

## 30246 - Web Engineering

### Syllabus Information

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**Academic Year:** 2019/20

**Subject:** 30246 - Web Engineering

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura  
326 - Escuela Universitaria Politécnica de Teruel

**Degree:** 443 - Bachelor's Degree in Informatics Engineering  
439 - Bachelor's Degree in Informatics Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** 439 - First semester

439 - First semester

439 - First semester

439 - First semester

439 - First semester

439 - First semester

439 - First semester

443 - First semester

443 - First semester

443 - First semester

443 - First semester

443 - First semester

443 - First semester

443 - First semester

**Subject Type:** ---

**Module:** ---

## 1.General information

### 1.1.Aims of the course

### 1.2.Context and importance of this course in the degree

### 1.3.Recommendations to take this course

## 2.Learning goals

### 2.1.Competences

### 2.2.Learning goals

### 2.3.Importance of learning goals

## 3.Assessment (1st and 2nd call)

### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

The activities of continuous assessment during the 1st call are the following:

- Short individual works (20%). A maximum of 3 reports on topics related to Web Engineering.
- Group project (80%). A project that will implement a Web system based on on topics related to Web Engineering. The mark of each of the members of the group will be the mark of the project multiplied by a factor that will take into account the individual performance of each student in the project, the delivery of the practices of the subject and the realization of some outstanding contribution during the practices.

There will be a written examination in the 1st call for those who do not pass the subject by the procedures indicated above.

The 2nd call, to which all students who have not passed the 1st will be entitled, will be carried out through a written examination.

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

This subject has a fundamentally applied orientation so that the activities proposed a focus on learning based on experience. The most appropriate didactic strategies to link theory and professional practice with this purpose are *professional talks*, *problem-based learning* and the *development of a project*. However, the above strategies are difficult to develop without a conceptual basis that allows the student to understand and, where appropriate, perform learning outside the classroom. It is the mission of the *interactive lectures* to provide this base.

### 4.2. Learning tasks

The course includes the following learning tasks:

#### Interactive lectures

The goal of interactive lectures is to provide students with the basis for understanding the importance of Web Engineering and any other specific aspects that cannot be developed in other activities. Students will be encouraged to engage in activities related to the contents of the lecture during the class.

#### Problem-based learning

The purpose is to apply the concepts and techniques presented in the course for solving problems. The goal of problem-based learning activities is the application of knowledge to the design, development and operation of web-based systems.

#### Professional talks

If they are available, some experts will lecture about their daily experience with real web-based systems. These talks will allow students to contrast the knowledge acquired during problem-based learning activities and interactive lectures with the experience of experts.

#### Development of a project

The development of a project is a workgroup whose specific objective is the development of a Web-based system. It allows the student to acquire experience in working with web standards and technologies currently used by the industry. This activity also allows developing skills related to teamwork and management of working groups.

### 4.3. Syllabus

The course syllabus covers the following topics.

- **Client/server systems** (middleware and distributed object systems; specific technologies).
- **Web development** (technologies and standards).
- **Service-oriented architectures** (web services, composition and choreography, technologies and standards, future prospects).

These topics are structured along the course as follows:

1. **Fundamentals of Web Engineering**
2. **Design of Distributed Information Systems**
3. **Technologies and standards for the web**
4. **Design and development of Web applications**
5. **Architectures for the Web**
6. **Future**

### 4.4. Course planning and calendar

#### Calendar of sessions and presentation of works

The schedule of the course will be defined by the academic calendar in each of the centers where this course is taught.

The sessions will have an approximate total duration of 60 hours divided between lectures, problems and laboratory practice. The schedule of all classes and dates practice sessions will be announced in advance in the website of the degree.

The project will be delivered at the end of the term. The deadlines will be available at the beginning of the course.

#### Student work

The course consists of 6 ECTS credits, of which 2.4 credits correspond to classes and 3.6 credits to autonomous work. Therefore, the dedication of a student in order to achieve the learning outcomes in this course is estimated in 150 hours (60 of the in the classroom and 90 of autonomous work) distributed as follows:

- 55 hours in the classroom (lectures, professional seminars, problem solving activities, and laboratory assignments).

- 75 hours of group work.
- 15 hours of individual study.
- 5 hours in evaluation activities.

#### 4.5. Bibliography and recommended resources

[BB: Basic Bibliography / CB: Complementary Bibliography]

EINA:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30246&Identificador=14711>

- [BB] Hohpe, Gregor. Enterprise integration patterns : designing, building, and deploying messaging solutions / Gregor Hohpe, Bobby Woolf ; with contributions by Kyle Brown ... [et al.] Boston [etc.] : Addison-Wesley, cop. 2004
- [BB] Pressman, Roger S.. Ingeniería del Software : un enfoque práctico / Roger S. Pressman . - 7ª ed. México D. F. : McGraw-Hill Interamericana, cop. 2010
- [BB] Richardson, Leonard. RESTful web services / Leonard Richardson and Sam Ruby ; [foreword by David Heinemeier Hansson] . 1st ed. Sebastopol (California) : O'Reilly, 2007
- [BB] Web engineering : the discipline of systematic development of web applications / edited by Gerti Kappel ... [et al.] Chichester : John Wiley & Sons, cop. 2006
- [BB] Web services : concepts, architectures, and applications / Gustavo Alonso ... [et al.] . Berlin [etc.] : Springer, cop. 2010
- [BB] Ejsmont, Artur. Web scalability for startup engineers : tips & techniques for scaling your Web application / Artur Ejsmont . New York [etc.] : McGraw-Hill Education, 2015
- [BB] Grigorik, Ilya. High-performance browser networking / Ilya Grigorik . Beijing [etc.] : O'Reilly, 2013
- [BB] Newman, Sam. Building microservices / Sam Newman . Beijing [etc.] : O'Reilly, 2015
- [BB] Next generation SOA : a concise introduction to service technology & service-orientation / Thomas Erl ... [et al.] . Upper Saddle River [etc.] : Prentice Hall, cop. 2015
- [BC] Chacon, Scott. Pro Git / Scott Chacon , Ben Straub. - 2nd Edition Apress, 2014
- [BC] Pressman, Roger S. Ingeniería del Software : un enfoque práctico / Roger S. Pressman . 7ª ed. México D. F. : McGraw-Hill Interamericana, cop. 2010
- [BC] Turnquist, G.L. Learning Spring Boot / G L Turnquist Packt Publishing, 2014

EUTP:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30246&Identificador=14945>

- [BB] Hohpe, Gregor. Enterprise integration patterns : designing, building, and deploying messaging solutions / Gregor Hohpe, Bobby Woolf ; with contributions by Kyle Brown ... [et al.] . Boston [etc.] : Addison-Wesley, cop. 2004
- [BB] Pressman, Roger S.. Ingeniería del Software : un enfoque práctico / Roger S. Pressman . 7ª ed. México D. F. : McGraw-Hill Interamericana, cop. 2010
- [BB] Richardson, Leonard. RESTful web services / Leonard Richardson and Sam Ruby ; [foreword by David Heinemeier Hansson] . 1st ed. Sebastopol (California) : O'Reilly, 2007
- [BB] Web engineering : the discipline of systematic development of web applications / edited by Gerti Kappel ... [et al.] . Chichester : John Wiley & Sons, cop. 2006
- [BB] Web services : concepts, architectures, and applications / Gustavo Alonso ... [et al.] . Berlin [etc.] : Springer, cop. 2010