STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Selected internet technologies	**1010331561010337132**

Field of study	Profile of study (general academic, practical)	Year /Semester
Information Engineering	**(brak)**	**3 / 6**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Information Technologies	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours	No. of credits
Lecture: **30** Classes: **-** Laboratory: **30** Project/seminars: **-**	**5**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**5 100%**

Responsible for subject / lecturer:

dr inż. Jolanta Cybulka
email: jolanta.cybulka@put.poznan.pl
tel. 0-61 6653724
Wydział Elektryczny
ul. Piotrowo 3A 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	1. Student has structured and methodologically grounded knowledge on software engineering. 2. Student has structured and theoretically grounded knowledge on network technologies. 3. Student has structured and theoretically grounded knowledge on databases and warehouses.
2	**Skills**	1. Student can use programming platforms and environments to design, run and debug simple programs written in imperative, object-oriented and declarative programming languages. 2. Student is able to design and implement a simple database or warehouse and he/she can formulate simple queries to it.
3	**Social competencies**	Student knows that she/he is obliged to perform well her/his job and also knows that she/he is obliged to perform well the part of assigned to her/him part of teamwork.

Assumptions and objectives of the course:

The goal of the course is to present the current trends in Semantic Web and Web 2.0. Students build conceptual models of chosen domains and apply them in Internet applications.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student has structured and theoretically grounded knowledge on internet technologies. - [K_W11]
2. Student has knowledge on state-of-the-art and modern trends in computer engineering. - [K_W19]

Skills:

1. Student can design and implement basic functionalities concerning internet portals and services. - [K_U15]
2. Student can work individually and in collaboration; is able to estimate time needed to perform the ordered task; is able to formulate a schedule of works to be done . - [K_U02]

Social competencies:

1. Student is aware of his/her responsibility for the work done and he/she is ready to comply the rules of work in a team and to bear the responsibility for the collaboratively performed task. - [K_K04]

Assessment methods of study outcomes

Lecture: writing exam (testing the knowledge concerning the basic standards and features of Semantic Web and Web 2.0 applications), minimal score 50,1%.

Laboratory: scored: a) specifying of a conceptual model of some chosen domain of interest in the form of an ontology (RDFS/OWL) b) developing of a simple internet application that uses the ontology c) an individual report on the work that has been done.

Course description

Lectures:

Basics of conceptual modelling with the use of ontologies and well-founded ontologies. Web generations.. Notion of a semantic metadata. Standards of metadata (RDF and RDFS). Semantic Web (ideas, tools and applications): a notion of a (computational) ontology, classifications of ontologies, selected ontologies and their creation&processing methodologies; OWL and OWL2 languages; selected ontology editing and processing tools. Rule-based representations of data on the Web: SWRL language. Querying Web metadata via SPARQL. The idea and basic features of of Web 2.0/3.0. Linked Open Data (LOD). DBpedia and YAGO 2/3 knowledge bases and other modern systems in LOD.

Laboratory (modification 2017):

Collaborative designing and implementing modules of semantic Web internet applications .

1. Forming the working team and selecting its leader; selecting the modelled domain and specifying the features of the application that has to use the model.
2. Defining the conceptual model in the form of an ontology (RDFS/OWL).
3. Designing and implementing an application that uses the ontology.
4. Reporting works done (a model, an algorithm, chosen tools and technologies).

Applied methods of education:

a) lectures illustrated by slides and examples of systems that run in LOD network

b) laboratory: conceptual modelling of domains with the use of alternative tools, applying the model to develop an internet application, which has a quasi-Bachelor in Engineering level.

Basic bibliography:

1. Papers of LDOW (Linked Data on the Web) series of workshops 2008-2017 (http://events.linkeddata.org/ldow2017/
2. W3C Consortium documents http://www.w3.org/TR.
3. Thematic Internet portals.

Additional bibliography:

1. RFC documents

Result of average student's workload

Activity	Time (working hours)
1. lecture	30
2. laboratory	30
3. exam and consulting hours with the teacher	10
4. preparation for exam	10
5. preparation for laboratory	45

Student's workload

Source of workload	hours	ECTS
Total workload	125	5
Contact hours	50	2
Practical activities	75	3