DATOS GENERALES

Curso académico	
Tipo de curso	Máster de Formación Permanente
Número de créditos	60,00 Créditos ECTS
Matrícula	3.000 euros (importe precio público)
Requisitos de acceso	Students who have completed chemical, industrial or energy engineering (English is mandatory). Professionals with a degree who have the above-mentioned knowledge (English is mandatory). The particular access requirements are: - There will be a pre-selection via curriculum, in which students with the following studies will be filtered: chemical engineering, industrial engineering, energy engineering. - English medium level. - Academic profile and grades. Special relevance on the subjects that are related to the master's degree. The above points plus some others will be valued: - That they can perform company internships (not an essential requirement, but it will be valued). - Softskills such as communication skills, teamwork, innovative capacity. As it is an online Master with cost for the students, the access requirements will not be as limiting as a face-to-face Master. At the end of the call, all selected candidates will be informed of their results.
Modalidad	On-line
Lugar de impartición	Online
Horario	Online

Dirección

Organizador	Escola Tècnica Superior d'Enginyeria (ETSE-UV)
Colaborador	Generalitat Valenciana. Conselleria d'Economia Sostenible, Sectors Productius, Comerç i Treball / Instituto Tecnológico de la Energía. ITE / Power Electronics España, S.L.
Dirección	José Gabriel Torres País Profesor/a Titular de Universidad. Departament d'Enginyeria Electrònica. Universitat de València María Teresa Gil Agustí Responsable del área de Química Aplicada, Biotecnología y Nuevos Materiales. Instituto Tecnológico de la Energía Javier Tomás Catalá Director Universidad Corporativa. Power Electronics España, S.L.

Plazos

Preinscripción al curso	Hasta 31/10/2022
Fecha inicio	Noviembre 2022
Fecha fin	Julio 2023

Más información

Teléfono	961 603 000
E-mail	informacion@adeituv.es

PROGRAMA

Introduction and Applications

1.1 The energy system: present and future.
1.2 Importance of energy storage - flexibility needs and the role of battery storage.
1.3 Introduction to batteries.
1.4 Battery storage: potential and applications and challenges.
1.5 Battery Energy Storage: Grid-Scale.
1.6 Battery Energy Storage: Behind the meter.
1.7 Battery Energy Storage: Electrical Mobility.
1.8 Battery Energy Storage: Industrial Applications.

Electrochemical Concepts

2.1 Electrochemical concepts behind batteries.

Battery technologies and raw materials

3.1 Current Battery Technologies.
3.2 Emerging battery Technologies.
3.3 Raw materials.

Production and manufacturing of batteries

4.1 Production and manufacturing.

Battery Management

5.1 Introduction to Power Electronic Converters.
5.2 Power conversion and efficiency in battery system.

Battery connection and control

6.1 Power electronics and grid connection.
6.2 Battery management systems.

Battery testing and modeling

7.1 Battery testing.
7.2 Modeling, control and simulation of batteries.

Batteries end-of-life: Reuse and recycling

8.1 Batteries end of life: Reuse and recycling.

Battery storage: Business models, market and regulation

9.1 Business Modeling.
9.2 Investment scenarios and business models for battery energy storage systems.
9.3 European Legislation and Policy.
9.4 Cost assessment of battery-based storage solutions.
9.5 Business Models and Business examples.

Trabajo Final de Máster

The contents of the Master's Thesis will be different depending on the specific objectives of the project to be carried out.
The subject of the Master's thesis can be all those that are specific to the Master's studies. In particular, all kinds of systems and devices may be designed, using any procedure as current engineering allows.
The Master's Thesis may also include research and development work, as well as and the theoretical or numerical modeling of systems and their components.
It may also be considered as subjects of the Master's Thesis may also include studies related to the contents of the Degree and related to equipment, factories, installations, services, planning, management or operation.
Therefore, the contents of the the subject will be different depending on the specific Master's thesis selected by the student.

PROFESORADO

Inmaculada Álvarez Serrano

Rocío Cano Jiménez

Battery Technician

Ramon Manuel Fernández Domene

Ayudante/a Doctor/a. Departament d'Enginyeria Química. Universitat de València

Consuelo Gómez-Zarzuela Quel

Technical training team leader. Power Electronics S.L.

Rita Sánchez Tovar

Profesora Ayudante Doctor. Departamento de Ingeniería Química. Universitat de València.

Rita Sánchez Tovar

Profesor/a Titular de Universidad. Departament d'Enginyeria Química. Universitat de València

Benjamin Eduardo Solsona Espriu

Profesor/a Titular de Universidad. Departament d'Enginyeria Química. Universitat de València

Javier Tomás Catalá

Director Universidad Corporativa. Power Electronics España, S.L.

José Gabriel Torres País

Profesor/a Titular de Universidad. Departament d'Enginyeria Electrònica. Universitat de València

OBJETIVOS

Las salidas profesionales que tiene el curso son:

The energy transition cannot be understood without the support of batteries to mitigate the intermittency of renewable energy generation. Batteries are and will play a fundamental role in this transition, both for stationary storage and for electric mobility with electric vehicles, among others. Many companies require professionals both for the production of batteries from raw materials to the battery pack, and for the integration of these batteries into the grid.
This Master, will allow students to reinforce fundamental aspects of batteries and achieve a very valuable knowledge of production, integration of batteries in the current and future market. This will enable them to work in companies that produce batteries, design and manufacture battery packs, integrate them into the energy system, process engineering, recycling and second life...

Batteries are devices that store energy electrochemically. These devices have a wide range of applications, and we use them for almost every purpose. From mobile phones to electric car batteries. It is therefore important to have specialized training in all topics related to batteries, specifically in battery technologies. With this aim, the University of Valencia, together with Power Electronics and ITE (Instituto Tecnológico de la Energía) offer the first edition of the Master of Continuing Education in Battery Technologies.

Why is important to study the Master of Continuing Education in Battery Technologies?
Batteries are devices that have many uses and applications, so it is necessary to have specialized professionals in this sector. Nowadays, there is a gap between the request for qualified professionals and trained professionals. The Master of Continuing Education in Battery Technologies overcomes the problem of the lack of trained personnel, including every aspect in the field from battery production to battery recycling, going through battery applications. Batteries are key to many sectors, like electric mobility, where, depending on the application, they can be used for hybrid cars and for battery electric vehicles.
In a world where energy production must reduce its Co2 emissions, intermittent renewable energy combined with storage plays a fundamental role. For every application, new requirements will be defined, looking for improvements in energy density, sustainability, design, production process, applications... Therefore, there is a need for a master's degree focused on battery research and development due to its enormous importance and impact currently. This course undoubtedly provides new opportunities of work and study to professionals in engineering and research. Thus, the University of Valencia offers interested professionals the Master of Continuing Education in Battery Technologies.

Where to study the Master of Continuing Education in Battery Technologies
The University of Valencia, always sensitive to current academic and professional needs, constantly offers continuous innovation and updating in its programs. For this reason, it offers comprehensive training through the Master of Continuing Education in Battery Technologies. This master's degree offers job opportunities for professionals of different engineering degrees. As well as other areas related and interested in the battery industry, the integration of batteries in the grid and even battery recycling.
The Master of Continuing Education in Battery Technologies has international faculty and offers the online modality. The professionals who take this master's degree will have knowledge and certifications that are in high demand in technology companies. In addition, professionals specialized in battery technologies will be trained, from their chemical foundations to their production. Without a doubt, it will become a transcendental training both for the needs of the current and future market of batteries.

METODOLOGÍA

Material: Videos. PDF documents. Slides. MasterClass. Practices and Tutorials.