COURSE DATA

Data Subject	
Code	44828
Name	Mobile devices and reality increased
Cycle	Master's degree
ECTS Credits	4.0
Academic year	2018 - 2019

Study (s)

Degree	Center	Acad. year	Period
2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps	School of Engineering	1	Second term

Subject-matter

Degree	Subject-matter	Character
2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps	3 - Client-Side Development and Graphics	Obligatory

Coordination

Name	Department
GIMENO SANCHO, JESUS	240 - Computer Science

SUMMARY

The subject is divided into two blocks: mobile devices and augmented reality. In the first block the aspects related to the development of applications for mobile devices, understanding of the development in this type of devices, differences with a conventional computer, comparison of the main platforms, development tools and interaction with services. The second block explains the interaction paradigm called augmented reality, addressing its fundamental aspects: creation of virtual contents, motion capture, mixing of real and virtual information and user interaction with virtual information.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Programming knowledge is required

OUTCOMES

2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Ability to apply acquired knowledge and solve problems in new or little-known environments within broader and multidisciplinary contexts, being able to integrate this knowledge.
- To foster, in academic and professional contexts, technological, social or cultural advancement within a society based on In knowledge and respect for: a) fundamental rights and equal opportunities between men and women; b) principles of equal opportunities and universal accessibility of persons with disabilities; and, c) the values of a culture of peace and democratic values.
- Ability to understand and apply the operation and organization of component models, intermediary software and services.
- Ability to analyze the storage needs that arise in an environment and to carry out the implantation of a solution in the fields of Web technologies, cloud computing and mobile applications.
- Ability to design and develop general-purpose mobile applications with graphics, augmented reality, with advanced user interaction and / or communicating with remote services.

- Ability to design, develop and maintain Web applications using technologies and frameworks both in the client and in the server sides.

LEARNING OUTCOMES

- Specify and complete computer tasks that are complex, incompletely defined or unfamiliar
- Describe and explain techniques and methods applicable to their particular area of study and identify their limitations
- Organize your own work independently, demonstrating initiative and exercising personal responsibility
- Perform bibliographic searches and reviews using databases and other sources of information
- Learning and improving personal performance as the basis for lifelong learning and professional development
- Communicate effectively both verbally and through other media to a variety of audiences and preferably in a second language
- Develop accessible applications to promote equal opportunities
- Know and use the components offered by the framework to develop mobile applications
- Develop applications that locally store information on mobile devices
- Understand and use multi-threaded programming patterns on mobile devices
- Develop applications that access remote services from mobile devices
- Know and use augmented reality frameworks to develop mobile applications
- Develop interactive entertainment-oriented mobile apps
- Develop multi-user graphical applications

DESCRIPTION OF CONTENTS

1. Platform Architecture and components for the development of applications

2. Local Storage

3. Patterns for multi-thread programming and service access

4. Capture of the point of view, generation of virtual information, fusion of the real and the virtual, user interaction

5. Image-based motion capture systems, accelerometers and GPS

6. 3D graphics on mobile devices and mixing of real images with virtual information

7. Multimodal interaction through a mobile device: touch screen, voice recognition and motion capture

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	40,00	100
Development of group work	6,00	0
Study and independent work	35,00	0
Preparation of practical classes and problem	16,00	0
Resolution of online questionnaires	3,00	0
TOTAL	**100,00**	

TEACHING METHODOLOGY

- Theory class
- Problem resolution
- Project-oriented learning

EVALUATION

The assesment modalities used in this subject are:

SE1: Online assessment and/or degree of participation

SE2: Assessment of problems, works, reports and/or memories

SE4: Exam or face-to-face assessment

SE6: Assessment of laboratory

- First call:

SE1 10% + SE2 20% + SE4 30% + SE6 40%

- Second call:

SE1 10% + SE2 30% + SE4 20% + SE6 40%

The grading system is specified at the following link:

http://www.uv.es/uvweb/universidad/es/estudios-postgrado/informacion-administrativa-postgrado/permanencia-calificaciones/calificaciones-1285897761928.html

The applicable regulations can be found at the following link:

http://www.uv.es/uvweb/universidad/es/estudios-grado/informacion-academica-administrativa/normativas/normativas-universidad-valencia-1285850677111.html

REFERENCES

Basic

- Android programming concepts. Autores Trish Cornez y Richard Cornez. Editorial Burlington, MA. 2017. ISBN 9781284070705.
- Mobile development with C#. Autor Greg Shackles. Editorial O'Reilly Media, Inc. 2012. ISBN 978-1-4493-2023-2.
- Augmented reality: principles and practice. Autores Dieter Schmalstieg y Tobias Höllerer. Editorial Addison-Wesley. 2016. ISBN 9780321883575.

- A Survey of Augmented Reality. Ronald T. Azuma. In Presence: Teleoperators and Virtual Environments. 1997.
- Spatial Augmented Reality. Autores Oliber Bimber y Ramesh Raskar. Editorial AK Peters, Ltd. 2004. ISBN 1-56881-230-2.