COURSE SYLLABUS
Next Generation Web, 7.5 credits

Nästa generations webb, 7,5 högskolepoäng

Course Code:	TNWR21	**Education Cycle:**	Second-cycle level
Confirmed by:	Dean Mar 1, 2021	**Disciplinary domain:**	Technology
Revised by:	Director of Education Aug 12, 2021	**Subject group:**	DT1
Valid From:	Aug 1, 2021	**Specialised in:**	A1N
Version:	2	**Main field of study:**	Informatics

Intended Learning Outcomes (ILO)

After a successful course, the student shall:

Knowledge and understanding
- 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

Skills and abilities
- 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

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

Contents

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

Type of instruction

The course consists of lectures, assignment and laboratory work.

The teaching is conducted in English.

Prerequisites

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 and grades

The course is graded 5,4,3 or Fail.

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.

Registration of examination:

Name of the Test	Value	Grading
Project	2.5 credits	5/4/3/U
Assignment	2 credits	5/4/3/U
Laboratory work	3 credits	U/G

Course literature

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