Course guide
804125 - AWUGI - Latest Generation Web Applications I

Unit in charge: Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre.

Degree: BACHELOR'S DEGREE IN MULTIMEDIA STUDIES (Syllabus 2009), (Compulsory subject).

Academic year: 2022  ECTS Credits: 6.0  Languages: English

LECTURER

Coordinating lecturer: Sánchez Carreras, David

Others:

REQUIREMENTS

It is recommended to have previously taken Internet Oriented Programming and Dynamic Web Programming and Databases.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
7. Analyse the evolution of web applications, the state of the art and associated devices in state-of-the-art web applications. Related to CET19.
8. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
9. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
10. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.

Transversal:
1. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
4. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
5. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
6. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
TEACHING METHODOLOGY

Las sesiones de clase se dividen, en general, en diferentes franjas de actividad:
1. Resolución de dudas de los ejercicios propuestos a la sesión anterior
2. Explicación y defiende de los ejercicios resueltos
3. Adquisición de nuevos conocimientos
4. Explicación del próximo ejercicio y materiales complementarios

Estas franjas de actividad se modulan en función de la complejidad de los ejercicios y los contenidos correspondientes.

LEARNING OBJECTIVES OF THE SUBJECT

1. Conocer la evolución de las aplicaciones web, el estado del arte y los dispositivos asociados a las aplicaciones web de última generación.
2. Desarrollar interfaces gráficas de usuario de acuerdo con los nuevos contenidos y formatos propios de aplicaciones web de última generación.
3. Diseñar y programar aplicaciones web de última generación.
4. Planificar y desarrollar el proceso de diseño de aplicaciones web de última generación centrado en el usuario.
5. Tener en cuenta las dimensiones sociales, económicas y ambientales a la aplicar soluciones y realizar proyectos coherentes con el desarrollo humano y la sostenibilidad.
6. Aplicar los conocimientos adquiridos en la realización de una tarea en función de su importancia, decidiendo la manera de llevarlo a cabo y el tiempo que hace falta dedicar, seleccionando las fuentes de información más adecuadas.
7. Planificar y utilizar la información necesaria para un trabajo académico a partir de una reflexión crítica sobre los recursos de información utilizados.
8. Comunicarse de manera clara y eficiente en presentaciones orales y escritas adaptadas al tipo de público y a los objetivos de la comunicación utilizando las estrategias y los medios adecuados.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>60,0</td>
<td>40.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
CONTENTS

JavaScript’s new features

Description:
Intro to new JavaScript versions
Arrow functions
Classes
JSON - async
Promises
Destructuring

Related activities:
Exercises 1, 2, 3 & 4

Related competencies:
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.1. Analyse the evolution of web applications, the state of the art and associated devices in state-of-the-art web applications. Related to CET19.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one’s knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one’s knowledge.

Full-or-part-time: 70h
Practical classes: 28h
Self study: 42h
React

Description:
Introduction
Environment setup
JSX
Components
State management
Routing

Related activities:
Exercises 5, 6, 7 & Final Project

Related competencies:
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Full-or-part-time: 60h
Practical classes: 24h
Self study : 36h
E1 - Arrow functions

Delivery:
Exercise's result must be uploaded to online campus

Related competencies:
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Full-or-part-time: 7h
Practical classes: 1h
Self study: 6h

E2 - Classes

Delivery:
Exercise’s result must be uploaded to online campus

Related competencies:
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Full-or-part-time: 14h
Practical classes: 2h
Self study: 12h
E3 - JSON, fetch, async/await

Delivery:
Exercise's result must be uploaded to online campus

Related competencies:
CEM 13.1. Analyse the evolution of web applications, the state of the art and associated devices in state-of-the-art web applications. Related to CET19.
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Full-or-part-time: 14h
Practical classes: 2h
Self study: 12h

E4 - Promises

Delivery:
Exercise's result must be uploaded to online campus

Related competencies:
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
CEM 13.1. Analyse the evolution of web applications, the state of the art and associated devices in state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.

Full-or-part-time: 7h
Practical classes: 1h
Self study: 6h
E5 - JSX intro

Delivery:
Exercise’s result must be uploaded to online campus

**Full-or-part-time:** 7h
Practical classes: 1h
Self study: 6h

E6 - React components

**Full-or-part-time:** 7h
Practical classes: 1h
Self study: 6h

E7 - Managing state

Delivery:
Exercise’s result must be uploaded to online campus

**Related competencies:**
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one’s knowledge and overcoming them through critical self-appraisal.
Choosing the best path for broadening one’s knowledge.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.

**Full-or-part-time:** 7h
Practical classes: 1h
Self study: 6h
E8 - Routing SPA

Delivery:
Exercise’s result must be uploaded to online campus

Related competencies:
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Full-or-part-time: 7h
Practical classes: 1h
Self study: 6h
Final project

Description:
Development of a single page web application project using REACT and data API.

Material:
Enunciat_projecte.pdf

Delivery:
Exercise’s result must be uploaded to online campus

Related competencies:
CEM 13.2. Apply structures and techniques related to the design of graphical user interfaces according to new content and formats of state-of-the-art web applications. Related to CET19.
CEM 13.4. Apply theoretical and practical knowledge related to user-centred design, ease of use and accessibility to the development of state-of-the-art web applications. Related to CET21.
CEM 13.4. Apply new theoretical and practical knowledge related to the technologies used in the development of state-of-the-art web applications.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one’s knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one’s knowledge.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Full-or-part-time: 15h
Practical classes: 3h
Self study: 12h

GRADING SYSTEM

Exercises (30%):
Practical exercises developed throughout the semester

Exams (30%):
2 partial exams with a 15% of the final grade for the course.

Final project (30%)
Partial project deliveries, final delivery and presentation
EXAMINATION RULES.

(eng)
Prácticas:
Los ejercicios de prácticas se inician durante el horario de clase en la franja destinada para estas y se completan al margen del horario previsto de clase siguiendo las instrucciones que se dan en el documento Hoja de Práctica correspondiente y las indicaciones que a tal efecto se dan en la parte de la clase correspondiente.
La resolución de los ejercicios de prácticas se entregará utilizando el campus en el espacio de entrega habilitado para cada práctica, siguiendo las indicaciones descritas en el documento Hoja de Práctica correspondiente, siguiendo los términos indicados. Al final de la práctica se entregaran los archivos que se requieran. La correcta gestión de la documentación aportada es un aspecto relacionado con las competencias a adquirir y es, por tanto, objeto de evaluación.
La evaluación de las prácticas no comporta solamente la resolución de los ejercicios propuestos, sino también la defensa que se haga de los resultados cuando el/la alumno/a sea requerido para ello al inicio de las clases.
Cualquier incidencia que no permita resolver la práctica en el plazo indicado debe ser comunicada al profesor correspondiente mediante mensaje por el Campus Virtual. Con posterioridad a esta comunicación, se resolverá la pertinencia o no de las causas que motivan la no presentación del ejercicio y se establecerán las alternativas para completar la evaluación si las causas son justificadas. También se considerarán justificadas las causas de no presentación de ejercicios que sean comunicadas al profesorado por la Jefatura de Estudios.

Exámenes:
Los exámenes de la asignatura se realizan en laboratorio con ordenadores mediante documento electrónico que el/la alumno/a debe completar. Las preguntas y problemas propuestos en los exámenes hacen referencia tanto al contenido teórico de la asignatura como a los ejercicios resueltos en las diferentes prácticas. Al margen de cada pregunta o problema consta la contribución en puntos a la nota total del examen.
Las revisiones y/o reclamaciones respecto de los exámenes se realizarán exclusivamente en las fechas y horarios establecidos en el Calendario Académico.

BIBLIOGRAPHY

Basic:

RESOURCES

Audiovisual material:
- https://www.w3schools.com/js/js_json_intro.asp. JSON - W3Schools

Hyperlink:
- https://javascript.info/.
- https://reactjs.org/docs/getting-started.html. React docs
- https://www.w3schools.com/react/. React W3Schools