# Advanced Internet Technologies

## Course Information

- **Course title**: Advanced Internet Technologies
- **Course code**: 72008
- **Scientific sector**: INF/01
- **Degree**: Master in Computer Science (LM-18)
- **Semester**: 2
- **Year**: 1
- **Credits**: 8
- **Modular**: No
- **Total lecturing hours**: 48
- **Total lab hours**: 24
- **Total exercise hours**: --
- **Attendance**: Not Required
- **Prerequisites**: Basic understanding of common procedural and object-oriented programming languages for the Internet such as Java or JavaScript. Basic knowledge of the structure and the protocols used on the Internet.
- **Course page**: ole.unibz.it

## Specific Educational Objectives

The course belongs to the type "caratterizzanti – discipline informatiche" in the curriculum "Data and Knowledge Engineering" and in the curriculum "Software Engineering and IT Management". The objective of this course is to provide a comprehensive knowledge regarding Internet Technologies, including Web, Applications, etc. The orientation of the course includes a significant study on design and development of web applications as well as mobile web applications.

## Lecturer and Contact

- **Lecturer**: Claus Pahl
- **Contact**: Piazza Domenicani 3, Office 1.11, Claus.Pahl@unibz.it, +39 0471 016 177

## Scientific Sector of Lecturer

- **Scientific sector of lecturer**: INF/01

## Teaching Language

- **Teaching language**: English

## Office Hours

- **Office hours**: During the lecture times, and Monday 14:00-16:00. Faculty of CS, Piazza Domenicani 3, Office 1.11

## Lecturing Assistant (If Any)

- **Contact LA**: --
- **Office hours LA**: --

## List of Topics

- Web application design and development
- J2EE
- Ajax
- Web services
- Mobile application frameworks
- Reliability and scalability
- Security and privacy
- Grid computing

## Teaching Format

- Frontal lectures, exercises, labs, projects.
### Learning outcomes

#### Knowledge and understanding
- Know the most up-to-date development architectures for systems based on web and mobile technologies.
- Know the main methods and techniques for designing, creating, and maintaining software products and services.

#### Applying knowledge and understanding
- Be able to design and implement information systems in vertical sectors of applications according to technical, functional and organizational requirements.
- Be able to design and execute experimental analyses on information systems or their components.
- Be able to apply innovative methods for management and improvement of development processes in different application domains such web or mobile.
- Be able to identify new needs and business opportunities in the field of software technology and services.

#### Making judgments
- Be able to identify reasonable work goals and estimate the resources required to achieve the objectives.

#### Communication skills
- Be able to structure and prepare scientific and technical documentation describing project activities.

#### Ability to learn
- Be able to independently keep up to date with developments in the most important areas of Computer Science.

### Assessment
- Written and project work: written exam with verification questions and written project report done in small groups.

### Assessment language
- English

### Evaluation criteria and criteria for awarding marks
- The final grade is the average of the written exam (50%) and the project assessment (50%). Both parts must be individually passed.

- The project documentation needs to be submitted before the end of May and will be followed by a short presentation/discussion during the last week of the teaching period.

- The project is valid for the 3 regular exam sessions of the academic year. It can be presented before the end the first exam session or during one of the following 2 regular exam sessions.

- Relevant points for written exam: clarity of answers, mastery of language ability to summarize, evaluate, and establish relationships between topics;
- Relevant for project assessment: ability to apply the concepts and technologies covered in the course, creativity, skills in critical thinking.

### Required readings
- The course will be based on lecture notes

### Supplementary readings
- None.
| Software used       | Apache Server, Apache Tomcat, PostgreSQL, MySQL/MariaDB, J2EE JDK, Apache Cordova, PhoneGap, jQuery, Bootstrap (All required software is Open Source, freely available in Internet). |