



COURSE DESCRIPTION CARD - SYLLABUS

Course name

WWW and Scripting Languages [S1Teleinf1>WWWiJS]

Course

Field of study
Teleinformatics

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
30

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

The student starting this course should have basic knowledge of programming in High level languages. He should have the ability to program in High level languages. He should also understand the necessity of extending his competences. Moreover, in terms of social competence, a student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people.

Course objective

The aim of the course is to familiarize the student with issues related to the design, development, maintenance and use of web applications. Developing skills of solving basic problems connected with data collecting and processing in the Internet application environment. Developing skills of acquiring knowledge about currently implemented solutions of digital information and communication systems.

Course-related learning outcomes

Knowledge:

Is able to use programming mechanisms and programming environments of object-oriented languages and available library software to develop web applications.

Can effectively use basic services of the Internet and design user interface for web applications using appropriate programming languages.

Is able to solve typical technical problems in the field of construction and operation of computer systems, operating systems, basics of database management and computer networks in order to effectively develop and operate web applications.

Is able to use basic computer techniques used in developing, testing, revising and documenting web application software.

Skills:

Knows basic data structures and algorithms used in web application programming languages and has a working knowledge of programming methodologies and techniques for such applications.

Has knowledge of object-oriented design and programming, the architecture of object-oriented programming systems, and basic object-oriented libraries in various programming languages, including those for writing web applications.

Has knowledge of effective use of services on the Internet, scripting programming languages, systems architecture, and tools and standards used in designing and building Internet applications.

Social competences:

Knows the limitations of his/her own knowledge and understands the necessity of its updating.

He/she is open to possibilities of continuous education and improvement of professional, personal and social competences, including web applications development.

He/she is aware of security threats to network systems and understands the need to use solutions that support data protection.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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In the field of laboratory, verification of the assumed educational effects is realized by:

- continuous assessment, at each class (oral answers),
- rewarding the growth of skills to use the known principles and methods,
- evaluation of the code to solve the task prepared partly during the classes, and partly after their completion. Tasks are evaluated in points from 0 to 10, passing requires at least 60% of the points.

In the scope of the lectures, verification of the assumed learning outcomes is realized by:

- assessment of knowledge and skills demonstrated in a written or oral test of a problematic nature, (3-5 questions from 50-60 questions available, the answer is evaluated in the scale of 0 to 10 points, credit requires at least 60% of the possible points.)

Programme content

1. Structure, queries, cooperation with the HTTP server.
2. Protocols and standards for information exchange on the Internet.
3. HTML5 information description languages, DOM model.
4. Principles of operation and creation of Internet applications. Types of applications. Application architecture.
5. PHP language, code execution environment, procedural programming, object-oriented programming, programming interfaces.
6. Methods and languages for creating interactive websites, JavaScript. JS applications, front-end, back-end, application development.
7. Methods of ensuring the security of data and Internet transactions.
8. Elements of web application architecture.

Course topics

Classes within the module are conducted in the form of a lecture (15 hours) and laboratory exercises (30 hours)

LECTURES

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LABORATORY EXERCISES

1. Getting to know the programming system available in the laboratory (Windows, editors, dedicated portal for publishing and testing code).
2. A website with a structure compliant with the HTML5 language standard with elements of data collection, storage and presentation.
3. File operations - management of data stored in files.
4. A simple blog-type web application created using PHP.
5. Using CSS sheets to format data on a website.
6. Source code analysis, session mechanism, participant management, participant authentication and access control.
7. Getting to know the object-oriented programming style in PHP.
8. Forum application, use of object-oriented programming style in PHP, elements of application architecture, separation of the logic and presentation layers.
9. Getting to know the library of graphics functions, creating and processing graphics in PHP, and getting to know the methods of sending binary files through the PHP program
10. Getting to know the concept of the "middleware" PDO component and mastering the ability to use PDO objects in cooperation with SQL databases.
11. Familiarization with the SQL language and its applications as well as the properties of the 'SQLite' database.
12. Dynamic website modifications, JavaScript language, jQuery library
13. Practical knowledge of the ways of exchanging data between the part of the code executed in the browser "frontend" and the part of the code executed on the server "backend" using PHP, JavaScript and jQuery.
14. Getting to know the concept of an application design pattern.
15. Practical exercise in using the CodeIgniter design pattern as a framework for a forum application.

Teaching methods

Lecture: multimedia presentation, supplemented with current examples and additional explanations on the blackboard

Laboratory exercises: practical solving of tasks which require implementation of selected elements of a web application. Source code analysis of the examples.

Bibliography

Basic:

1. Luke Welling, Laura Thomson; „Tworzenie stron WWW. Vademecum profesjonalisty”, Wydanie czwarte, Helion 2009.
2. Peter MacIntyre, Brian Danchilla, Mladen Gogala; „PHP. Zaawansowane programowanie”, Helion, 2012.
3. Kae Verens; „Projektowanie systemów CMS przy użyciu PHP i jQuery”, Helion, 2011.
4. Tom Negrino, Dori Smith; „Po prostu JavaScript”, wydanie VIII, Helion, 2012.

Additional:

1. "Zend Framework od podstaw. Wykorzystaj gotowe rozwiązania PHP do tworzenia zaawansowanych aplikacji internetowych", Autor: Włodzimierz Gajda
2. "Po prostu XML", Autor: Elizabeth Castro
3. "Projektowanie witryn internetowych dla urządzeń mobilnych", Autorzy: Gail Frederick, Rajesh Lal
4. "Magia interfejsu. Praktyczne metody projektowania aplikacji internetowych", Autor: Robert Hoekman jr

Breakdown of average student's workload

Hours ECTS

Total workload 86 3.0

Classes requiring direct contact with the teacher 45 2.0

Student's own work (preparation for tests, preparation for laboratory classes, literature studies) 41 1.0

Breakdown of average student's workload

	Hours	ECTS
Total workload	86	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	41	1,00