UAB
Universitat Autònoma de Barcelona

Planning and Management of Energy

2026/2027

Code: 104271
Credits: 6

Degree programme	Type	Course
Geography, Environmental Management and Regional Planning	OP	3

Contact lecturer

Name : Genis Riba Sanmarti

Email : genis.riba@uab.cat

Group languages

You can consult this information at the end of the document.

Prerequisites

To take this course it is recommended to have previously completed the course 'Dynamics of Water, Energy, and Natural Resources'.

To take this course, students must have a command of Catalan and/or Spanish at level B2 or higher.

Objectives

This is an elective subject that can be taken in either the 3rd or 4th year and provides continuity to the subject *Dynamics of Water, Energy, and Natural Resources*.

The main objectives of the course are:

- To gain a detailed understanding of global energy supply chains from both historical and geopolitical perspectives.
- To examine the Catalan and Spanish energy systems, including their strengths, needs, shortcomings, and future development pathways.
- To develop a technical understanding of the main energy technologies, including solar, wind, hydropower, hydrogen, nuclear energy, electricity grids, and fossil fuels.
- To plan the implementation of the renewable energy transition in Catalonia.

Learning outcomes

- CM06 (Carry out team work that promotes commitment to the team, the habit of collaboration and joint problem-solving skills.) Carry out team work that promotes commitment to the team, the habit of collaboration and joint problem-solving skills.
- KM38 (Define the planning and management of the water cycle and/or energy management from a physical, socio-economic and systemic point of view.) Define the planning and management of the water cycle and/or energy management from a physical, socio-economic and systemic point of view.
- SM31 (Use instruments and mechanisms for the management and planning of water resources and energy resources in a specific practical case.) Use instruments and mechanisms for the management and planning of water resources and energy resources in a specific practical case.

Contents

The Energy Planning and Management course focuses on describing the energy system from both a global and Catalan perspective, as well as from a technical standpoint. This provides the foundation for planning the implementation of the renewable energy transition in our country.

The course is structured as follows:

Block 1: Geopolitics and Contemporary History of Energy

- Middle East
- North America
- South America
- Africa
- Europe
- East Asia

Block 2: Energy Technologies

- Fossil fuels
- Nuclear energy
- Hydropower
- Solar energy
- Wind energy
- Hydrogen
- Energy grids

Block 3: Renewable Energy Transition

- Objectives and feasibility
- Global status
- Europe
- Catalonia

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Assignment	25	1	CM06, KM38, SM31
Information search	75	3	KM38, SM31
Lectures	16.5	0.66	KM38, SM31
Classroom exercises (practical)	30.5	1.22	CM06, KM38, SM31

The course will be structured around two main classroom activities: theoretical lectures and practical exercises. During these computer-based practical sessions, students will search for information and select, process, analyse, and present data related to the topics covered in the theoretical classes, with the aim of monitoring each student's progress in understanding and using the tools addressed throughout the course. The outcomes of these practical exercises will form the basis of a project on the implementation of the energy transition in Catalonia.

In addition to the scheduled classroom activities, students will be expected to devote time outside the classroom to completing any practical exercises not finished during class, as well as carrying out the recommended readings for each topic, through which the transversal competences are actively developed.

During the theoretical lectures, open-ended questions will be posed to encourage students to demonstrate their creativity, initiative, and awareness of social and environmental issues.

To successfully complete the practical exercises, students will be required to develop innovative and competitive proposals relevant to professional practice. Likewise, these practical activities will enable students to propose strategies to prevent and solve problems, adapt to unforeseen situations, and make informed decisions.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Attendance and turning in practical exercices	20%	0	0	CM06, KM38, SM31
Assignment	30%	0	0	CM06, KM38, SM31
Partial exam 1	25%	1.5	0.06	KM38, SM31
Partial exam 2	25%	1.5	0.06	KM38, SM31

All official communication related to the subject between the teaching staff and students will be carried out through Moodle.

The assessment of the subject will be progressive and continuous throughout the semester. The assessment system is based on the following learning evidences:

- The submission of reports, both written and oral, regarding computer practicals, problems, or case studies analyzed during the course, with the aim of monitoring each student's progress in the understanding and use of the tools covered in the subject. The submission of reports will allow us to assess the ability to generate innovative and competitive proposals in professional activity, as well as the capacity to prevent and solve problems by adapting to unforeseen situations and making decisions. Practical exercises include both group and individual work, which will be indicated to students in each class. The grade for practicals will be derived from attendance at the sessions and submission of exercises during the course (20%), and a final course project (30%).
- Two midterm exams (25% each exam), to encourage the consolidation of all the material covered during the course.

Assessment Criteria

When grading exams and reports, aspects such as presentation, writing, basic mistakes, etc., will be taken into account; modifying, if necessary, the final grade obtained from the weighted average of each of the grades.

It will be a necessary condition to calculate the weighted average that the practicals are passed (which implies

that all practicals must be completed) and that the grade obtained in each of the exams is equal to or higher than 5. It is important to emphasize that practicals must be completed and submitted on the dates specified for this purpose by the course instructor. Students who receive a failing grade (Suspenso) due to not meeting the aforementioned condition will receive a minimum final grade of 3.

Review of Grades

The maximum deadline for providing feedback and communicating the grades of the assessment activities is three weeks. At the time of conducting each assessment activity, the lecturer will inform the students (via Moodle) of the procedure and date for the review of grades.

Retake

For those students who, at the end of the assessment process, have not obtained a grade equal to or higher than 5 in any of the exams, but have a grade higher than 5 in the practicals, there will be a retake exam. It will consist of an exam, to be taken on the date scheduled by the Faculty, representative of the scenarios covered during the course. Students will only need to sit for the theory part that they did not pass in the midterm exams. Practicals cannot be retaken.

Honor Cum Laude

Awarding an Honor Cum Laude (MH) grade is a decision of the teaching staff responsible for the subject. UAB regulations state that MH can only be awarded to students who have obtained a final grade equal to or higher than 9.00. Up to 5% of the total number of enrolled students may be awarded an MH.

Not Evaluable

The student will be graded as "not evaluable" provided that they have not submitted more than 30% of the assessment activities. A student who has not sat for any exam will be considered "not evaluable".

Plagiarism or Irregularities in the Assessment of the Subject

Without prejudice to other disciplinary measures deemed appropriate, and in accordance with current academic regulations, any irregularities committed by a student that could lead to a variation in the grade of an assessment activity will be graded with a zero (0). Assessment activities graded in this manner and through this procedure cannot be retaken. If passing any of these assessment activities is required to pass the subject, the subject will be failed directly, with no opportunity to retake it in the same academic year. These irregularities include, among others:

- the total or partial copying of a practical, report, or any other assessment activity;
- allowing others to copy;
- submitting group work not completed entirely by the members of the group (applied to all members, not only to those who did not work);
- presenting materials prepared by a third party as one's own, even if they are translations or adaptations, and in general, work with non-original and non-exclusive elements of the student;
- having communication devices (such as mobile phones, smartwatches, camera pens, etc.) accessible during individual theoretical-practical assessment tests (exams);
- talking to peers during individual theoretical-practical assessment tests (exams);
- copying or attempting to copy from other students during theoretical-practical assessment tests (exams);
- using or attempting to use written materials related to the subject during theoretical-practical assessment tests (exams), when these have not been explicitly permitted.

In case of failing the subject because one of the assessment activities does not reach the minimum required grade, the numerical grade on the academic record will be the lower value between 4.5 and the weighted average of the grades. With the exceptions that the grade of "Not Evaluable" will be awarded to students who do not participate in any of the assessment activities, and that the numerical grade on the academic record will be the lower value between 3.0 and the weighted average of the grades in case the student has committed irregularities in an assessment act (and therefore passing by compensation will not be possible). In future editions of this subject, no assessment activities completed by a student who has committed irregularities in an assessment act will be recognized or validated.

In summary: copying, allowing to copy, or plagiarizing (or attempting to do so) in any of the assessment activities is equivalent to a FAIL, non-compensable, and without validations of parts of the subject in subsequent academic years.

Use of AI

Restricted use: For this subject, the use of Artificial Intelligence (AI) technologies is permitted exclusively for support tasks, such as literature or information searching, text correction, or translations. The student must clearly identify which parts have been generated using this technology, specify the tools used, and include a critical reflection on how they influenced the process and the final outcome of the activity. Non-transparency in the use of AI in this assessment activity will be considered a breach of academic honesty and may lead to a partial or total penalty in the activity's grade, or major sanctions in severe cases.

Single Assessment

This subject does not provide a single assessment option.

Bibliography

General readings:

- Abramsky, k. (Ed.). 2010. *Sparking a Worlwide Energy Revolution: Social struggles in the transition to a postpetrol world.*Edinburgh: AK Press.
- Boyle, G. (Ed.). 2007. *Renewable electricit & the grid: the challenge of variability*. London: Earthscan Publications.
- Droege, P. (Ed.). 2009. *100% renewable: energy authonomy in action*. London: Earthscan.
- Fernández, R. y González, Luis (214): *En la espiral de la energía*. Madrid: Libros en Acción.
- Gore, A. 2007. *Una verdad incómoda: la crisis planetaria del calentamiento global y cómo afrontarla*. Barcelona Gedisa editorial.
- Greenpeace. 2007.*Renovables 100%: un sistema eléctrico renovable para la España peninsular y su viabilidad económica*. Madrid: Geeenpeace
- Hildyard, Nicholas, et al. 2014.*Seguridad energética ¿para qué? ¿para quien?.*Libros enAcción & The Corner House.
- Hopkins, R. 2008.*The transition handbook: from oil dependency to local resilience*. Vermont: Chelsea Green.
- Iraegui, J. I Ramos, J. 2004. *Gestió local de l'energia*. Barcelona: Fundació Pi i Sunyer
- La Vanguardia. 2014. *"La geopolítica de la energía*."*Dossier Vanguardia*Núm 53. Octubrediciembre 2014.
- Le Monde Diplomatique. 2014. "Batallas por la Energía". *Atlas de Le Monde Diplomatique*. Diciembre 2014.
- Patterson, W. 2007. *Keeping the light son: towards sustainable electricity*. London: Earthscan.
- Puig, J. 2004. "Prospectiva energética. Els contorns d'un nou model energetic I el process de transició". A: *La tecnología: llums i ombres*.Informe 2004 de l'Observatori del Risc. Barcelona: Institut d'estudis de la seguretat.
- Puig, J. I Corominas, J. 1990.*La ruta de la energía*. Barcelona: Anthropos.

- Riba, C. 2011. *Recursos energètics i crisi. La fi de 200 anys irrepetibles*. Barcelona: Universitat Politècnica de Catalunya.
- Sans, Ramon. 2014. *El col·lapse és evitable. La transició energètica del segle XXI (TE21*). Ediciones Octaedro.
- Romero, Cote i Barcia Magaz (eds.). 2014. *Alta tensión. Por un nuevo modelo energético sostenible, democrático y ciudadano*. Icaria.
- Ruiz, Valeriano, 2006. *El reto energético*. Almuzara
- Scheer, H. 2011.*Imperativo energético*. Barcelona: Icària
- Starke, L. (Ed.). 2009. *L'Estat del Món 2009. El planeta s'escalfa*. Informe del Worldwatch Institute sobre el progres cap a una societat sostenible. Barcelona: Centre UNESCO de Catalunya.
- The Economist. 2015.*Let there be light. Sepcial report on energy and technology*. January17th 2015
- The Worldwatch Insititute. 2016. *Can a City Be Sustainable?.*State of the World. Washington.

Software

MS Excel or similar

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this link. To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TE) Theory	1	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	1	Catalan	second semester	morning-mixed