

Specification for the book of courses

Study program		Computing and Informatics		
Module		Information Systems and Technologies		
Type and level of studies		Master studies		
The name of the course		Semantic Web		
Lecturer (for lectures)		Tošić B. Milorad, Nejković M. Valentina		
Lecturer/associate (for exercises)		Bogdanović D. Miloš, Nejković M. Valentina		
Lecturer/associate (for OFE)				
Number of ECTS		4	Course status (obligatory/elective)	Elective
Prerequisites		Exams passed: Information Systems, Web Programming, Databases and Artificial Intelligence.		
Course objectives		The acquisition of basic theoretical knowledge and possible areas of application for the Semantic Web. Conquering the basic programming techniques for developing semantic web applications in the current stage of technology development. Building creative attitudes towards the possible directions for further development of technology in this area.		
Course outcomes		Developed and adopted a systematic approach to Semantic Web applications in current areas of application. Conquered the theoretical knowledge about applications of semantics and reasoning in information technologies. Students know what they are and are able to effectively work with ontologies, and apply them in solving complex problems including Big Data.		
Course outline				
Theoretical teaching		Introduction: structure, syntax and semantics; need for semantics on the Web. Meta-programming: Metadata, XML Schema, XSLT, RDF. Semantics: The semantics and knowledge, Ontologies, Logic; Reasoning; Domain modeling; Context. Distributed Knowledge: Classification; Knowledge based protocols; Technologies: Tools for working with ontologies; software (API) for working with ontologies, OWL, Methodologies: Methodologies for ontology engineering methodologies of the introduction of knowledge management, semantic systems development methodology; semantic systems: semantic Web Services and semantic Web Portals, Semantic Wiki, Semantic Multi-agent systems, Semantic Web browsers, ... Applications: Big Data analytics and search, Business intelligence, Intelligence in Web application development, Intelligent virtualization of computing infrastructures.		
Practical teaching (exercises, OFE, study and research)				
Textbooks/references				
	1	DuCharme, Bob. Learning SPARQL: querying and updating with SPARQL 1.1. " O'Reilly Media, Inc.", 2013.		
	2	Allemang, Dean, and James Hendler. Semantic web for the working ontologist: effective modeling in RDFS and OWL. Elsevier, 2011.		
	3	Keet, CM. An Introduction to Ontology Engineering. v1.0, July 2018, 270p.		
	4	Materials available on the Internet		
	5			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	0		
Teaching methods	Lectures, Auditorial exercises, Laboratory exercises; Consultations, Independent students' research; students' oral presentation to the selected / given topics; Active students' participation in the classroom using online code and documents repository available in the Laboratory.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	30	Written exam		
Exercises	30	Oral exam	40	
Colloquia				
Projects				