

Joint European Summer School on Fuel Cell, Electrolyser, and Battery Technologies

JESS 2020

07 – 11 September 2020
(Introductory Courses)

and

14 – 18 September 2020
(Advanced Courses)

Vouliagmeni, Athens, Greece



Basic Information

Participation fees:

1.485,- € per course and person

This covers accommodation in single room (double room occupancy = 1.285,- € per person), including all tuition fees and taxes, as well as:

- full board for six nights,
- coffee breaks,
- a banquet on the Friday, and
- an excursion on the Wednesday.

Accompanying persons (in same double room, not attending lectures) pay 620 € including all of the above.

Please register by 15 Aug 2020 to secure your place on the School (cut-off date).

For registering and regular updates and information (**also including COVID-19 arrangements**), please go to our web site:

<http://www.jess-summerschool.eu>

Contact for all enquiries:

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JESS is organised by:



If you want to sponsor this event, please contact Mr. Hooper.

Organising committee:

Prof. Robert Steinberger-Wilckens, U Birmingham
Prof. Jens Oluf Jensen, DTU Energy
Prof. Rüdiger-A. Eichel, FZ Jülich GmbH
Prof. Vladimir Molkov, Ulster University

Scope and target:

The Joint European Summer School (JESS in short) dates back to 2004 when the first Summer School was organized in Greece. By now, 16 events have been successfully organized.

Participants can select from seven individual course modules run in the two weeks:

Week 1 offers three comprehensive introductions aimed at graduate and PhD students and young professionals within the fields of low and high temperature fuel cells & electrolysis, and in battery technology.

Week 2 offers four advanced courses for students and professionals with a few years of experience, covering the fields of fuel cell vehicles, business & innovation development, modelling, and hydrogen safety.

All lectures will be presented by highly acclaimed experts from universities, research centres, and industry with long-standing experience in teaching. All details of the courses and information on lecturers can be found on the JESS website.

The courses are accredited at DTU and RWTH Aachen (for week 1), and University of Birmingham (week 1 & 2). Upon successfully taking the optional final exams, students will receive 3 ECTS credit points per course.

Lecture language: English.

Slides and information will be available to participants via a secure download area on the JESS website during and after the Summer School.



The 17th edition of the Joint European Summer School – JESS2020 - will again take place in Vouliagmeni, near the beautiful city of Athens on the coast of the Aegean Sea. It will provide seven high level courses on selected topics in fuel cell, electrolyser, battery and related technologies.

JESS addresses newcomers to the field, graduate students, and young professionals working at the forefront of fuel cell, electrolyser, battery, and hydrogen technologies.

Week 1 of the Summer School will focus on:

Introduction to Fuel Cell, Electrolyser, and Battery

Technologies: starting from the fundamental principles of electrochemistry and thermodynamics the entire spectrum of materials, design and balance of plant will be covered both from a scientific and an engineering point of view. The courses will be augmented by more general lectures on various aspects of the technology.

Week 2 of the Summer School will focus on:

Fuel Cell Vehicle Technology, Innovation Management & Business Development, Hydrogen Safety, and a Modelling Master Class. This week addresses students with one or two years of experience in fuel cell and hydrogen research. The Master Class will offer insight into modelling approaches before giving the students room to discuss their own projects. The other courses offer students with a background in the basic technology further insight into developing businesses, protecting know-how, safely handling hydrogen, and the engineering and design of fuel cell vehicles.

In addition to the lectures, the participants will be asked to join in student projects, applying the course content to case studies to be presented at the end of the week.

Tentative Programme Schedule

JESS comprises of seven independent course modules as shown below that can be booked separately. Students choose the specific course they want to attend during registration.

Week 1:

<i>Introduction to Electrochemistry and Thermodynamics Introduction to Solid State Chemistry and Ionics</i>		
<i>Introduction to SOFC / SOE</i>	<i>Introduction to LT Fuel Cells & Electrolysers</i>	<i>Introduction to Batteries</i>
<ul style="list-style-type: none"> • <i>materials: electrolytes & electrodes</i> • <i>cell and stack design</i> • <i>stack materials</i> • <i>manufacturing</i> • <i>characterisation</i> • <i>degradation</i> • <i>system technology</i> 	<ul style="list-style-type: none"> • <i>materials: electrolytes & electrodes</i> • <i>cell and stack design</i> • <i>manufacturing</i> • <i>characterisation</i> • <i>degradation</i> • <i>system technology</i> 	<ul style="list-style-type: none"> • <i>materials: electrolytes & electrodes</i> • <i>cell and stack designs</i> • <i>manufacturing</i> • <i>characterisation</i> • <i>modelling</i> • <i>degradation</i> • <i>system technology</i> • <i>beyond Lithium</i> • <i>metal-air & solid state batteries</i>
<ul style="list-style-type: none"> • <i>power to gas, power to fuel</i> 		

Week 2:

<i>Fuel Cell Vehicles</i>	<i>Modelling Master Class</i>	<i>Hydrogen Safety</i>
<ul style="list-style-type: none"> • <i>vehicle design</i> • <i>hybrid vehicles</i> • <i>electric drivetrains</i> • <i>vehicle batteries</i> • <i>life cycle and emissions</i> • <i>market introduction</i> 	<ul style="list-style-type: none"> • <i>0D, 1D, 2D/3D modelling approaches & software</i> • <i>multi-physics modelling</i> • <i>student project presentations</i> 	<ul style="list-style-type: none"> • <i>introduction to hydrogen safety</i> • <i>hydrogen fires</i> • <i>hydrogen explosions</i> • <i>incident handling</i> • <i>incident prevention</i> • <i>standards</i>