

5. Training activities

The PhD Programme is composed of a set of training and research activities, classified as **transverse, obligatory and elective activities**, whose objective is to train the doctoral student in his/her research. The transverse and the obligatory activities must necessarily be carried out, being able to choose the elective activities that the doctoral student want to complete the minimum required training of 600 hours to be able to present the doctoral thesis. Most of the training courses can be performed online.

| Transverse training activities | | Hours |
|--------------------------------|---|-------|
| 8215T01 | Introduction to doctoral studies | 25 |
| 8215T02 | Search, management, communication and dissemination of scientific information | 30 |

| Obligatory training activities | | Hours |
|--------------------------------|---|---------|
| 8215B01 | Presentation of research results in the Group / Research Team | 10-40 |
| 8215B02 | Publication in a journal indexed in ISI-JCR | 200-400 |
| 8215B03 | Presentation of a research plan | 50 |
| 8215B04 | Methodology of research applied to energy and sustainable engineering | 35 |

| Elective training activities | | Hours |
|------------------------------|---|-------|
| 8215P01 | Presentation of research results in the doctoral seminars | 50 |
| 8215P02 | Publication in a journal not indexed in ISI-JCR | 100 |
| 8215P03 | Participation in R & D projects and contracts | * |
| 8215P04 | Stay at a foreign research centre | * |
| 8215P05 | Stay at a national research centre | * |
| 8215P06 | Presentation and processing of a patent | 200 |
| 8215P07 | Attendance at training courses specific to the research lines | * |
| 8215P08 | Attendance to Summer Schools - Workshops | * |
| 8215P09 | Participation in transfer contracts | * |
| 8215P10 | Paper in International Congress | 100 |
| 8215P11 | Paper In National Congress | 50 |
| 8215P12 | Transfer activities | * |
| 8215P13 | Participation in research dissemination activities | * |
| 8215P14 | Collaboration in the organization of scientific events | * |
| 8215P15 | Conference attendance | * |

* The hours to be recognized will depend on the duration of the activity carried out.

6. Procedure and admission deadline

The application for admission will be carried out electronically, providing by attached files the necessary documentation to prove the application, through the following link: <https://posgrado.uca.es/doctor>

The **application deadline for admission ends September 30**.

You can find more information about the procedure and the deadlines on the web: <http://escueladoctoral.uca.es/doctorado/admision-y-matricula/>

7. More information

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Escuela Politécnica Superior de Algeciras

 **UCA** Universidad de Cádiz

Doctoral School of the University of Cadiz
Higher Polytechnic School of Algeciras

PhD PROGRAMME IN SUSTAINABLE AND ENERGY ENGINEERING



Degree:
Ph.D. studies

Branch of knowledge:
Engineering and Architecture

Title:
PhD Programme in Sustainable and Energy Engineering

Training achieved:
Minimum of 600 hours of training activities and presentation of the doctoral thesis (original research work)

Duration:
3 years full-time (5 years part-time)

Responsible centre:
Doctoral School of the University of Cadiz (EDUCA)

Teaching centre:
Higher Polytechnic School of Algeciras

Number of places offered:
20

IF YOU WISH TO INVESTIGATE IN THE FIELD OF
ENERGY AND SUSTAINABLE ENGINEERING,

THIS IS YOUR PhD PROGRAM

1. Description of the PhD Programme

Sustainable and Energy Engineering is currently becoming of crucial importance in all socio-economic sectors of our society and has become a geo-strategic factor. In this context, the **need for specialists and researchers trained in R+D+i tasks in the energy field** is increasing. In fact, the research and development of new technologies, materials, products and techniques aimed at the exploitation and efficient use of energy resources and energy are key factors in guaranteeing the future sustainable development of society and improving current living standards. Increasingly demanding requirements for sustainability and conservation of the environment make it necessary to promote studies and research projects for the optimization and efficiency of energy generation, transportation, distribution and consumption processes in all sectors of the society.

This PhD Programme (PhD degree) is framed within this context, whose main objective is the **advanced training in methodologies and research activities in the field of Sustainable and Energy Engineering**, through the completion of a doctoral thesis focused on one of its many scientific facets technological, in particular those that correspond to its lines of research. In particular, **advanced and multidisciplinary scientific and technical training is offered, according to what the labour market demands, oriented to research and contribute knowledge in the development of new technologies, materials, products and techniques that allow the efficient and rational use of the Energy in its various facets, from generation to final use, and in different sectors (industrial, building, construction, domestic, transportation, electrical, etc.).** Among other competences, acquired through the training activities and the development of the doctoral thesis, it is intended the doctoral students to be able to conceive, design and implement original research of quality, rigorous and methodical, and to make some contribution in the field of Sustainable and Energy Engineering that broadens the frontiers of knowledge and deserves its publication and recognition by the scientific community and society both nationally and internationally, and finally, achieve adequate training in R+D+i that favours its incorporation into the labour market in companies of the field of Sustainable and Energy Engineering.



2. Admission profile

Graduates, Technical Engineers, Technical Architects and Graduates with Official Master's degree; Graduates, Engineers and Architects (Level 3 MECES); graduates with DEA or research proficiency; and doctors; in the field of Technical Education (Engineering and Architecture) and Experimental Sciences, from the national or foreign education system.

3. Most important characteristics of the PhD Programme

The doctorate has a **normal duration of 3 full-time academic years, or 5 years** if the student chooses the **part-time modality**, provided that it meets certain requirements (be working, have a disability, etc.).

The PhD Programme is composed of a set of training and research activities, each of which has a minimum number of working hours. To complete the training and research activities, it is necessary to **complete a total minimum of 600 hours, before the presentation of the doctoral thesis.**

When applying for admission, the PhD student indicates the preferred research line from among those provided in the PhD Programme, corresponding to the Academic Committee assigning the line and appointing the **academic tutor**, responsible for the adequacy of the training and research activity of the PhD student on the principles of the PhD Programme. The specific activities that the PhD student will carry out are determined in agreement with the tutor, and their follow-up is carried out through an individualized record called the **Document of activities of the PhD student.**

The Academic Committee of the PhD Programme also assigns the PhD student a **thesis supervisor** (it is also possible to request the appointment of a co-supervisor for reasons of an academic nature).

Before the end of the first year, the PhD student must prepare a **Research Plan**, whose content can be improved and detailed during the development of the studies.

Annually, the Academic Committee of the PhD Programme evaluates the Research Plan and the Document of Activities of each PhD student along with the reports issued by the tutor and the supervisor.

The doctorate culminates with the **presentation of the Doctoral Thesis**, original research work developed by the candidate in the field of Sustainable and Energy Engineering. The thesis should enable the PhD student to work autonomously and professionally in the field of R+D+i.



4. Research lines

1. Research Line in Applied Technologies for Energy Efficiency and Renewable Energy. Research line focused on the design, modeling, development and evaluation of thermal, electrical, electronic and control technological solutions for saving and improving energy efficiency in various sectors of society (industrial, building, domestic, electrical, etc.) and for its application in the generation and efficient consumption of electric and / or thermal energy from renewable energies. The research groups that participate in this research line are the following:

- TEP023 - **Electrical Technologies for Sustainable and Renewable Energy (TESYR):** http://tep023.uca.es/index_html-en. Leader: Luis M. Fernández Ramírez (luis.fernandez@uca.es).
- TEP221 - **Thermal engineeringa (ITER):** <http://iiter.uca.es>. Leader: Ismael Rodríguez Maestre (ismael.rodriguez@uca.es).
- TIC168 - **Computational Instrumentation and Industrial Electronics (ICEI):** <http://tic168.uca.es>. Leader: Juan José González de la Rosa (juanjose.delarosa@uca.es).

2. Research Line in Energy Technologies and Materials Applied to Sustainable Engineering and Industrial Ecology. It focuses on the application of intelligent techniques in the design, modeling, development and evaluation of new technological solutions to solve problems in the industrial, environmental, materials and / or logistics and transport sectors related to energy, sustainable engineering or Industrial ecology. On the other hand, it also focused on the research of new materials and nanotechnology to produce innovative products for the energy industry, photovoltaic devices and solar collectors of high efficiency and the use of industrial waste, construction and / or demolition for the manufacture of concrete. The research groups that participate in this research line are the following:

- TEP024 - **Intelligent Modelling of Systems (MIS):** <http://tep024.uca.es>. Leader: Ignacio Turias Domínguez (ignacio.turias@uca.es).
- TEP946 - **Materials and Nanotechnology for Innovation:** <http://mse.com.es>. Contact: David Sales Lérica (david.sales@uca.es).
- RNM920 - **Energy Efficiency in Sea Transport:** <http://cth.uca.es/esp/grupo/s/9/eficiencia-energetica-en-el-transporte-maritimo/>. Leader: Juan Moreno Gutiérrez (juan.moreno@uca.es).
- TEP951 - **Use of Industrial, Construction and / or Demolition Waste for the Manufacture of Structural and Non-Structural Concrete (ARHENE):** <http://tep951.uca.es/>. Leader: Miguel Ángel Parrón Vera (miguelangel.parron@uca.es).
- **Research in technologies, materials and tests of photovoltaic systems and solar concentration.** Contact: Juan María González Leal (juanmaria.gonzalez@uca.es).