

330094 - RE - Energy Resources

Coordinating unit:	330 - EPSEM - Manresa School of Engineering
Teaching unit:	750 - EMIT - Department of Mining, Industrial and ICT Engineering 709 - EE - Department of Electrical Engineering
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN ICT SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Optional) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Teaching unit Optional) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Teaching unit Optional) BACHELOR'S DEGREE IN MINING ENGINEERING (Syllabus 2016). (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 MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	Catalan, Spanish

Teaching staff

Coordinator:	Cunill Solà, Jordi
Others:	Niubo Eslava, Maria

Degree competences to which the subject contributes

Specific:

1. (ENG) Comprensió de la problemàtica de l'energia i la seva transformació. Comprensió i domini de les diferents tecnologies adaptades als diferents recursos energètics d'origen renovable.

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. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
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.

Learning objectives of the subject

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Study load

Total learning time: 150h	Hours large group:	30h	20.00%
	Hours medium group:	0h	0.00%
	Hours small group:	30h	20.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

<p>(ENG) Títol del contingut 1 (part del DEE): CONCEPTES GENERALS DE LES ENERGIES RENOVABLES I EL SISTEMA ELÈCTRIC DE POTÈNCIA</p>	<p>Learning time: 12h Theory classes: 3h Practical classes: 3h Self study : 6h</p>
<p>(ENG) Títol del contingut 2 (part del DEE): FONTS D'ENERGIA RENOVABLE. GENERALITATS I SOLAR FOTOVOLTAICA.</p>	<p>Learning time: 24h Theory classes: 6h Practical classes: 6h Self study : 12h</p>
<p>(ENG) Títol del contingut 3 (part del DEE): GENERACIÓ HIDROELÈCTRICA</p>	<p>Learning time: 12h Theory classes: 3h Practical classes: 3h Self study : 6h</p>
<p>(ENG) Títol del contingut 4 (part del DEMIT): L'ENERGIA SOLAR TÈRMICA</p>	<p>Learning time: 12h Theory classes: 3h Practical classes: 3h Self study : 6h</p>
<p>Description:</p>	
<p>(ENG) Títol del contingut 5 (part del DEMIT): ENERGIES DE LA BIOMASSA</p>	<p>Learning time: 12h Theory classes: 3h Practical classes: 3h Self study : 6h</p>
<p>Description:</p>	

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<p>(ENG) Títol del contingut 6 (part del DEMIT): ENERGIA EÒLICA</p>	<p>Learning time: 24h Theory classes: 6h Practical classes: 6h Self study : 12h</p>
<p>Description: . Specific objectives: .</p>	
<p>(ENG) Títol del contingut 7 (part del DEMIT): ENERGIA GEOTÈRMICA</p>	<p>Learning time: 24h Theory classes: 6h Practical classes: 6h Self study : 12h</p>
<p>Description: .</p>	

Planning of activities

<p>(ENG) TÍTOL DE L'ACTIVITAT 1: PROVA D'AVALUACIÓ CONTINUA (PART DEE)</p>	<p>Hours: 7h Practical classes: 2h Self study: 5h</p>
<p>(ENG) TÍTOL DE L'ACTIVITAT 2: PROVA D'AVALUACIÓ CONTINUA (PART DEMIT)</p>	<p>Hours: 5h 30m Practical classes: 2h Self study: 3h 30m</p>
<p>(ENG) TÍTOL DE L'ACTIVITAT 3: PROVA D'AVALUACIÓ CONTINUA (PART DEMIT)</p>	<p>Hours: 7h Practical classes: 2h Self study: 5h</p>

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Bibliography

Basic:

- Quaschnig, V. Understanding renewable energy systems. London: Earthscan, 2005. ISBN 1844071286.
- García Garrido, S. Ingeniería de centrales termosolares CCP: estado del arte en tecnología termosolar. Madrid: Renovetec, 2010. ISBN 9788461441839.
- Fernández Salgado, J. M. Guía completa de la energía solar térmica y termoeléctrica: (adaptada al Código Técnico de la Edificación y al nuevo RITE). Madrid: AMV Ediciones, 2010. ISBN 9788496709577.
- Felipe Blanch, J. J.; López Martínez, J. A. Sistemas solares térmicos de baja temperatura [on line]. Barcelona: Edicions UPC, 1999 [Consultation: 06/04/2018]. Available on: <<http://hdl.handle.net/2099.3/36409>>. ISBN 8483013428.
- Talayero Navales, A. P.; Telmo Martínez, E., coords. Energías renovables: energía eólica. Zaragoza: Prensas Universitarias de Zaragoza, 2008. ISBN 9788492521210.
- Llopis, G.; Rodrigo, V. Guía de la energía geotérmica [on line]. Madrid: Fundación de la Energía de la Comunidad de Madrid, 2008 [Consultation: 06/04/2018]. Available on: <<http://www.fenercom.com/pdf/publicaciones/guia-de-la-energia-geotermica.pdf>>.
- Instituto para la Diversificación y Ahorro de la Energía. Manual de geotermia [on line]. Madrid: IDAE, 2008 [Consultation: 11/07/2017]. Available on: <<http://www.idae.es/file/9590/download?token=9ZMvlu4a>>. ISBN 9788496680357.

Complementary:

- Hernández González, C., i altres. Manual de minicentrales hidroeléctricas. Madrid: Instituto para la Diversificación y Ahorro de la Energía, 1996. ISBN 8480364122.
- El-Sharkawi, M. A. Electric energy: an introduction. 2nd ed. Boca Raton: CRC Press, 2009. ISBN 9781420062199.
- Pareja Aparicio, M. Energía solar fotovoltaica: cálculo de una instalación aislada. 2ª ed. Barcelona: Marcombo, 2010.
- Villarrubia López, M. Energía eólica. Barcelona: CEAC, 2004. ISBN 9788432910623.
- Fernández Salgado, J. M. Guía completa de la energía eólica. Madrid: A. Madrid Vicente, 2011. ISBN 9788496709669.
- Perales Benito, Tomás. Instalaciones geotérmicas. Las Rozas: Creaciones Copyright, 2012. ISBN 9788415270270.

Others resources:

- Audiovisual material
Presentacions al campus digital