

**1. General information****Course:** WEB SYSTEM DEVELOPMENT**Type:** ELECTIVE**Degree:** 407 - DEGREE PROGRAMME IN COMPUTER SCIENCE ENGINEERING**Center:** 108 - SCHOOL OF COMPUTER SCIENCE OF C. REAL**Year:** 4**Main language:** English**Use of additional languages:****Web site:** <http://campusvirtual.uclm.es>**Code:** 42386**ECTS credits:** 6**Academic year:** 2020-21**Group(s):** 20**Duration:** C2**Second language:****English Friendly:** N**Bilingual:** Y**Lecturer:** MANUEL ANGEL SERRANO MARTIN - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
Fermin Caballero / 3.11	TECNOLOGÍAS Y SISTEMAS DE INFORMACIÓN	6475	manuel.serrano@uclm.es	Available in <a href="https://esi.uclm.es/categorias/profesorado-y-tutorias">https://esi.uclm.es/categorias/profesorado-y-tutorias</a>

**2. Pre-Requisites**

- Programming Fundamentals
- Software Engineering
- Computer - Human Interaction

**3. Justification in the curriculum, relation to other subjects and to the profession**

Web systems are a large part of computer applications today. The development of these systems, in many cases, does not follow an adequate methodological approach, so the applications suffer from sufficient quality to satisfy the huge number of potential customers. In this subject, and in order to alleviate the problems described, we offer an approach based on web development methodologies, according to the principles of web engineering. The agenda is completed with the use of content managers and specific applications for the development of social networks and related topics.

**4. Degree competences achieved in this course****Course competences**

Code	Description
INS01	Analysis, synthesis, and assessment skills.
INS02	Organising and planning skills.
INS03	Ability to manage information and data.
INS04	Problem solving skills by the application of engineering techniques.
INS05	Argumentative skills to logically justify and explain decisions and opinions.
PER01	Team work abilities.
PER02	Ability to work in multidisciplinary teams.
PER03	Ability to work in an international context.
PER04	Interpersonal relationship skills.
PER05	Acknowledgement of human diversity, equal rights, and cultural variety.
SI01	Ability to integrate information and communication technology solutions and entrepreneurial process so as to fulfil the needs for information in organisation, allowing them to meet their goals in an effective and efficient manner, providing them with competitive benefits.
SI02	Ability to determine the needs of information and communication systems in an organisation, following security aspects and complying with current laws and regulations.
SI03	Ability to actively take part in the specification, design, implementation, and maintenance of information and communication systems.
SIS01	Critical thinking.
SIS03	Autonomous learning.
SIS04	Adaptation to new scenarios.
SIS05	Creativity.
SIS06	Leadership skills.
SIS07	Knowledge about other cultures and customs.
SIS08	Initiative and entrepreneurial abilities.
SIS09	Care for quality.
UCLM01	Command of a second language at a B1 level within the Common European Framework of Reference for Languages
UCLM04	Professional ethics.

**5. Objectives or Learning Outcomes****Course learning outcomes**

Description

Knowledge and skills in the use of the main Web programming languages.

Ability to develop advanced applications with database management systems including web-based systems.

## 6. Units / Contents

### Unit 1: Web architectures and frameworks

### Unit 2: Web systems development languages

Unit 2.1 Server-side languages

Unit 2.2 Client-side languages

Unit 2.3 Database access

### Unit 3: Web engineering and development methodologies

Unit 3.1 Web engineering

Unit 3.2 Web systems development methodologies

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	INS01 INS02 INS04 INS05 SI01 SI02 SI03 SIS01 SIS09 UCLM01 UCLM04	0.72	18	N		Teaching of the subject matter by lecturer (MAG)
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	INS01 INS02 INS04 INS05 PER01 PER03 PER04 PER05 SI01 SI02 SI03 SIS04 SIS05 SIS06 SIS07 SIS08 SIS09 UCLM01 UCLM04	0.6	15	Y	Y	Worked example problems and cases resolution by the lecturer and the students (PRO)
Laboratory practice or sessions [ON-SITE]	project-based learning	INS01 INS02 INS03 INS04 INS05 PER01 PER02 PER03 PER04 SI01 SI02 SI03 SIS04 SIS05 SIS06 SIS07 SIS08 SIS09 UCLM01 UCLM04	0.6	15	Y	N	Realization of practicals in laboratory /computing room (LAB)
Individual tutoring sessions [ON-SITE]	Guided or supervised work	INS01 INS02 INS04 INS05 SI01 SI02 SI03 SIS09	0.18	4.5	N		Individual or small group tutoring in lecturer's office, classroom or laboratory (TUT)
Study and Exam Preparation [OFF-SITE]	Self-study	INS01 INS02 INS04 INS05 SI01 SI02 SI03 SIS03 SIS08 SIS09	2.1	52.5	N		Self-study (EST)
Other off-site activity [OFF-SITE]	Problem solving and exercises	INS01 INS02 INS04 INS05 PER01 PER03 PER04 SI01 SI02 SI03 SIS01 SIS03 SIS04 SIS05 SIS06 SIS07 SIS08 SIS09	0.9	22.5	Y	Y	Lab practical preparation (PLAB)
Practicum and practical activities report writing or preparation [OFF-SITE]	project-based learning	INS01 INS02 INS03 INS04 INS05 PER01 PER02 PER03 PER04 SI01 SI02 SI03 SIS01 SIS03 SIS04 SIS05 SIS06 SIS07 SIS08 SIS09	0.6	15	Y	Y	Lab practical preparation (PLAB)
Final test [ON-SITE]	Assessment tests	INS01 INS02 INS04 INS05 SI01 SI02 SI03 UCLM01 UCLM04	0.3	7.5	Y	Y	Final test of the complete syllabus of the subject (EVA)
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>			<b>Total class time hours: 60</b>				
<b>Total credits of out of class work: 3.6</b>			<b>Total hours of out of class work: 90</b>				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Laboratory sessions	25.00%	25.00%	Compulsory activity that can be retaken. To be carried out during lab sessions
Oral presentations assessment	15.00%	15.00%	Non-compulsory activity that can be retaken. To be carried out during the theory/lab sessions. The students of non-continuous modality will be evaluated of this activity through an alternative system in the ordinary call
Test	45.00%	45.00%	Compulsory activity that can be retaken (rescheduling) to be carried out within the planned exam dates of the final exam call (convocatoria ordinaria).
Theoretical papers assessment	15.00%	15.00%	Non-compulsory activity that can be retaken. To be carried out before end of teaching period

	Total	100.00%	100.00%
According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).			

#### Evaluation criteria for the final exam:

##### Continuous assessment:

In compulsory activities, a minimum mark of 40% is required in order to pass that activity and have the possibility to therefore pass the entire subject. The evaluation of the activities will be global and therefore must be quantified by means of a single mark. If the activity consists of several sections, each section may be evaluated separately provided students are informed in writing of this evaluation criterion at the beginning of the academic year. In the case of the activities that may be retaken (i.e., rescheduling), an alternative activity or test will be offered in the resit/retake exam call (convocatoria extraordinaria). The final exam will be common for all the theory/laboratory groups of the subject and will be evaluated by the lecturers of the subject in a serial way, i.e., each part of the final exam will be evaluated by the same lecturer for all the students.

A student is considered to pass the subject if she/he obtains a minimum of 50 points out of 100, taking into account the points obtained in all the evaluable activities, and also has passed all the compulsory activities.

For students who do not pass the subject in the final exam call (convocatoria ordinaria), the marks of activities already passed will be conserved for the resit/retake exam call (convocatoria extraordinaria). In the case of the passed recoverable activities, the student will have the opportunity to receive an alternative evaluation of those activities in the resit/retake exam call and, in that case, the final grade of the activity will correspond to the latter grade obtained.

The mark of the passed activities in any call, except for the final exam, will be conserved for the subsequent academic year at the request of the student, provided that mark is equal or greater than 50% and that the activities and evaluation criteria of the subject remain unchanged prior to the beginning of that academic year.

The failure of a student to attend the final exam will automatically result in her/him receiving a "Failure to attend" (no presentado). If the student has not passed any compulsory evaluation activity, the maximum final grade will be 40%.

##### Non-continuous evaluation:

Students who are unable to attend training activities on a regular basis may apply at the beginning of the semester for the non-continuous assessment mode. Similarly, if a student who is undergoing continuous assessment incurs any circumstance that prevents her/him from regularly attending the classroom-based training activities, she/he may renounce the accumulated mark in continuous assessment and apply for the non-continuous assessment mode. In this case, a notification by the student must be given before the date scheduled for the tests in the ordinary call, in accordance with a deadline that will be informed at the beginning of the semester.

Students who take the non-continuous assessment mode will be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences), through the assessment systems indicated in the column "Non-continuous assessment".

In the "non-continuous assessment" mode, it is not compulsory to keep the mark obtained by the student in the activities or tests (progress test or partial test) taken in the continuous assessment mode.

#### Specifications for the resit/retake exam:

Evaluation tests will be conducted for all recoverable activities.

#### Specifications for the second resit / retake exam:

Same characteristics as the resit/retake exam call.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
General comments about the planning: The subject is taught in 3 x 1,5 hour sessions per week.	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Daniel M. Brandon	Software Engineering for Modern Web Applications	IGI Global		978-1-59904-492-7	2008	
Pressman, Roger S.	Web engineering : a practitioner's approach	McGraw-Hill		978-007-126377-1	2009	
Theodor Richardson	Multimedia Web Design and Development: Using Languages to Build Dynamic Web Pages	Mercury Learning & Information		978-1936420384	2013	