



## KURSPLAN

# Nästa generations webb, 7,5 högskolepoäng

*Next Generation Web, 7.5 credits*

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<b>Kurskod:</b>	TNWR21	<b>Utbildningsnivå:</b>	Avancerad nivå
<b>Fastställd av:</b>	VD 2021-03-01	<b>Utbildningsområde:</b>	Tekniska området
<b>Reviderad av:</b>	Utbildningschef 2021-08-12	<b>Ämnesgrupp:</b>	DT1
<b>Gäller fr.o.m.:</b>	2021-08-01	<b>Fördjupning:</b>	A1N
<b>Version:</b>	2	<b>Huvudområde:</b>	Informatik

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### Lärandemål

After a successful course, the student shall:

Kunskap och förståelse

- demonstrate comprehension of principles, methods and techniques of the Linked Data and the Semantic Web
- demonstrate comprehension of vocabularies and schemas for structuring information and resources on the web
- display knowledge of research trends in the areas relevant for the Linked Data and Semantic Web

Färdighet och förmåga

- demonstrate skills of creating graph-oriented database and building knowledge graph
- demonstrate the ability to apply intelligent mechanisms to gathering and processing the data on the web
- demonstrate skills of design and development of web applications with the Semantic and Linked Data technologies

Värderingsförmåga och förhållningssätt

- demonstrate the ability to choose applicable methods and tools for more advanced and intelligent web applications based on the Semantic and Linked Data technologies

### Innehåll

Technologies from many different areas, such as semantic web, data mining, machine learning, recommendation agents, and artificial intelligence are driving the next generation of web. These technologies emphasize machine-facilitated understanding of information on the web to provide a more productive and intuitive user experience. In this course students will be introduced to the vision of next generation web, as well as the languages and tools useful for next generation web development. They will understand how the techniques revolutionize the web and its applications.

The course includes the following elements:

- The Semantic Web
- The Linked Data and Open Data
- Using open vocabularies and standard schemas for structuring information
- Graph oriented database and knowledge graph
- Semantic Web technologies (such as RDF(S), RDFa, SPARQL, OWL, etc.)
- Ontologies
- Linked data visualization
- AI solutions based on the Linked Data and Semantic Web technologies

### Undervisningsformer

The course consists of lectures, assignment and laboratory work.

Undervisningen bedrivs på engelska.

### Förkunskapskrav

The applicant must hold the minimum of a bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Informatics, Computer Engineering, Computer Science or equivalent, and completed course Web Development Fundamentals, 7,5 credits and Web Development - Advanced Concepts, 7,5 credits, or equivalent. Proof of English proficiency is required.

### Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd .

The final grade for the course is based upon a balanced set of assessments. The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Projekt	2,5 hp	5/4/3/U
Inlämningsuppgift	2 hp	5/4/3/U
Laborationer	3 hp	U/G

### Kurslitteratur

The literature list for the course will be provided 8 weeks before the course starts.

Fensel, D., Domingue, J., & Hendler, J. A. (2011). Handbook of Semantic Web Technologies. Springer Berlin / Heidelberg

Heath, T., & Bizer, C. (2011). Linked data evolving the web into a global data space (1st ed.). Morgan & Claypool