

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Advanced Internet Applications		Code 1010514351010510143
Field of study Computing	Profile of study (general academic, practical) general academic	Year /Semester 3 / 5
Elective path/specialty -	Subject offered in: English	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 16 Classes: - Laboratory: 16 Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) major		(university-wide, from another field) from field
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 3 100% 3 100%
Responsible for subject / lecturer: dr. inż. Maciej Piernik email: maciej.piernik@cs.put.poznan.pl tel. (+48 61) 665-30-57 Faculty of Computing ul. Piotrowo 2, 60-965 Poznań		Responsible for subject / lecturer: dr inż. Paweł Boiński email: pawel.boinski@cs.put.poznan.pl tel. (+48 61) 665-29-65 Faculty of Computing ul. Piotrowo 2, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Students taking this course should possess basic knowledge about network protocols, database systems and object oriented programming.
2	Skills	They should also have basic application programming skills using integrated development environments.
3	Social competencies	They should also understand the necessity to broaden their kompetences and be ready to cooperate with others as a part of a team.
Assumptions and objectives of the course:		
<p>1. Gaining knowledge about www document and application development necessary to distinguish between basic internet application architectures and methods for implementing their modules.</p> <p>2. Enhancing knowledge about network architectures, protocols, and distributed systems security.</p> <p>3. Gaining skills in web application development using advanced user interface development technologies, such as CSS, JavaScript, presentation logic development, such as Java servlets, Java Server Pages, PHP, ASP.NET, Single Page Application Frameworks, business logic development, e.g., JavaBeans, JSF tag library.</p> <p>4. Gaining social competences concerning working as a part of a team, including organising team work, in particular leadership and communication in the process of group problem solving.</p>		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
<p>1. has a structured knowledge about www application architectures - [K1st_W4]</p> <p>2. knows basic methods, techniques, and tools used in solving simple computer science tasks concerning designing, implementing, and deploying web applications - [K1st_W7]</p> <p>3. has a systematized knowledge about network protocols and distributed systems security - [K1st_W4]</p>		
Skills:		
<p>1. is capable of designing and developing an internet application using appropriate tools, methods and techniques - [K1st_U10]</p> <p>2. can design algorithms and implement them using at least one of popular tools available - [K1st_U11]</p> <p>3. is capable of designing web applications based on database systems with interactive user interfaces - [K1st_U12]</p> <p>4. can design an appropriate user interface for various classes of web systems - [K1st_U14]</p> <p>5. can choose a web technology appropriate for a given domain of application - [K1st_U18]</p>		

Social competencies:
1. can work as a part of a team and plan the work for each team member - [K1st_K1]
2. realizes the importance of engineering knowledge in solving problems and knows examples and causes of failed systems - [K1st_K2]
3. has good entrepreneurial skills and thinks about results commercialization - [K1st_K3]

Assessment methods of study outcomes
The above described study outcomes are verified in the following ways:
Continuous grading:
a) lectures:
- based on answers to questions posed during lectures,
b) laboratories:
- based on monitoring the progress of completing the exercises.
Final grading:
- grading and defence of a project created during the semester,
- assesment of knowledge and skills in a test.

Course description
<ol style="list-style-type: none"> 1. Different approaches to the problem of presentation logic on various platforms, such as ASP.NET and Java EE. 2. How to design a reusable business logic capable of serving multiple types of applications and different interfaces on the most common platforms. 3. How to design a data driven application. How to organize a data access layer such that it is reusable, scalable, efficient, and secure. Examples on various platforms. 4. Web application infrastructure. The most popular web development architectures. 5. Http servers 6. Advanced user interface: CSS preprocessors, responsive design, front-end frameworks (e.g., Bootstrap). 7. Single Page Application development using popular JavaScript frameworks, advanced JavaScript concepts, asynchronous processing, designing and developing RESTful Web Services. 8. Authentication and authorization in web applications. The most important attacks and how to defend against them. 9. Testing web application functionality and efficiency.
Teaching methods:
1. Lecture: presentation, examples on a blackboard, live demonstrations, live exercises.
2. Laboratory: completing exercises, working in teams, presentations, live demonstrations.

Basic bibliography:
1. Praca zbiorowa, CSS i Ajax. Strony www zgodne ze standardami sieciowymi W3C, Helion, 2008.
2. A. Marciniak, JavaServer Faces i Eclipse Galileo. Tworzenie aplikacji www, Helion, 2010.
3. L. Bruce, S. Remy, Wprowadzenie do HTML 5. Autorytety informatyki, Helion, 2011.
4. L. Jesse, H. Dan, M. Brian, ASP.NET 2.0 i Ajax. Wprowadzenie, O'Reilly, 2008.

Additional bibliography:
1. P. Kazienko, K. Gwiazda, XML na poważnie, Helion, 2002.
2. L. Jesse, H. Dan, M. Brian, ASP.NET 2.0 i Ajax. Wprowadzenie, O'Reilly, 2008.
3. E. Jendrock, I. Evans, D. Gollapudi, K. Haase, C. Srivathsa, The Java EE 6 Tutorial, Oracle, 2010.

Result of average student's workload	
Activity	Time (working hours)
1. taking part in laboratories	16
2. preparing for the laboratories	16
3. consultations regarding project and homework assignments	2
4. homework assignments	18
5. preparing for tests	12
6. taking part in lectures	16
7. preparing for final test	8

Student's workload		
Source of workload	hours	ECTS
Total workload	88	3
Contact hours	34	1
Practical activities	54	2