

## Course

# WEB2 - Web Engineering 2 (Frontend)

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Version: 1 | Last Change: 30.09.2019 17:13 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

### ^ General information

<b>Long name</b>	Web Engineering 2 (Frontend)
<b>Approving CModule</b>	<a href="#">WEB2_BaMT</a>
<b>Responsible</b>	NN Lehrbeauftragter
<b>Level</b>	Bachelor
<b>Semester in the year</b>	winter semester
<b>Duration</b>	Semester
<b>Hours in self-study</b>	60
<b>ECTS</b>	5
<b>Professors</b>	Prof. Dr.-Ing. Luigi Lo Iacono ehemaliger Professor Fakultät IME
<b>Requirements</b>	<ul style="list-style-type: none"><li>- Knowledge and competence in the development of computer programs and in the handling of a programming language (e.g. Java, Python or Go) as well as common development tools (e.g. IDE) are required.</li><li>- Knowledge and skills in relation to basic algorithms (sorting, searching) and data structures (lists, sets, maps) are required.</li><li>- Knowledge and skills in IP-based computer networks and in the handling of HTTP are required.</li><li>- Knowledge and skills in the analysis, design, implementation, evaluation and operation of web-based backend systems are required.</li></ul>
<b>Language</b>	German, English if necessary
<b>Separate final exam</b>	Yes

### Final exam

## Details

In a final examination (written, optional oral), the students demonstrate their competences summarily. The examination includes exemplary parts of the course.

## Minimum standard

Achieving the individual minimum score per exam, typically 50% of the maximum score.

## Exam Type

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# ^ Lecture / Exercises

## Learning goals

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### Knowledge

- Anatomy of Web-based systems (reference model)
  - Architecture pattern (client-side MVC)
  - Frontend concepts of web-based systems (SPA, hybrid App, PWA)
  - Frontend Components (browser, browser add-ons, browser cache, local storage, service worker)
  - Frontend technologies (HTML, CSS, JavaScript, DOM, XHR, HTML5 APIs)
  - Protocols (WebSockets, WebRTC) and forms of communication (polling, long-polling)
  - Present and create relationships and dependencies between frontend systems/components and backend systems/components
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### Skills

- Analyse and structure tasks in the environment of web-based developments, assign relevant standards and transfer them to system designs
- Implementing frontend systems/components of a Web-based system
- Explain frontend systems/components, tasks and technical parameters, and structure them
- Analyzing frontend systems/components using suitable tools and presenting results in a comprehensible manner
- Planning, setting up, and operating frontend systems/components
- Estimate and analyze performance of frontend systems
- Derive information from original English sources and standards

## Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1
Exercises (shared course)	0

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## Separate exam

none

## ^ Practical training

### Learning goals

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  - Architecture pattern (client-side MVC)
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  - Frontend Components (browser, browser add-ons, browser cache, local storage, service worker)
  - Frontend technologies (HTML, CSS, JavaScript, DOM, XHR, HTML5 APIs)
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  - Present and create relationships and dependencies between frontend systems/components and backend systems/components
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#### Skills

- Analyse and structure tasks in the environment of web-based developments, assign relevant standards and transfer them to system designs
- Implementing frontend systems/components of a Web-based system
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- Estimate and analyze performance of frontend systems
- Derive information from original English sources and standards

### Expenditure classroom teaching

Type	Attendance (h/Wk.)
Practical training	2
Tutorial (voluntary)	0

## Separate exam

Exam Type

interview (discussion) about special issues in scenario, project assignment or literature research

### **Details**

Several appointments have to be attended. In each appointment, independently developed solutions to subtasks are to be presented in the technical discussion, if necessary with the use of assistance and/or completion of missing or wrong solution parts. The subtasks add up to the total solution of the development task accompanying the lecture (both parts WEB1 and WEB2).

### **Minimum standard**

Successful participation in 80% of all appointments. Correct solution of all subtasks and complete implementation of the web application (development task accompanying the lecture).