GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Webdevelopment (C003779)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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

Credits	Study time	Contact hrs
6.0	180 h	60.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	lecture	30.0 h
			practicum	30.0 h

Lecturers in academic year 2020-2021

Verborgh, Ruben	TW06	lecturer-in-charge

Offered in the following programmes in 2020-2021	crdts	offering
Bachelor of Science in Computer Science	6	A

Teaching languages

Dutch

Keywords

Web, Web technology, Web applications, HTTP, URL, Web APIs, REST, Semantic Web, Linked Data, RDF, SPARQL, open data, decentalization, standardization.

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 The Semantic Web and Linked Data
5 Scalable data publication on the Web
6 Decentralization
7 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 Argue the necessity of semantics in data and metadata.
10 Applying the basic technologies of the Semantic Web.
11 Publishing machine-interpretable data on the Web.
12 Assessing the impact of (de-)centralization.
13 Designing and building decentral applications.

14 Positioning the Web's societal role and technological contribution.
15 Critically interpreting scholarly 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, lecture, practicum

Learning materials and price

- interative Web slides with discussion opportunities
- additional slides through the learning platform
- selection of scholarly articles

References

Course content-related study coaching

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

Evaluation methods

end-of-term evaluation and continuous assessment

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

Open book examination, oral examination

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

Open book examination, oral examination

Examination methods in case of permanent evaluation

Assignment, peer assessment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

- **Non-periodical evaluation**
  - labs in groups
- **Periodical evaluation**
  - oral examination
  - written preparation
  - open book and open Web

Calculation of the examination mark

The final grade is the average score of the two parts (exam and labs).
In case the score for a part is more than 7/20 but less than 10/20, the final grade is capped at 9/20.
In case the score for a part is 7/20 or less, the final grade is capped at 7/20.

Facilities for Working Students

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