

340227 - LUMI-E7P09 - Light Technology

Coordinating unit:	340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit:	709 - EE - Department of Electrical Engineering
Academic year:	2018
Degree:	BACHELOR'S DEGREE IN MECHANICAL 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 INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	Catalan

Teaching staff

Coordinator: Caumons Sangra, Ramon

Degree competences to which the subject contributes

Specific:

1. CE29. Knowledge of DOMÒTIQUES installation and LUMINOTÈCNIQUES.

Transversal:

2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
4. 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.

Teaching methodology

- In the lectures will be presented and developed the theoretical foundations of programmed materials. Consist of theoretical explanations complemented by activities to encourage participation, discussion and critical analysis by students.
- In the kinds of problems were raised and solved exercises for the areas covered. Students have to solve, individually or in groups, indicating problems.
- Within hours of laboratory practice, students will take the required and delivered its report of the activity along with appropriate calculations and critical considerations.
- It will realised group work during the year related to a specific topic of the course.

Learning objectives of the subject

- General views on these Principles and applications of electricity and the Vision
- Describe different las fuentes de luz
- Qualify for the lighting calculation lighting of facilities inside and outside Area.

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Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

<p>(ENG) Tema 1 La Llum</p>	<p>Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h</p>
<p>Description: 1.1 Nature of light. The electromagnetic spectrum. The eye 1.2 Lighting, fundamental quantities 1.3 Color</p>	
<p>(ENG) Tema 2 Generació de llum mitjançant l'energia elèctrica</p>	<p>Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h</p>
<p>Description: 2.1 General 2.2 incandescent lamps. halogen lamps 2.3 discharge lamps. Fluorescent lamps. Fluorencens compact lamps. Lets. 2.4 Selection of lamps. Performance criteria, chromatic, duration, qualitative</p>	
<p>(ENG) Tema 3 Fotometria. Sistemes de representació. Lluminàries</p>	<p>Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h</p>
<p>Description: 3.1 photoelectric cells. Luxímetres 3.2 Representation systems feature bright lamps and luminaires. 3.3 Control and distribution of luminous flux. Lights. 3.4 Classification of the lights.</p>	

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(ENG) Tema 4 Enllumenat d'interiors	Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h
Description: 4.1 Intermediate Lighting obtain. Regulations. 4.2 Quality of the installation of lighting 4.3 Calculation methods 4.4 Calculation of interior lighting	
(ENG) Tema 5 Enllumenat viari	Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h
Description: 5.1 Factors of a certain street lighting installation. Regulations 5.2 Influence of traffic demands in street lighting 5.3 Characteristics luminotècnicas a street lighting installation 5.4 geometric features 5.1 Factors of a certain street lighting installation 5.2 Influence of traffic demands in street lighting 5.3 Characteristics luminotècnicas a street lighting installation 5.4 geometric features	
(ENG) Tema 6 Enllumenat d'àrees	Learning time: 25h Theory classes: 7h 30m Laboratory classes: 2h 30m Self study : 15h
Description: 6.1 General characteristics of the illumination projectors. 6.2 Illuminated advertising 6.3 Lighting facades and monuments. 6.4 Lighting protection and security surveillance. 6.5 Lighting of parks and gardens. 6.6 Lighting sport.	

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PRACTICES	Learning time: 0h Guided activities: 0h
Description: Laboratory. Lighting. Lighting studio	

Qualification system

60 % theory.
40 % practices.

REEVALUATION:

The reevaluation part of the subject corresponds to the exams (60%).

According to EPSEVG regulations:

- The reevaluation will be possible if the subject with a final grade equal to or greater than 3.0 has been suspended.
- The final grade of the subject after the reevaluation will have a maximum value of 5.0.

Regulations for carrying out activities

- The written tests are classroom and individual.
- In classes of problems and / or laboratory practices will be assessed, where appropriate, previous work together with presentation of results of the activity.
- In addition to the project report submitted with all calculations the oral presentation will also be evaluated, in which it necessarily must involve all group members.

Bibliography

Basic:

Ruiz Celma, Antonio; Rojas Rodríguez, Sebastián. Instalaciones de iluminación. Madrid: Escuela Técnica Superior de Ingenieros Industriales. Universidad Politécnica de Madrid, 1998. ISBN 8474841267.

Urraca Piñero, J. Ignacio. Tratado de alumbrado público. San Sebastián: Donostiarra : Instituto Tecnológico de Aragón, 1988. ISBN 8470631551.

UNE-EN 12464-1 : Iluminación. Iluminación de los lugares de trabajo. Parte 1: Lugares de trabajo en interiores. Madrid: AENOR, 2012.

UNE-EN 12464-2 : Iluminación. Iluminación de lugares de trabajo. Parte 2: Lugares de trabajo exteriores. Madrid: AENOR, 2008.

UNE-EN 12193 : Iluminación. Iluminación de instalaciones deportivas. Madrid: AENOR, 2009.

Espanya. REEA : reglamento de eficiencia energética en instalaciones de alumbrado exterior : y sus instrucciones técnicas complementarias ITC-EA 01 a 07 : Real Decreto 1890/2008 de 14 de noviembre. Madrid: Garceta, 2009. ISBN 9788493720803.