COURSE DESCRIPTION CARD - SYLLABUS

Course name
Management of Internet Applications [N2Inf1-ZTI>ZAI]

Course

Field of study
Computing

Year/Semester
2/3

Area of study (specialization)
Advanced Internet Technologies

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
16

Laboratory classes
16

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Educational results from undergraduate studies defined in the Resolution of the Senate of PP, especially the effects K_W1-2, K_W4, K_W6-15, verified in the process of recruitment to the second degree studies - these effects are presented on the faculty website www.fc.put.poznan.pl Learning outcomes from undergraduate studies defined in the Resolution of the Senate of PP, especially outcomes K_U1-2, K_U4, K_U7-8, K_U14-20, K_U22-23, K_U26, verified in the process of recruitment to 2nd degree studies - these outcomes are presented on the faculty website www. Learning outcomes from 1st degree studies defined in the Resolution of the Senate of PP, especially K_K1-9 outcomes, verified in the process of recruitment to 2nd degree studies - these outcomes are presented on the faculty website www.fc.put.poznan.pl Moreover, in terms of social competence, the student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people.

Course objective

1 To provide students with basic knowledge of web application management, in terms of application concept development, construction, maintenance, testing and optimization of web applications. 2. to develop in students the ability to solve problems typical of modern web applications, e.g. performance, security, testability, and those related to changing user requirements or the process of formal system acceptance. 3. to develop in students the skills of teamwork.

Course-related learning outcomes

Knowledge:
has a structured, theoretically supported general knowledge of web applications, related to their architecture, parameterization, scalability and performance profiling
has advanced detailed knowledge of information technology issues in particular methods, tools and techniques for managing web applications
knows advanced methods, techniques and tools used in solving complex engineering tasks and conducting research work in the selected area of computer science, in particular, methods and tools used in the management of internet applications
has knowledge of the codes of ethics associated with scientific research work conducted in the field of computer science used in the management of various internet applications

Skills:
is able to evaluate the usefulness and applicability of new developments (methods and tools) and new it products in the field of techniques and tools used to manage web applications
is able - in accordance with a given specification, taking into account non-technical aspects - to design a complex device, information system or process and implement this project using appropriate methods, techniques and tools, including adapting existing or developing new tools for this purpose, especially in the process of profiling and scaling web applications
is able to prepare and present a scientific study in polish and english, presenting the results of scientific research or an oral presentation on specific issues in the field of information technology, in particular in the presentation of reports on conducted parameterization and effectiveness assessment in the process of managing internet applications
is able to work together in a team, taking on different roles in the process of parameterization and profiling of web applications an indispensable skill due to the need to divide the work in the team and the complexity and intricacy of problems related to the management of web applications
is able to determine the directions of further learning and realize the process of self-education, including others concerning, among other things, practical aspects related to the management of internet applications

Social competences:
he understands that in computer science knowledge and skills are becoming obsolete very quickly especially the tools of technology and methods of managing web applications
understands the importance of using the latest computer science knowledge in solving research and proctical problems applied to web application management

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Formative assessment:
(a) in terms of lectures:
- Based on answers to questions about the material discussed in previous lectures,
(b) In terms of laboratories / exercises:
- Based on the evaluation of the current progress of the tasks,
- On the basis of evaluation and defense of reports on the work in progress.
Summative assessment:
a) in the field of lectures, verification of the established learning outcomes is carried out by:
- evaluation of knowledge and skills demonstrated on a written test of a problematic nature in the form of 5-10 questions, for which he can receive from 25-50 points, obtaining 60% of the points guarantees passing the test
- Discussing the results of the test.

Programme content

The lecture program covers the following topics:
During the course of this subject, various aspects of building and managing web applications, based on web servers, will be presented. Examples of models and analysis of these applications from the point of view of managing and optimizing their performance will be presented. Issues of broadcasting, versioning and replication of information using web services will be covered. Examples of applications in conducting multimedia marketing and advertising campaigns on the Internet with consideration of content management and distribution will be presented. Issues of organizing multimedia content distribution for media such as Internet TV, video on demand (VOD), streaming broadcasts, distributed music files, P2P networks and protocols, etc. will be discussed. Practical examples of managing multi-server applications will also be given. The following issues will be discussed: content management, building applications taking into account the choice of technology and technical parameters depending on the profile of the application (more server-intensive or more front-end-intensive) and type of client (thin client/thick client). The issues of three-layer application structure along with RIA (rich internet application) will be discussed.
.Laboratory classes are conducted in the form of fifteen 2-hour exercises, held in the laboratory. The exercises are carried out by teams of 3-4 students. The laboratory program includes the following topics:
1) Preparation of the project environment:
a. Selection of project teams, taking into account the specific competencies of individuals
b. creation of application environments
c. organization of the project in an application supporting group work (e.g. Redmine, TFS, JIRA)
d. collecting and organizing project documentation (e.g., SRS, data model)
2) Presentation of the project in front of the group
3) Preparation for application testing
a. designing and creating a test plan
b. design of conditions and test cases
c. selection of test data
d. creation of test scripts (e.g. using JMeter, Selenium or similar tools)
4) Conducting tests of the application
a. conduct manual and automated tests
b. documentation of test results
c. analysis of test results
5) Carry out changes to the application
a. Removal of defects selected from those found
b. optimizing applications for performance
c. optimization of the application against other (selected) features
d. face other challenges in the field of web application management as indicated by the instructor
6) Conduct re-testing of the application
a. indication and evaluation of individual changes
b. re-tests
7) Presentation of work results

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Teaching methods

1. lecture: multimedia presentation, presentation illustrated by examples given on the blackboard, solving tasks, multimedia demonstration, demonstration;
2. laboratory exercises: solving tasks, practical exercises, performing experiments, discussion, teamwork, workshops, case studies.

Bibliography

Basic:
M. A. Miler, Internet Technology Handbook, Optimizing the IP network, Wayley & Sons, 2004

Additional:
1 Munoz-Gea J.P., Malgosa-Sanahuja J., Manzanares-Lopez P., Sanchez-Aarnoutse J.C.. Handbookof Peer-To-Peer Networking. Springer.
2. Liu L., Antonopoulos N. Handbook of Peer-To-Peer Networking. Springer.
3 Turban E., King D., Lee J., WarkentinM., ChungH.M. Electronic Commerce 2002 A Managerial Perspective. PrenticeHall. iu L., Antonopoulos N. Handbook of Peer-To-Peer Networking. Springer.
4 R.B. Clements, Internet Technology Handbook, Aspen Publishers 2001

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	34	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	66	2,50