

Internet Applications Programming

Code: 104530
ECTS Credits: 6

Degree	Type	Year	Semester
2503743 Management of Smart and Sustainable Cities	OB	1	2

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Carles Pedret Ferré

Prerequisites

Do not qualify for planned programming connections to be able to take the course.

Objectives and Contextualisation

In this subject we will learn to program web applications with JavaScript and using HTML for the program structure and CSS for the presentation.

The objectives of the subject are:

- Understand the differences between HTML, CSS and JavaScript and know how to make web pages that use these three technologies correctly.
- Understand the complexity of creating web applications, as well as the parts that make up any web development.
- Master the basics of application programming.
- Know how to interpret and decompose a computer problem to be able to program a solution.
- Know how to create small web applications that interact with the user through forms.

Competences

- Critically analyse work carried out and demonstrate a desire to improve.
- Measure the technological infrastructure necessary to respond to the needs of cities, understanding the interactions between technological, social and operational aspects of cities.
- Solve urban management problems using knowledge, methodology and procedures for the design and implementation of computer applications for different types of environment (web, mobile, cloud) and different paradigms.

- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
- Work cooperatively in complex and uncertain environments and with limited resources in a multidisciplinary context, assuming and respecting the role of the different members of the group.

Learning Outcomes

1. Critically analyse work carried out and demonstrate a desire to improve.
2. Design new algorithmic solutions based on the idea of ??recursion or specific algorithm-design techniques.
3. Develop computer applications in web environments in accordance with their structure, the interrelation of server components and those steps consistent with information management.
4. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
5. Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
6. Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
7. Use algorithm and programme-analysis techniques.
8. Work cooperatively in complex and uncertain environments and with limited resources in a multidisciplinary context, assuming and respecting the role of the different members of the group.

Content

In this subject we will see the following:

1. Introduction to Internet and Web servers.
2. HTML language
3. CSS style sheets, responsive web design.
4. Introduction to JavaScript: syntax, variables, types, operators.
5. Control structures: iterative and alternative scheme.
6. Functions: Declaration, parameters, predefined functions.
7. Object-oriented programming.
8. Browser Objects (DOM)
9. Forms and events
10. Introduction to JavaScript libraries
11. Web hosting
12. Introduction to content managers
13. Analytics, SEO and SEM

Methodology

The only way to learn to program is by doing many exercises, so the subject requires a strong involvement of students. Each week there will be a practical session that students must prepare in advance. Teamwork and collaborative exchange will be encouraged. However, the final learning process must be individual, highlighted by the autonomous activity of each student, which must complement and enrich the work started in the directed sessions of the course. The supervised activity, around regulated tutorials and sporadic consultations carried out during the course, is also an essential tool in the achievement of the competencies provided by the subject.

The statements, the slides that will be used in the theoretical classes, the lists of exercises and other relevant information for the follow-up of the subject will be published in the classroom of the Virtual Campus of the UAB. This space will also be used to place announcements related to the subject which, if important, will be forwarded by e-mail to the UAB e-mail address that all students have.

The subject teacher encourages students to use email to ask any questions related to the subject, without limitations on date and time.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practical classes	24	0.96	1, 3, 2, 6, 5, 4
Thery class	26	1.04	3, 2, 6, 5, 4
Type: Supervised			
Tutorials	10	0.4	1, 3, 2, 6, 5, 4
Type: Autonomous			
Preparation of the project defense	10	0.4	1, 6, 5, 4
Problem based work	20	0.8	1, 3, 2, 6, 5, 4
Reading and study	45	1.8	1, 3, 2, 6, 5, 4
Written reports	10	0.4	1, 3, 2, 6, 5, 4

Assessment

a) Processes and scheduled evaluation activities

The calendar of assessment activities will be given on the first day of the subject and will be made public through of the Virtual Campus and the web of the School of Engineering, in the section of examinations.

The final quali of the subject will be obtained based on the valuations of the different evidences, taking into account that each one of the parts has a different specific weight:

- PART 1: 30% Exam1 and 30% Exam2
- PART 2: 40% Project

The grade of the subject will be calculated from the weighted sum of PART1 and PART1, as long as PART1 has a grade equal to or greater than 5.

b) Retake process

There will be a re-evaluation test that will include all the topics covered in the course. This test will allow you to retake the two exams in PART 1.

No recovery from the laboratory.

There is no recovery from PART 2.

c) Special grades

A student who performs at least one of the components of the continuous evaluation can no longer be considered as NOT Evaluable.

If a student does not reach the minimum grade of 5 in any of the two parts (PART1 and / or PART2) and for this reason does not pass the subject, the final grade will be a maximum of 4.5, that is, equal to the value of the weighted average if it is less than 4.5 or 4.5 if it is higher.

In order to pass the course with honors, the final grade must be equal or higher to 9 points. Because the number of students with this distinction can not exceed 5% of the number of students enrolled in the course, it is given to whoever has the highest final marks. In case of a tie, it will be taken into account the resolutions of the partial tests.

d) Procedure for the review of qualifications

For the assessment activity, a place, date and time of review will be indicated in which the student will be able to review the activity with the teacher. It will also be possible to request the revision of the exam by sending an e-mail to the person in charge of the subject sent within the first week after the publication of the notes.

e) Evaluation of repeating students

No note is saved from one course to the next. Repeating students follow the same assessment standards as any other student.

f) Consequences of irregularities committed by students

Notwithstanding other disciplinary measures deemed appropriate, and in accordance with the academic regulations in force, assessment activities will receive a 0 score whenever a student commits academic irregularities that may alter such assessment (copying, plagiarism, cheating, letting someone copy, etc.) The assessment activities qualified in this way and by this procedure will not be recoverable. If you need to pass any of these assessment activities to pass the subject, this subject will be failed directly, without opportunity to recover it in the same course.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam1	25%	2	0.08	1, 3, 2, 6, 5, 4
Exam2	25%	2	0.08	1, 3, 2, 6, 5, 4
Laboratories	10%	0	0	1, 3, 2, 8, 7
Proyecto	40%	1	0.04	1, 3, 2, 6, 5, 4

Bibliography

Start Programming Using HTML, CSS, and JavaScript, Fajfar, Iztok, Chapman and Hall/CRC. 2016

JavaScript : the definitive guide, Flanagan, David Sebastopol, O'Reilly, cop. 2011
6th ed.

Guía de JavaScript del Centro de Desarrollo Mozilla (MDN)
<https://developer.mozilla.org/es/docs/Web/JavaScript/Guide>

Referencia de JavaScript del Centro de Desarrollo Mozilla (MDN)
<https://developer.mozilla.org/es/docs/Web/JavaScript/Referencia>

Primeros pasos en la web (MDN) https://developer.mozilla.org/es/docs/Learn/Getting_started_with_the_web

Referencia de HTML (MDN) <https://developer.mozilla.org/es/docs/Web/HTML/Referencia>

Referencia de CSS (MDN) https://developer.mozilla.org/es/docs/Web/CSS/Referencia_CSS

Software

There is no specific software for this subject.