Universitat Autònoma de Barcelona

2018/2019

User-Centred Technologies

Code: 44026
ECTS Credits: 6

Degree	Type	Year	Semester
4316624 Internet of Things for e-Health	OT	0	2

Contact

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Use of languages

Principal working language: english (eng)

Prerequisites

It is recommended that students have knowledge and skills in:

- Object-oriented programming languages (C++, Java, Python, etc.)
- Good mathematical background.

Objectives and Contextualisation

The objective of this module is to highlight the importance of the user as the central axis of the development of applications and systems for e-health. First, we want the student to understand and know how to apply usability and accessibility criteria in their developments. Also in the module we provide tools and knowledge for the development of mobile applications in health, as well as for the construction and analysis of social networks in the different groups in the field of health and the importance that social networks have acquired in these groups.

KNOWLEDGE: After completing the course the student should be able to:

- Know and understand the usability and accessibility criteria for e-health applications to use it to implement e-health applications.
- Know, understand the frameworks for mobile applications to implement mobile e-health applications.
- Know and understand the social nets phenomena in health communities to apply it in the e-health environments and actions.

Skills

- Continue the learning process, to a large extent autonomously.
- Identify and understand properties of user usability and accessibility to applied technologies in the area of health and health provision.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Understand, analyse and evaluate theories, results and developments in the language of reference (English) as well as the mother tongue (Catalan, Spanish) in the area of IoT in health.
- Use and implement methods, techniques, specific use programmes, norms and standards in the development of mobile apps/wearables and social networks in the area of health.

Learning outcomes

1. Apply and adapt usability and accessibility techniques in developing IoT applications and IT systems in the area of health.
2. Continue the learning process, to a large extent autonomously.
3. Develop and validate apps for mobile and wearable devices in the area of health.
4. Develop and/or deploy the best social networks for specific groups in the area of health.
5. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
6. Involve those groups for whom technological solutions are developed in their design through UCD techniques.
7. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
8. Understand, analyse and evaluate theories, results and developments in the language of reference (English) as well as the mother tongue (Catalan, Spanish) in the area of IoT in health.

Content

1. User Centred Design

2. Usability

3. Accessibility

4. Mobile Devices

5. Design and Implementation of Mobile Applications

6. Social Networks

7. Social Networks Analytics

Methodology

We will follow mainly a Problem/Project Based learning (PBL) methodology, so learning will be based on the solution of cases related to real applications in the field of IoT. Students will be provided with the basic materials and tools required to solve each usage case.
Teachers will also give some explanations at some lectures in order that students can understand usage cases and the provided tools. The remaining lectures will focus on helping students to solve some problems related to the cases, to do some puzzle sessions and other collaborative activities, and student oral presentations.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Lecture Sessions	50	2	1, 3, 4, 6
Type: Supervised			
Tutorized classroom activities (resolution of usage cases)	25	1	1, 2, 3, 4, 5, 6, 7, 8
Type: Autonomous			
Self or group problem resolution	46	1.84	3, 4, 5, 6, 7

Self-study	21	0.84	1, 2, 8

Evaluation

Resolution of Usage Cases: Following a PBL methodology, students will solve some usage cases in groups and with the help of the teacher (who will take the role of expert) during the course.
Individual Tests: Student's capability to apply the techniques will be also evaluated individually.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Individual Tests	50%	2	0.08	1, 3, 4, 6
Resolutions of Usage Cases (Project)	50%	6	0.24	2, 5, 7, 8

Bibliography

Riazul, S.M., Kwak D., Humaun Kabir, MD., Hossain M., Kwak, K-S., The Internet of Things for Health Care: A comprehensive Survey, IEEE Access, (3),678-708, 2015.