



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Internet applications [S1SI1E>APINT]

### Course

Field of study

Artificial Intelligence

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

English

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

30

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

5,00

### Coordinators

dr inż. Maciej Piernik

maciej.piernik@put.poznan.pl

### Lecturers

### 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 competences 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, Single Page Application Frameworks, business logic development. 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.

### Course-related learning outcomes

Knowledge:

1. has a structured knowledge about web application development - [K1st\_W2]
2. knows basic methods, techniques, and tools used in solving simple computer science tasks concerning designing, implementing, and deploying web applications - [K1st\_W4]
3. has a basic knowledge about the lifecycle and processes taking place in information systems from the perspective of designing, implementing, and deploying web applications - [K1st\_W7]
4. knows cybersecurity and ethical issues related to the creation and use of web applications - [K1st\_W9]

#### Skills:

1. is capable of designing and developing an internet application using appropriate tools, methods and techniques - [K1st\_U2]
2. can design web application-related algorithms and implement them using at least one of popular tools available - [K1st\_U8]
3. is capable of adapting existing and implementing new web application mechanisms - [K1st\_U9]
4. can design a web application which securely processes various data types in a way enabling performing various analyses useful for solving business problems - [K1st\_U10]

#### Social competences:

1. understands that in the world of web applications knowledge and skills are getting outdated very quickly and sees the necessity for continuous learning and updating the previously gained competences - [K1st\_K1]
2. can think and act in an enterprising way, finding the commercial application for the created web applications, having in mind the economic benefits as well as legal and social issues - [K1st\_K5]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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. Different approaches to the problem of presentation logic on various platforms
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.
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.

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

### Course topics

1. HTML, CSS, responsive design, CSS preprocessors
2. JavaScript
3. React
4. Node.js
5. MVC architecture
6. Real-time web applications

### 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. J. Duckett, Web Design with HTML, CSS, JavaScript and jQuery, Wiley, 2014.
2. B. Sholtz, A. Tijms, The Definitive Guide to JSF in Java EE 8: Building Web Applications with JavaServer Faces, Apress, 2018.
3. K. Hadlock, Ajax for Web Application Developers, Sams Publishing, 2006.
4. J. Liberty, D. Hurwitz, B. MacDonald, Learning ASP.NET 2.0 with AJAX: A Practical Hands-on Guide, O'Reilly, 2007.

### Additional

1. E. Jendrock, I. Evans, D. Gollapudi, K. Haase, C. Srivathsa, The Java EE 6 Tutorial, Oracle, 2010.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	60	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	65	2,50