

COURSE DESCRIPTION

COURSE DETAILS

Title (of the course): **PROGRAMACIÓN WEB**

Code: 101400

Degree/Master: **GRADO DE INGENIERÍA INFORMÁTICA**

Year: 3

Name of the module to which it belongs: OBLIGATORIO TECNOLOGÍA INFORMÁTICA

Field: PROGRAMACIÓN WEB

Character: OBLIGATORIA

Duration: FIRST TERM

ECTS Credits: 6.0

Classroom hours: 60

Face-to-face classroom percentage: 40.0%

Study hours: 90

Online platform: <http://www.uco.es/moodle>

LECTURER INFORMATION

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Department: INFORMÁTICA Y ANÁLISIS NUMÉRICO

Area: CIENCIA DE LA COMPUTACIÓN E INTELIGENCIA ARTIFICIAL

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PREREQUISITES AND RECOMMENDATIONS

Prerequisites established in the study plan

None

Recommendations

It is recommended to have passed the following courses or, at least, to have sufficient understanding of them:

- * Metodología de la programación
- * Programación orientada a objetos
- * Bases de datos
- * Estructuras de datos

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INTENDED LEARNING OUTCOMES

CB4	To make students able to share information, ideas, problems and solutions with an audience of specialists and non-specialists
CTEIS1	Ability to develop, maintain and evaluate software services and systems to meet all user requirements and behave reliably and efficiently, are affordable to develop and maintain and comply with quality standards, applying the theories, principles, methods and practices Software Engineering.
CTEIC6	Ability to understand, implement and manage the security and safety of computer systems.
CTEC6	Ability to develop and assess interactive systems and to present complex information, as well as its application to problem-solving related to computer-user interaction design.

OBJECTIVES

The development of applications in web environments poses a series of distinctive challenges that must be known and addressed specifically. The aim of this course is for students to understand the concepts associated with this type of projects, as well as to be introduced to the use and application of the technologies and languages specific to the sector, understanding the options available and knowing how to assess their applicability. It is also intended that students acquire the most important knowledge and skills necessary to start developing professional web applications, including aspects of design and good practices in their development. To this end, and given the changing technological environment in which this subject is situated, a broad approach is considered, as opposed to an in-depth approach. Thus, the student will be provided with the necessary tools to understand and know how to value current technologies, know the most relevant aspects related to the design and development of these applications and discuss current trends in the field.

CONTENT

1. Theory contents

Part I. Introduction to web programming

1. History of web programming

2. Introduction to the web

Part II. Infrastructure and typology

3. Fundamentals of the Internet

4. Web typology and C/S environments

Part III. Fundamentals of web development

5. Technological foundations and corporate sites

6. Client-side languages for the web

7. Best practices in code development

2. Practical contents

In the practical sessions of the course, the student will have the opportunity to plan and develop a web application project. To this end, they will use Java and associated technologies such as JDBC for interaction with databases, and J2EE, one of the most widespread for server-side development of professional applications on a business scale, as well as other front-end languages.

One or more practical cases will be proposed and worked on during the course. The practical exercises may be carried out individually or in teams, as indicated by the teaching staff at the beginning of the course. In the case of team practicals, students will propose a solution and design their proposal for each problem posed, which they will subsequently have to code and deploy. The teams will be made up of a specific number of students (determined by the work placement teaching staff at the beginning of the course) and, once these teams have been formed, they will remain unchanged for the rest of the course. Several incremental deliveries of internships will be planned,



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which will include a written report, the associated source code, executables and videos presenting the work carried out by the internship team. In addition, the final project may be defended in an oral interview, as established by the teaching staff at the beginning of the course, so attendance to practical sessions will be important. In general, the practicals will be planned to cover the development of a simple web application, covering essential aspects of design (separation into layers, architectural patterns, etc.), development (according to quality criteria and good practices) and deployment.

SUSTAINABLE DEVELOPMENT GOALS RELATED TO THE CONTENT

Unrelated

METHODOLOGY

General clarifications on the methodology (optional)

In addition to the bibliography and lecture summaries, students will have access to additional material on the Moodle virtual learning platform and other sources available and indicated by the teaching staff. Updated references to external resources will also be provided both for the study and consolidation of the content of the subject and for voluntary extension of the programme.

Methodological adaptations for part-time students and students with disabilities and special educational needs

In the case of students with specific educational needs, only in exceptional cases, duly justified and duly assessed and informed, may the assessment criteria be modified and adapted to these students, provided that the principles of equal rights and opportunities for all students in the subject are maintained and guaranteed.

Face-to-face activities

Activity	Large group	Medium group	Total
<i>Assessment activities</i>	2	-	2
<i>Case study</i>	6	-	6
<i>Lab practice</i>	-	24	24
<i>Lectures</i>	22	-	22
<i>Seminar</i>	4	-	4
<i>Tutorials</i>	2	-	2
Total hours:	36	24	60

Off-site activities

Activity	Total
<i>Exercises</i>	20
<i>Information search</i>	8
<i>Reference search</i>	14

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Activity	Total
<i>Self-study</i>	48
<i>Total hours</i>	<i>90</i>

WORK MATERIALS FOR STUDENTS

Exercises and activities
 Oral presentations
 Placement booklet
 References

Clarifications

All material, including references or links to it, will be available to students through the Moodle platform.

EVALUATION

Intended learning	Exams	Oral Presentation	Placement reports
<i>CB4</i>	X	X	
<i>CTEC6</i>			X
<i>CTEIC6</i>		X	X
<i>CTEIS1</i>	X		X
<i>Total (100%)</i>	<i>60%</i>	<i>10%</i>	<i>30%</i>
<i>Minimum grade</i>	<i>5</i>	<i>5</i>	<i>5</i>

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

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Attendance will be assessed?:

No

General clarifications on instruments for evaluation:

PRACTICAL CONTENT

The aim is for the student to consolidate and develop the cognitive, procedural, and attitudinal competencies set out in this guide. The practical content of the course will be evaluated considering the set of grades from the reports and source codes of the different proposed exercises, together with an oral examination that the lecturer may carry out in order to determine the real knowledge acquired. Likewise, students could be requested to submit an explanatory video in which they explain in a professional and technical way the development of their project. The qualification may be complemented with self/hetero-assessment reports and will be published for the total number of internships at the end of the term. The lecturer will indicate at the beginning of the course the specific weighting of the proposed practicals. In any case, the submission of practicals will be consecutive and cumulative, so it will not be possible to submit a practical without having submitted the previous ones, always in accordance with the specific regulations and the deadlines announced for this purpose. The submission of all practicals in due time and form is required in order to be graded as a Pass (grade equal to or higher than 5). In case of passing this practical part (grade higher than 5) but not the total of the subject, this grade will be maintained for the following exam sessions of the academic year. The minimum grade required to compute this part of the course as a whole is 4 (according to covid regulations), and it represents 40% of the total grade of the course.

THEORETICAL CONTENT

The theoretical content of the subject will be assessed by means of written exam/s, which may consist of questions (essay or multiple-choice) related to the material taught in the lectures, as well as problems or practical cases related to theory and practice. A mid-term exam may be taken, which will be arranged with the students at the beginning of the term. The mid-term will be eliminatory and its participation will be calculated as half of the assessment with the instrument "Exams". In case of failing the mid-term (grade should be higher than 5), the student will have to take the final exam. The minimum grade required to pass the theoretical content of the course is 5, which represents 60% of the total grade of the course. In the case of passing this theoretical part but not the total of the subject, this grade will be maintained for the following exams of the academic year.

GENERAL ASPECTS

- In relation to what is indicated in the Academic Regulations in article 80.4, hereby it is expressly stated that all students who submit at least 40% of the practicals will be considered as "Presented" in the subject.
- All students who submit the practicals will be graded overall in the subject. In case of not passing the practicals (a grade lower than 5), the student will be considered as "Failed" in the subject. The weighting between practical and theory should not be less than 5 to pass the course.
- Any optional individual activity that may be recommended during the course of the subject will be added to the grade before calculating averages in the part of the content in which the activity was proposed.
- The student's final grade may take into account aspects such as the level of attendance and participation, professionalism and commitment, level of interest in the topics and presentations made during the course.
- The April extraordinary call is for students who meet the requirements of the extraordinary call for completion of studies (article 29.2 of the RRA). They will be examined according to the guidelines and criteria of the previous year.
- All the ordinary exams of the academic year will be assessed according to the same criteria as above. In the case of the September call, all students who have not previously passed the course and are part of the same original working team must submit their joint practicals all together before attending the theory exam.

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Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

The assessment mechanism for part-time students will not be altered, although the criteria for attendance and availability of tutoring and monitoring will be made more flexible. In the case of students with special educational needs, subject to an assessment report, adaptation will be considered in very exceptional and duly justified cases. In any case, the principle of equality of all students in the subject will be ensured and guaranteed.

Clarifications on the evaluation of the first extraordinary call and extra-ordinary call for completion studies:

The calls for the first extraordinary call and extraordinary call for the completion of studies will be carried out in accordance with the criteria applicable in the previous academic year.

Qualifying criteria for obtaining honors:

M.H. will be awarded to the student/s who, having achieved a grade of EXCELLENT in the average of all grades, have demonstrated sufficient skills, as well as their participation and the completion of optional activities.

BIBLIOGRAPHY

1. Basic Bibliography

Oracle: Javadoc Java 8 SE, <https://docs.oracle.com/javase/8/docs/api/>

Oracle: Java Server Pages technology, <https://www.oracle.com/technetwork/java/jsp-138432.html>

W3C: HTML 5 / CSS 3 - Current status of the specifications and groups, <https://www.w3.org/standards/webdesign/htmlcss>

JavaScript Tutorial, <https://www.w3schools.com/js/>

M. Frisbie. Professional JavaScript for Web Developers. Wiley. 2019. ISBN: 978-1119366447

2. Further reading

J. Boyarsky, S. Selikoff. OCA / OCP Java SE 8 Programmer Certification Kit: Exam 1Z0-808 and Exam 1Z0-809. Sybex. 2016. ISBN: 978-1118957400B.

Scholtz, A. Tijms. The definitive guide to JSF in Java EE 8. Apress. 2018. ISBN: 978-1484233863S.

M. Lauriat. Advanced Ajax. Architecture and Best Practices. Prentice Hall. 2007. ISBN: 0-13-135064-1

J.J. Sydil. Design Accessible Web Sites. The Pragmatic Programmer. 2007. ISBN: 1-934356-02-6

R.C. Martin. Clean Code - A Handbook of Agile Software Craftman. Prentice Hall, 2008. ISBN: 978-0136083238

E. Gamma, R. Helm, R. Johnson, J. Vlissides. Design Patterns: Elements of Reusable Object-Oriented Software, 10th edition. Addison-Wesley Professional, ISBN: 978-0201633610

COORDINATION CRITERIA

Joint activities: lectures, seminars, visits ...

The methodological strategies and the evaluation system contemplated in this Course Description will be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required.

CONTINGENCY PLAN: CASE SCENARIO A

Case scenario A will correspond to a diminished on-site academic activity due to social distancing



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measures affecting the permitted capacity of classrooms.

METHODOLOGY

General clarifications on the methodology on case scenario A

A multimodal (hybrid) teaching system will be adopted, combining both on-site and remote classes via videoconference (synchronous) that will be held in the timetable approved by the corresponding Faculty or School. The time distribution of teaching activities (both on-site and remote) will be decided by the aforementioned Faculties and Schools bearing in mind the permitted capacity of classrooms and social distancing measures as established at that time.

In addition to the bibliography and lecture summaries, students will have access to additional material on the Moodle virtual learning platform and other sources available and indicated by the teaching staff. Updated references to external resources will also be provided both for the study and consolidation of the content of the subject and for voluntary extension of the programme.

EVALUATION

Intended learnig	Exams	Oral Presentation	Placement reports
CB4	X	X	
CTEC6			X
CTEIC6		X	X
CTEIS1	X		X
Total (100%)	60%	10%	30%
Minimum grade	4	4	4

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

Attendance will be assessed (Scenario A)?:

No

General clarifications on instruments for evaluation (Scenario A):

PRACTICAL CONTENT

The aim is for the student to consolidate and develop the cognitive, procedural, and attitudinal competencies set out in this guide. The practical content of the course will be evaluated considering the set of grades from the reports and source codes of the different proposed exercises, together with an oral examination that the lecturer may carry out in order to determine the real knowledge acquired. Likewise, students must submit an explanatory video in which they explain in a professional and technical way the development of their project. The qualification may be complemented with self/hetero-assessment reports and will be published for the total number of internships at the end of the term. The lecturer will indicate at the beginning of the course the specific weighting of the proposed practicals. In any case, the submission of practicals will be consecutive and cumulative, so it will

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not be possible to submit a practical without having submitted the previous ones, always in accordance with the specific regulations and the deadlines announced for this purpose. The submission of all practicals in due time and form is required in order to be graded as a Pass (grade equal to or higher than 5). In case of passing this practical part (grade higher than 5) but not the total of the subject, this grade will be maintained for the following exam sessions of the academic year. The minimum grade required to compute this part of the course as a whole is 4 (according to covid regulations), and it represents 40% of the total grade of the course.

THEORETICAL CONTENT

The theoretical content of the subject will be assessed by means of written exam/s, which may consist of questions (essay or multiple-choice) related to the material taught in the lectures, as well as problems or practical cases related to theory and practice. A mid-term exam may be taken, which will be arranged with the students at the beginning of the term. The mid-term will be eliminatory and its participation will be calculated as half of the assessment with the instrument "Exams". In case of failing the mid-term (grade should be higher than 5), the student will have to take the final exam. The minimum grade required to pass the theoretical content of the course is 5, which represents 60% of the total grade of the course. In the case of passing this theoretical part but not the total of the subject, this grade will be maintained for the following exams of the academic year.

GENERAL ASPECTS

- In relation to what is indicated in the Academic Regulations in article 80.4, hereby it is expressly stated that all students who submit at least 40% of the practicals will be considered as "Presented" in the subject.
- All students who submit the practicals will be graded overall in the subject. In case of not passing the practicals (a grade lower than 5), the student will be considered as "Failed" in the subject. The weighting between practical and theory should not be less than 5 to pass the course.
- Any optional individual activity that may be recommended during the course of the subject will be added to the grade before calculating averages in the part of the content in which the activity was proposed.
- The student's final grade may take into account aspects such as the level of attendance and participation, professionalism and commitment, level of interest in the topics and presentations made during the course.
- The April extraordinary call is for students who meet the requirements of the extraordinary call for completion of studies (article 29.2 of the RRA). They will be examined according to the guidelines and criteria of the previous year.
- All the ordinary exams of the academic year will be assessed according to the same criteria as above. In the case of the September call, all students who have not previously passed the course and are part of the same original working team must submit their joint practicals all together before attending the theory exam.

Clarifications on the methodology for part-time students and students with disabilities and special educational needs (Scenario A):

The assessment mechanism for part-time students will not be altered, although the criteria for attendance and availability of tutoring and monitoring will be made more flexible. In the case of students with special educational needs, subject to an assessment report, adaptation will be considered in very exceptional and duly justified cases. In any case, the principle of equality of all students in the subject will be ensured and guaranteed.

CONTINGENCY PLAN: CASE SCENARIO B

Case scenario B will bring about a suspension of all on-site academic activities as a consequence of health measures.

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METHODOLOGY

General clarifications on the methodology on case scenario B

On-site teaching activities will be held via videoconference (synchronous) in the timetable approved by the corresponding Faculty or School. Alternative activities will be proposed for reduced groups in order to guarantee the acquisition of course competences.

In addition to the bibliography and lecture summaries, students will have access to additional material on the Moodle virtual learning platform and other sources available and indicated by the teaching staff. Updated references to external resources will also be provided both for the study and consolidation of the content of the subject and for voluntary extension of the programme.

EVALUATION

Intended learnig	Exams	Oral Presentation	Placement reports	Portfolios
CB4	X	X		X
CTEC6		X	X	X
CTEIC6			X	
CTEIS1	X		X	
Total (100%)	50%	10%	30%	10%
Minimum grade	4	4	4	4

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

Moodle Tools	Exams	Oral Presentation	Placement reports	Portfolios
Attendance	X		X	
Chat		X		
Forum				X
Participation	X		X	
Questionnaire	X			
Synchronous tests via videoconference	X	X		

Attendance will be assessed (Scenario B)?:

No

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General clarifications on instruments for evaluation (Scenario B):

PRACTICAL CONTENT

The aim is for the student to consolidate and develop the cognitive, procedural, and attitudinal competencies set out in this guide. The practical content of the course will be evaluated considering the set of grades from the reports and source codes of the different proposed exercises, together with an oral examination that the lecturer may carry out in order to determine the real knowledge acquired. Likewise, students must submit an explanatory video in which they explain in a professional and technical way the development of their project. The qualification may be complemented with self/hetero-assessment reports and will be published for the total number of internships at the end of the term. The lecturer will indicate at the beginning of the course the specific weighting of the proposed practicals. In any case, the submission of practicals will be consecutive and cumulative, so it will not be possible to submit a practical without having submitted the previous ones, always in accordance with the specific regulations and the deadlines announced for this purpose. The submission of all practicals in due time and form is required in order to be graded as a Pass (grade equal to or higher than 5). In case of passing this practical part (grade higher than 5) but not the total of the subject, this grade will be maintained for the following exam sessions of the academic year. The minimum grade required to compute this part of the course as a whole is 4 (according to covid regulations), and it represents 40% of the total grade of the course.

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Clarifications on the methodology for part-time students and students with disabilities and special educational needs (Scenario B):

The assessment mechanism for part-time students will not be altered, although the criteria for attendance and availability of tutoring and monitoring will be made more flexible. In the case of students with special educational needs, subject to an assessment report, adaptation will be considered in very exceptional and duly justified cases. In any case, the principle of equality of all students in the subject will be ensured and guaranteed.

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