GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Webdevelopment (C003779)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2026-2027

A (semester 2)	Dutch	Gent	lecture

Lecturers in academic year 2026-2027

Taelman, Ruben	TWO6	lecturer-in-charge

Offered in the following programmes in 2026-2027	**crdts**	**offering**
Bachelor of Science in Computer Science	6	A

Teaching languages

Dutch

Keywords

Web, Web technology, Web applications, Web servers, browsers, HTTP, URL, Web APIs, REST, decentalization, standardization, JavaScript.

Position of the course

Through this course, students learn through self-study the **basic principles and architecture of the Web**, and they study the impact of design decisions on a low level on Web applications at a large scale. In addition to these transferrable skills, they gain experience with **current Web technologies and infrastructure**. We embed these technologies in the broader socio-economic reality, and study literature that enables progress in this domain.

Contents

1 Socio-economic and historical context of the Web
2 Web architecture, protocols, and standards
3 Design and implementation of Web APIs
4 Decentralization
5 Web browser internals
6 Usage and internals of Web-based scripting languages
7 Concrete Web applications and case studies

Initial competences

- Authoring basic web pages using **HTML and CSS**, or having sufficient knowledge to acquire these skills independently.
- Programming in **JavaScript**.
  - Object-oriented programming with classes.
  - Performing asynchronous operations using built-in primitives.
- Understand how the **TCP/IP** and **DNS** protocols work.
  - Understanding the concept of an IP address and its difference from a hostname.
  - Understanding the role and functionality of DNS servers within the Internet architecture.
  - Understanding how a TCP connection is established, including the inputs required.
  - Distinguishing between TCP and TLS.

Final competences

1 Understanding the Web's architecture.
2 Understanding the architecture of client–server systems.

3 Looking up Web standards and applying them.
4 Understanding the mechanisms of HTTP.
5 Arguing the consequences and applicability of the REST architectural style.
6 Building dynamic Web applications.
7 Deploying Web applications to a server.
8 Implementing Web APIs.
9 Consuming existing and new Web APIs.
10 Arguing and applying the specific properties of Web-based scripting languages.
11 Illustrating the internals of Web browsers and their impact.
12 Positioning the Web's societal role and technological contribution.
13 Assessing the impact of (de-)centralization.
14 Critically interpreting communication on Web technology.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, Practical, Independent work

Extra information on the teaching methods

This course focuses on self-study with slides and videos, including several online contact moments.

Study material

Type: Slides

Name: Slides with educational videos
Indicative price: Free or paid by faculty
Optional: no
Online Available : Yes

Additional information: interative Web slides with discussion opportunities short educational videos

Type: Handouts

Name: Selected articles
Indicative price: Free or paid by faculty
Optional: no
Online Available : Yes

References

Course content-related study coaching

- online contact with the lecturers (through email and in person after appointment)
- online supervised labs

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment

Examination methods in case of periodic assessment during the second examination period

Oral assessment

Examination methods in case of permanent assessment

Peer and/or self assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

- **Non-periodical evaluation**
  - independent labs
  - usage of generative AI permitted and encouraged
- **Periodical evaluation**

- oral examination
- written preparation
- open book
- open Web
- usage of generative AI permitted and encouraged

Calculation of the examination mark

The final grade is the average grade of the exam and labs, with both parts contributing equally.
In case the grade for any part is less than 10/20, the final grade is capped at 9/20.
In case the grade for any part is 7/20 or less, the final grade is capped at 7/20.
For students who have not passed the permanent evaluation, an alternative assignment is provided in the second examination period. Depending on the situation, it may be in a group and/or may be an extension of the original assignment.

Facilities for Working Students

Possibility to perform an individualized version of the practical sessions, given a timely notification at the start of the semester.