management (Wirtschaftsinformatik) (Master of Science)
  - StuPO 2017
    - Modullisten der Semester: WiSe 2022/23 SoSe 2023
- Medieninformatik (Master of Science)
  - StuPO 2017
    - Modullisten der Semester: WiSe 2022/23

Miscellaneous

No information