The aim of the course is to introduce the student to the technologies behind web applications and make him able to develop small-scale web apps. The course touches all required concepts in a simplified way to enable students to understand the technology. It teaches HTML, CSS, NodeJS and SQLite at a basic level so that a complete project can be built.

Prior skills

It is very important that students know a programming language like C++ or Java well.

Teaching methodology

The material will be taught through practical classes, alternating a presentation with slides with practical demonstrations in the form of tutorials. It is recommended that students bring their own laptops.

Learning objectives of the subject

The aim of the course is to introduce the student to the technologies behind web applications and make him able to develop small-scale web apps. The course touches all required concepts in a simplified way to enable students to understand the technology. It teaches HTML, CSS, NodeJS and SQLite at a basic level so that a complete project can be built.
## Study load

<table>
<thead>
<tr>
<th></th>
<th>Hours large group:</th>
<th>Hours medium group:</th>
<th>Hours small group:</th>
<th>Guided activities:</th>
<th>Self study:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong> 75h</td>
<td>0h</td>
<td>0h</td>
<td>30h</td>
<td>0h</td>
<td>45h</td>
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<td></td>
<td>40.00%</td>
<td>60.00%</td>
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</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>Module 1: Introduction to Web Apps</th>
<th>Learning time: 4h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 2h</td>
</tr>
<tr>
<td></td>
<td>Self study: 2h</td>
</tr>
</tbody>
</table>

**Description:**
- Components of a Web App.
- The HTML Protocol.

<table>
<thead>
<tr>
<th>Module 2: The Frontend</th>
<th>Learning time: 20h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 10h</td>
</tr>
<tr>
<td></td>
<td>Self study: 10h</td>
</tr>
</tbody>
</table>

**Description:**
- Creating pages with HTML, the Hyper-Text Markup Language.
- Styling pages with CSS (Cascading Style-Sheets).
- in the browser.

**Related activities:**
- Quiz

<table>
<thead>
<tr>
<th>Module 3: The Backend 1: NodeJS</th>
<th>Learning time: 16h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laboratory classes: 8h</td>
</tr>
<tr>
<td></td>
<td>Self study: 8h</td>
</tr>
</tbody>
</table>

**Description:**
- Entering commands on the command line and accessing remote computers.
- Install NodeJS.
- in the server.
- Express: programming handlers for web URLs.
- Generation of pages through templates.

**Related activities:**
- Quiz
## Module 4: The Backend 2: SQLite

**Description:**
The Relational data model.
Creating a database with SQLite.
Inserting, Updating and Deleting records.
Using an SQLite database from .

**Related activities:**
Project Design

### Module 5: Complete Web Apps

**Description:**
Mini-Wordpress, a simple blog web application.

**Related activities:**
Web App Project

### Qualification system

- **25%** - Tasks (exercises during the course)
- **10%** - Quizzes
- **15%** - Project Design (a document describing the planning for a web app project)
- **50%** - Web App Project (a working web app project)

### Bibliography

**Complementary:**