

## Course guides

### 330094 - RE - Energy Resources

Last modified: 22/05/2020

**Unit in charge:** Manresa School of Engineering  
**Teaching unit:** 750 - EMIT - Department of Mining, Industrial and ICT Engineering.  
 709 - DEE - Department of Electrical Engineering.

**Degree:** BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).  
 BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).  
 BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).  
 BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).  
 BACHELOR'S DEGREE IN ICT SYSTEMS ENGINEERING (Syllabus 2010). (Optional subject).  
 BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Optional subject).  
 BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Optional subject).  
 BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Optional subject).  
 BACHELOR'S DEGREE IN MINING ENGINEERING (Syllabus 2016). (Optional subject).

**Academic year:** 2020    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish

#### LECTURER

**Coordinating lecturer:** Cunill Solà, Jordi  
**Others:** Felipe Blanch, Jose Juan De

#### 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.

#### TEACHING METHODOLOGY

#### LEARNING OBJECTIVES OF THE SUBJECT

#### STUDY LOAD

| Type              | Hours | Percentage |
|-------------------|-------|------------|
| Hours large group | 30,0  | 20.00      |
| Hours small group | 30,0  | 20.00      |
| Self study        | 90,0  | 60.00      |



Total learning time: 150 h

## CONTENTS

### (ENG) Títol del contingut 1 (part del DEE): CONCEPTES GENERALS DE LES ENERGIES RENOVABLES I EL SISTEMA ELÈCTRIC DE POTÈNCIA

**Full-or-part-time:** 12h

Theory classes: 3h

Practical classes: 3h

Self study : 6h

### (ENG) Títol del contingut 2 (part del DEE): FONTS D'ENERGIA RENOVABLE. GENERALITATS I SOLAR FOTOVOLTAICA.

**Full-or-part-time:** 24h

Theory classes: 6h

Practical classes: 6h

Self study : 12h

### (ENG) Títol del contingut 3 (part del DEE): GENERACIÓ HIDROELÈCTRICA

**Full-or-part-time:** 12h

Theory classes: 3h

Practical classes: 3h

Self study : 6h

### (ENG) Títol del contingut 4 (part del DEMIT): L'ENERGIA SOLAR TÈRMICA

**Description:**

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**Full-or-part-time:** 12h

Theory classes: 3h

Practical classes: 3h

Self study : 6h

### (ENG) Títol del contingut 5 (part del DEMIT): ENERGIES DE LA BIOMASSA

**Description:**

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**Full-or-part-time:** 12h

Theory classes: 3h

Practical classes: 3h

Self study : 6h



**(ENG) Títol del contingut 6 (part del DEMIT): ENERGIA EÒLICA**

**Description:**

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**Specific objectives:**

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**Full-or-part-time:** 24h

Theory classes: 6h

Practical classes: 6h

Self study : 12h

**(ENG) Títol del contingut 7 (part del DEMIT): ENERGIA GEOTÈRMICA**

**Description:**

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**Full-or-part-time:** 24h

Theory classes: 6h

Practical classes: 6h

Self study : 12h

## ACTIVITIES

**(ENG) TÍTOL DE L'ACTIVITAT 1: PROVA D'AVUACIÓ CONTINUA (PART DEE)**

**Full-or-part-time:** 7h

Practical classes: 2h

Self study: 5h

**(ENG) TÍTOL DE L'ACTIVITAT 2: PROVA D'AVUACIÓ CONTINUA (PART DEMIT)**

**Full-or-part-time:** 5h 30m

Practical classes: 2h

Self study: 3h 30m

**(ENG) TÍTOL DE L'ACTIVITAT 3: PROVA D'AVUACIÓ CONTINUA (PART DEMIT)**

**Full-or-part-time:** 7h

Practical classes: 2h

Self study: 5h

## GRADING SYSTEM

## BIBLIOGRAPHY

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### Basic:

- 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.
- 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: Pressas Universitarias de Zaragoza, 2008. ISBN 9788492521210.

### 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.

## RESOURCES

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### Audiovisual material:

- Presentacions al campus digital