

340101 - LIEL-E5009 - Electrical Power Lines

Coordinating unit:	340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit:	709 - EE - Department of Electrical Engineering
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) 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)
ECTS credits:	6
Teaching languages:	Catalan, English

Teaching staff

Coordinator:	Josep Font i Mateu
Others:	Josep Font i Mateu

Prior skills

Basics on: Circuit Analysis, Field Theory, Electric machines: Transformers. Basics Computing.

Requirements

Subjects: Fonaments matemàtics, Informàtica, Física 1, Física 2, Anàlisi de circuits.

Degree competences to which the subject contributes

Specific:

1. CE24. Knowledge of electrical power systems and its applications.
2. CE23. Ability to calculate and design power lines and electrical energy transport.

Transversal:

3. 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.
4. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

Teaching methodology

Theoretical class, problem class, practic work, presentations.
Problem resolution in group. Especific software applied. Own work.

Learning objectives of the subject

Parts and functions of the Electrical Power System (EPS). Modeling of Electrical Transport and Distribution Power Systems (ETDPS). Electrical lines parameters. ETDPS permanent sinusoidal analysis. ETDPS Project.

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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%

Content

(ENG) - Introcucció al transport i distribució d'energia elèctrica.

Degree competences to which the content contributes:

- 1 (Specific)
- 3 (Transversal)
- 4 (Transversal)

(ENG) - Modelització dels STDEE.

Degree competences to which the content contributes:

- 2 (Specific)

(ENG) - Anàlisi dels STDEE en règim permanent.

Degree competences to which the content contributes:

- 2 (Specific)

(ENG) - Projecte de línies i xarxes de transport i distribució en BT i AT.

Learning time: 150h

Theory classes: 30h
Practical classes: 15h
Laboratory classes: 15h
Guided activities: 15h
Self study : 75h

Qualification system

Exams.: E1 (PARCIAL), E2 (FINAL)

Practice: PR

Works: TR

QUALIFICACIÓ = $\text{MAX}\{(0.3 \cdot E1 + 0.5 \cdot E2 + 0.15 \cdot PR + 0.05 \cdot TR), (0.8 \cdot E2 + 0.15 \cdot PR + 0.05 \cdot TR)\}$

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Regulations for carrying out activities

Theory: individual writing exam.

Practic work : practic work + report + exam.

Activitat dirigida: presentation + exam.

Bibliography

Basic:

Grainger, John J.; Stevenson, William D., Jr. Análisis de sistemas de potencia. México [etc.]: McGraw-Hill, 1996. ISBN 9701009088.

Complementary:

Nasar, Syed A. Sistemas eléctricos de potencia. México, [etc.]: McGraw-Hill, 1991. ISBN 9684227973.

Weedy, B. M. Sistemas eléctricos de gran potencia. Barcelona [etc.]: Reverté, 1978. ISBN 8429130942.

Ong, Chee-Mun. Dynamic simulation of electric machinery : using MATLAB/SIMULINK. Upper Saddle River, N.J.: Prentice Hall PTR, 1998. ISBN 0137237855.

Ras Oliva, Enrique. Teoría de líneas eléctricas : de potencia, de comunicación, para transmisión en continua. 2a ed. Barcelona: Universidad Politécnica de Catalunya. ETS Ingenieros Industriales : Marcombo, 1985. ISBN 8460058921.

Others resources:

Audiovisual material

Ordinador PC pràctiques

Canó, projector + Pc aules

Computer material

MATLAB - SIMULINK

Programa-Soft

Programa