

220147 - Information and Communication Technology

Coordinating unit:	205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit:	707 - ESAIL - Department of Automatic Control
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits:	3
Teaching languages:	English

Teaching staff

Coordinator:	JAUME FIGUERAS JOVE
Others:	ALEJANDRO BACHILLER

Teaching methodology

The course is divided into three parts:

Theory classes
Guided activities class
Self-study for doing exercises and activities.

In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.

In the guided activity class (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The teachers provide the curriculum and monitoring of activities (by ATENEA).

Learning objectives of the subject

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This course introduces the concepts, principles and basics of the different tools related to information technologies (IT) applying them to business and industry. Using embedded systems the student will be introduced to the concepts of IoT, sensor networks, mobile connectivity and microservices.

Study load

Total learning time: 30h	Hours small group:	30h	100.00%
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Content

Introduction to IT technologies in use on Management Engineering	Learning time: 20h Theory classes: 5h Self study : 15h
<p>Description:</p> <p>Using different microcontrollers (Raspberry PI) conncted to the internet the following concepts will be introduced</p> <ul style="list-style-type: none"> - Reading sensor measures using REST services - Databases - Publishing and accessing data using a browser 	
Actuator interaction	Learning time: 20h Practical classes: 15h Laboratory classes: 5h
<p>Description:</p> <p>Using different microcontrollers (Raspberry PI) conncted to the internet the following concepts will be introduced</p> <ul style="list-style-type: none"> - Posting to REST services to control actuators - Command posting - Introduction to cybersecurity 	
Basic mobile app programing	Learning time: 20h Theory classes: 5h Self study : 15h
<p>Description:</p> <p>Mobile programming concepts will be introduced through:</p> <ul style="list-style-type: none"> - Interact with sensor networks - Actuator controlling 	

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Qualification system

The course mark depends on:

A project: 40%

3 problems solved at class (1 per module): 60% (20% each)

Due to the nature of the practical and continuous evaluation acts, there is no revision test provided in the final exam calendar.

Regulations for carrying out activities

Although required software is installed in the university computers it is almost indispensable to bring your laptop at class due to the plethora of mobile drivers that are available.

Bibliography