GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

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 2024-2025

A (semester 2)	Dutch	Gent	lecture

Lecturers in academic year 2024-2025

Verborgh, Ruben	TWO6	lecturer-in-charge
Taelman, Ruben	TWO6	co-lecturer

Offered in the following programmes in 2024-2025	**crdts**	**offering**
Bachelor of Science in Computer Science	6	A

Teaching languages

Dutch

Keywords

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

Position of the course

Through this course, students learn 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 scientific 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 Data on the Web
5 Decentralization
6 Concrete Web applications and case studies

Initial competences

- Creating basic webpages using HTML and CSS.
- Programming in JavaScript (including classes and asynchronous code).
- Understanding how the TCP/IP and DNS protocols work.

Final competences

1 Understanding the architecture of the Web.
2 Understanding the mechanisms of HTTP.
3 Looking up Web standards and applying them.
4 Building dynamic Web applications.
5 Deploying Web applications to a server.
6 Arguing the consequences and applicability of the REST architectural style.
7 Implementing Web APIs.
8 Consuming Web APIs.
9 Publish interoperable data on the web using standards.
10 Assessing the impact of (de-)centralization.
11 Designing and building decentral applications.
12 Positioning the Web's societal role and technological contribution.

13 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

Group work, Seminar, Lecture, Independent work

Study material

Type: Slides

Name: Slides'
Indicative price: Free or paid by faculty
Optional: no
Additional information: interative Web slides with discussion opportunities additional slides through the learning platform

Type: Handouts

Name: Selection of scholarly articles'
Indicative price: Free or paid by faculty
Optional: no

References

Course content-related study coaching

- contact with the lecturers (through email and in person after appointment)
- 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**
  - labs in groups
  - support by generative AI systems permitted
- **Periodical evaluation**
  - oral examination
  - written preparation
  - open book
  - open Web
  - support by generative AI systems permitted

Calculation of the examination mark

The final grade is the average grade of the two parts (exam and labs).
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.