Politechnika Świętokrzyska

WYDZIAŁ ELEKTROTECHNIKI, AUTOMATYKI I INFORMATYKI

COURSE DESCRIPTION

Course code	full-timestudies	
	part-time-studies	
Course name	**Sieci semantyczne**	
Course name in English	**Semantic web**	
Valid from academic year	**2022/23**	

PLACEMENT IN THE TEACHING PROGRAM

Field of study	Computer Science
Level of education	1st degree
Studies profile	General
Form and method of teaching classes	**Full-time and part-time studies**
Specialization	**Information and communication technology**
Organizational unit responsible for the course	**Department of Information Systems**
Course coordinator	**Dr inż. Adam Krechowicz**
Approved by	**Dean of the Faculty of Electrical Engineering, Automatic Control and Computer Science Roman Deniziak, KUT prof., DSc, PhD**

GENERAL CHARACTERISTIC OF THE COURSE

Course affiliation		**Specialty subject**
Course status		1st degree
Language		**English**
Semester	full-timestudies	**VII**
	part-time-studies	**VII**
Requirements		**Intelligent Systems I, Intelligent Systems II**
Exam (YES/NO)		**NO**
ECTS		**6**

Course form		lecture	classes	laboratory	project	other
Hours per semester	full-timestudies	**30**		**15**	**30**	
	part-time-studies	**18**		**9**	**18**	

LEARNING RESULTS

Category	Result Symbol	Learning Results	References to the field of study results
Knowledge	W01	Knows and understands the basic methods of text processing. Knowledge of the basic theoretical concepts related to semantic networks	INF1_W30
	W02	Knows and understands the techniques related to semantic networks	INF1_W30
	W03	Knows and understands the theory related to automatic inference	INF1_W30
Skills	U01	Can determine the demand for the use of semantic networks in information systems	INF1_U30
	U02	Can define knowledge with the use of available technologies	INF1_U30
	U03	Can implement automatic inference rules	INF1_U30
Social competence	K01	Is ready to cooperate in creating a knowledge base	INF1_K1
	K02	Is ready to use knowledge developed by others	INF1_K1
	K03	Is ready to cooperate in creating automatic inferring rules	INF1_K2

COURSE CONTENT

Course Form	Content
lecture	Introduction to semantic networks Use and processing of structured data Ways of defining knowledge Ways of defining ontology Introduction to Automatic Inference Monotonic reasoning Non-monotonic reasoning
laboratory	Gaining knowledge from websites Developing a knowledge structure Knowledge transformation Create a knowledge base Searching the knowledge base Use of a ready-made ontology Development of own ontology Development of inference rules Use of automatic inference
project	The aim of the project is to create a system that uses the knowledge obtained from websites in order to make automatic conclusions. Design purposes include searching for relevant knowledge, transforming knowledge into an appropriate format, developing inference rules, and presenting the acquired new knowledge to end-users. Additionally, the task of the system should be to provide knowledge in the form of microdata. Projects will be implemented in teams of two.

LEARNING RESULTS VERIFICATION METHODS

Result Symbol	Learning results verification methods					
	Oral Exam	Written Exam	Midterm	Project	Report	Other
W01			X			

W02			X			
W03			X			
U01				X		X
U02				X		X
U03				X		X
K01				X		X
K02				X		X
K03				X		X

ASSESSMENT FORMS AND CRITERIA

Course Form	Assessment Form	Assessment Criteria
lecture	Passing with grade	The student obtained a minimum of 50% of the points from the test
classes		
laboratory	Passing with grade	The student obtained a minimum of 50% of the points from the test
project	Passing with grade	Obtaining at least 50% of the points on a design task.
other		

STUDENT'S VOLUME OF WORK

No.	Activity Type	ECTS Balance										Unit

<table>
<tr><td colspan="13" align="center">ECTS Balance</td></tr>
<tr><td rowspan="3">No.</td><td rowspan="3">Activity Type</td><td colspan="10" align="center">Student Involvement</td><td>Unit</td></tr>
<tr><td colspan="5" align="center">full-timestudies</td><td colspan="5" align="center">part-time-studies</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">1)</td><td rowspan="2">Participation in classes according to the schedule</td><td>Lec</td><td>C</td><td>Lab</td><td>P</td><td>S</td><td>Lec</td><td>C</td><td>Lab</td><td>P</td><td>S</td><td rowspan="2">h</td></tr>
<tr><td>30</td><td></td><td>15</td><td>30</td><td></td><td>18</td><td></td><td>9</td><td>18</td><td></td></tr>
<tr><td>2)</td><td>Other (consultations, exams)</td><td>2</td><td></td><td>2</td><td></td><td></td><td>2</td><td></td><td>2</td><td>2</td><td></td><td>h</td></tr>
<tr><td>3)</td><td>Total with the direct assist of an academic teacher</td><td colspan="5" align="center">79</td><td colspan="5" align="center">49</td><td>h</td></tr>
<tr><td>4)</td><td>Number of ECTS, that students obtains with the direct assist of an academic teacher</td><td colspan="5" align="center">3,16</td><td colspan="5" align="center">1,96</td><td>ECTS</td></tr>
<tr><td>5)</td><td>Hours of unassisted student work</td><td colspan="5" align="center">71</td><td colspan="5" align="center">101</td><td>h</td></tr>
<tr><td>6)</td><td>Number of ECTS that student obtains working unassisted</td><td colspan="5" align="center">2,84</td><td colspan="5" align="center">4.04</td><td>ECTS</td></tr>
<tr><td>7)</td><td>Practical classes volume of work</td><td colspan="5" align="center">45</td><td colspan="5" align="center">27</td><td>h</td></tr>
<tr><td>8)</td><td>Number of ECTS obtained by student at practical classes</td><td colspan="5" align="center">1,8</td><td colspan="5" align="center">1,08</td><td>ECTS</td></tr>
<tr><td>9)</td><td>Total student's volume of work expressed in hours</td><td colspan="5" align="center">150</td><td colspan="5" align="center">150</td><td>h</td></tr>
<tr><td>10)</td><td>ECTS</td><td colspan="10" align="center">6</td><td>ECTS</td></tr>
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BIBLIOGRAPHY

1. Standardy dotyczące sieci semantycznych udostępniane przez konsorcjum W3C 2.
2. Krzysztof Dobosz, Przeszukiwanie zasobów Internetu, Helion 2015 (e-book)
3. Hendler, James, Fabien Gandon, and Dean Allemang. *Semantic Web for the Working Ontologist: Effective Modeling for Linked Data, RDFS, and OWL*. Morgan & Claypool, 2020.