POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Fundamentals of Internet Applications

Course

Field of study	Year/Semester
Computing	3/6
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	english
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
30	30	
Tutorials	Projects/seminars	

Number of credit points

4

Lecturers

Responsible for the course/lecturer:
dr hab. inż. Maciej Zakrzewicz, prof. nadzw. PP
email: Maciej.Zakrzewicz@cs.put.poznan.pl
tel. 616652903
wydział: Wydział Informatyki i Telekomunikacji
adres: ul. Piotrowo 2, 60-965 Poznań

Responsible for the course/lecturer:
dr inż. Maciej Piernik
email: Maciej.Piernik@cs.put.poznan.pl
tel. 616653057
wydział: Wydział Informatyki i Telekomunikacji
adres: ul. Piotrowo 3 60-965 Poznań

Prerequisites

Students taking this course should possess basic knowledge about network protocols, database systems and object oriented programming. They should also have basic application programming skills using integrated development environments. They should also understand the necessity to broaden their kompetences and be ready to cooperate with others as a part of a team.

Course objective

1. Gaining knowledge about www document and application development necessary to distinguish between basic internet application architectures and methods for implementing their modules.

2. Enhancing knowledge about network architectures, protocols, and distributed systems security.

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

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

Pages, PHP, ASP.NET, Single Page Application Frameworks, business logic development, e.g., JavaBeans, JSF tag library.

4. Gaining social competences concerning working as a part of a team, including organising team work, in particular leadership and comunication in the process of group problem solving.

Course-related learning outcomes

Knowledge

1. has a structured knowledge about www application architectures - [K1st_W4]

2. knows basic methods, techniques, and tools used in solcing simple computer science tasks concerning designing, implementing, and deploying web applications - [K1st_W7]

3. has a systematized knowledge about network protocols and distributed systems security - [K1st_W4]

Skills

1. is capable of designing and developing an internet application using appropriate tools, methods and techniques - [K1st_U10]

2. can design algorithms and implement them using at least one of popular tools available - [K1st_U11]

3. is capable of designing web applications based on database systems with interactive user interfaces - [K1st_U12]

4. can desingn an appropriate user interface for various classes of web systems - [K1st_U14]

5. can choose a web technology appropriate for a given domain of application - [K1st_U18]

Social competences

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 enterpreneurial skills and thinks about results commercialization - [K1st_K3]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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.

Programme content

1. Introduction to WWW architecture and the concept of WWW applications

2. WWW applications user interface; CSS, XML technologies, JavaScript

3. A review of HTTP server functionalities using Apache as an example

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

4. Presentation logic implementation techniques, classification of such methods; handling HTTP headers, Cookies, and session; the most popular templating technologies used in WWW applications; WWW application lifecycle; a review of popular Single Page Application solutions with examples

5. Business logic principles; examples based on popular technologies

6. Mechanisms for accessing databases in popular WWW applications technologies

7. Web application functionalities common across most technologies and domains - web infrastructure; Model-View-Controller architecture

8. The most important attacks against web applications and mechanisms of defending against them: stealing of the source code, attacks on hidden fields, Cookies, Path Traversal attack, SQL Injection attack, session hijacking, Cross-Site Scripting, Denial of Service

Part of the program is planned as students' own work.

Teaching methods

1. Lecture: presentation, examples on a blackboard, live demonstrations, live exercises.

2. Laboratory: completing exercises, working in teams, presentations, live demonstrations.

Bibliography

Basic

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

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.

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

Breakdown of average student's workload

	Hours	ECTS
Total workload	103	4,0
Classes requiring direct contact with the teacher	62	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, homework assignments, project preparation) [1]	41	2,0

---

[1] delete or add other activities as appropriate