CS-E4410 Semantic Web Course Introduction
Spring 2021

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Introduction to Semantic Web in two videos

- WWW today

- Introduction to the Semantic Web

**Aalto University
School of Science**

Department of
Computer Science

SeCo

Learning objectives of the course

To get to know the idea of semantic web, the technologies and its possible applications

> Lectures

To learn how to use Semantic Web programming tools

> Assignments

The course in the CCIS Master's Programme

Computer Science major in the Master's Programme in Computer, Communication and Information Sciences

- Web Technologies, Applications, and Science track

Track compulsory courses

CODE	NAME	CREDITS	PERIOD/YEAR
CS-E4400	Design of WWW Services	5	I-II/1st year
CS-E4410	Semantic Web	5	III-V/1st year
CS-E4460	WWW-applications	5	I-II/2nd year

Track optional courses

CODE	NAME	CREDITS	PERIOD/YEAR
CS-E4670	Full-stack Web Development	3-7	
CS-E5220	User Interface Construction	5	II/1st year
CS-E4003	Special Assignment in Computer Science	1-10	Agreed with the teacher

Passing the course (in corona times)

Two compulsory parts

- Assignments

- Examination organized by a set questions to be answered

- Grade Pass/No-pass

The assignments have to be passed during the course

- Requirement for participating in the course exam

- Assignments passed on previous years are accepted

Next examination

Will be published after the last assignment DL

Lectures

On Wednesdays at 10.15-12.00 in ZOOM

Schedule of Lectures

Date	Topic	Book chapters
13.01.2021	Introduction, WWW today, and Semantic Web	Semantic Web Primer Ch. 1 (Ch.1 [+ Ch. 2] in older eds.).
20.01.2021	RDF and RDF Schema	Semantic Web Primer Ch. 2 (Ch. 3 in older eds.).
27.01.2021	Linked Data and SPARQL	Linked Data book Ch. 1-2; Semantic Web Primer Ch. 3 (Sec. 3.9 in 2nd ed.) .
03.02.2021	Ontologies and SKOS	Semantic Web Primer Ch. 7.
05.02.2021	Web Ontology Language OWL	Semantic Web Primer Ch. 4 (older eds. cover OWL 1 instead of OWL 2, see changes).
10.02.2021	Logic and Inference: Rules	Semantic Web Primer Ch. 5 (older eds. lack some technologies: e.g., OWL 2 RL, RIF, SWRL, SPIN). See also slides on nonmonotonic rules.
17.02.2021	Semantic Web Infrastructure and Applications	Semantic Web Primer Ch. 6 (older eds. have slightly different application descriptions). Linked Data book Ch. 6.

Study material

- G. Antoniou, P. Groth, F. van Harmelen, R. Hoekstra: A Semantic Web Primer. 3rd Edition. MIT Press, 2012.

- T. Heath, C. Bizer: Linked Data: Evolving the Web into a Global Data Space. Morgan & Claypool, 2011. http://linkeddatabook.com/editions/1.0/

- Lecture slides and other possible material
  - *Traditionally some exam questions are based on these*

Additional materials

- Finnish text book Eero Hyvönen: "Semanttinen web – linkitetyn avoimen datan käsikirja" covers the course topics
  https://gaudeamus.pikakirjakauppa.fi/tuote/eero_hyvonen/semanttinen_web/9789523455245

- Linked Data School Linda Online material: http://linda.seco.cs.aalto.fi/

More information on the web:

- W3C's Semantic Web recommendations:
  http://www.w3.org/standards/semanticweb/

- Books about Semantic Web: http://www.w3.org/2001/sw/wiki/Books

Excercises

Arranged by

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All the assignments need to be passed satisfactorily

- Three sets of assignments

  1. Producing RDF data and RDFS ontologies

  2. SPARQL language and protocol

  3. SKOS, OWL, rules and recommendations

Assignments are done independently, not in groups

- Return your solutions via MyCourses

Schedule (Cf. MyCources Assignments)

Exercise set topics and deadlines are

- Exercise set 1: Producing RDF data and RDFS ontologies (deadline 06.02. 23:55)
- Exercise set 2: SPARQL language and protocol (deadline 06.03. 23:55)
- Exercise set 3: SKOS, OWL, rules and recommendations (deadline 06.04. 23:55)

Assignment support sessions

- **On Thursdays at 10.15-12.00 in Zoom**

*You can also ask for advice
at the MyCourses discussion forum!*

Exercise sessions (tentative, changes possible)

Time and Location: On Thursdays 10:15-12:00, in Zoom

Date	Support for
21.01.2021	Exercise set 1
28.01.2021	Exercise set 1
04.02.2021	Exercise set 1 & 2
11.02.2021	Exercise set 2
18.02.2021	Exercise set 2
25.02.2021	Exercise set 2 & 3
04.03.2021	Exercise set 3
11.03.2021	Exercise set 3

Exam (in corona times)

Set of additional tasks to be completed individually

Will be published after the final deadline of the assignments

Grades: pass / no-pass

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Questions?