



PROJECT KNOWHY NEWSLETTER, OCTOBER 2016

KnowHy is a 3 years project - funded by the European Commission and coordinated by the Fuel Cell and Hydrogen Joint Undertaking - that aims at providing to the widest possible audience of technicians specific training modules, practical, in an appropriate format and at affordable cost, to facilitate the deployment of the FC&H2 technologies expected to enter the market within the time frame 2014-2020.

The main features of the project are:

- **Specialisations** chosen with focus on market roll-out applications.
- Comfortable **e-learning** and hands on format for active technicians.
- **Tutoring, Serious games and Practical training** to complement the lessons.
- Affordable and easily adaptable training format.
- Courses available in **7 different languages**: English, French, Dutch, Spanish, Italian, German & Portuguese and in multiple countries.
- Target of training **1000 technicians** before project end.
- **Self-sustained training** with the establishment of a joint venture to continue to offer the courses after end of the project

1. WHO IS INVOLVED?

The KnowHy consortium includes very experienced partners in FC&H2 technology with own premises, labs and even demonstration facilities of their own and very well related to industrial stakeholders. The partnership covers the main FC&H2 sectors as well as geographically the most populated part of South-Western Europe and some of the major languages of the continent: English, German, French, Italian and Spanish, Portuguese and Dutch. The Delft University of Technology is the coordinator of the project.



Partners involved in the project:

Beneficiary organization name	Country	Website
Technical University Delft	Netherlands	http://www.tudelft.nl/
Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón	Spain	http://www.hidrogenoaragon.org/
Fundación San Valero	Spain	http://www.sanvalero.es/
Technische Universität München	Germany	http://www.tum.de
Environment Park	Italy	http://www.envipark.com/
Campus Automobile	Belgium	http://www.formation-campus-automobile.be/
University of Birmingham	United Kingdom	http://www.birmingham.ac.uk/

Instituto Superior Tecnico, Universidade Tecnica de Lisboa	Portugal	http://tecnico.ulisboa.pt/
Federazione delle Associazioni scientifiche e tecniche	Italy	http://www.fast.mi.it/
Vertigo Games B.V.	Netherlands	http://www.vertigo-games.com/
PNO Consultants B.V.	Netherlands	http://www.pnoconsultants.com/
Kiwa Netherlands	Netherlands	http://www.1kiwa.com/
McPhy Energy S.A.	France	http://www.mcphy.com/
Universidad de San Jorge	Spain	http://www.usj.es

2. WHAT ARE THE TRAINING MODULES?

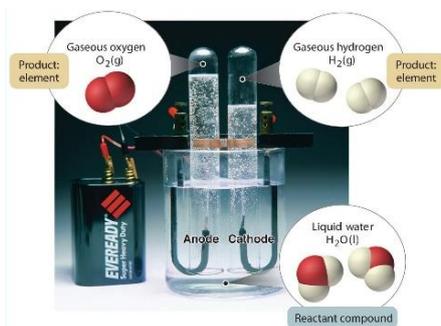
The training is composed by one common core module covering the 40% and five specialisations at choice covering the 60%. Based on the market research and the results of the industrial stakeholders, a survey conducted by the consortium, the topics covered by the five courses are designed according to training needs as follow:

- [H2 Fuel Cell for TRANSPORT](#)
- [H2 production and handling](#)
- [Fuel Cells for Combined Heat and Power Applications](#)
- [Fuel cell based generators \(APU and Backup power\)](#)
- [Micro fuel cells](#)



The core module provides fuel cell fundamentals including: fuel cells background and history, basics and working of different types of fuel cells, and application of fuel cells; hydrogen storage, handling and infrastructure, introduction to detonation, deflagration and alternative fuels; overview of fuel cell stack design and components, introduction to tools, normal operation and control of conditions, calculations, rules of thumb and applications; overview of systems taking into account technical drawings, safety aspects, maintenance, diagnostics and failure analysis.

The transport sector is now the largest consumer of petroleum products, this specialisation module is designed to provide technical information about fuel cell vehicles and, very important, about safety aspects related to vehicle technology, workshop and working procedures. **The hydrogen production and handling** module studies in detail the technology related to the production, purification and storage of hydrogen to prepare technicians in the upcoming hydrogen



filling stations. **The fuel cells for combined heat and power applications module** is dedicated to prepare technicians for the new challenge of installing, testing and maintaining the emerging fuel cell based Combined Heat and Power systems as naturally as conventional condensing boilers. **The fuel cell based generators** specialisation analyzes basics of fuel cell based APU units, including safety aspects, and BoP components to train technicians to handle fuel cell based generators. **The micro fuel cells** module allow trainees to conduct maintenance, diagnostics and failure analysis on a micro fuel cell system for portable power applications.

3. PROJECT WORK HIGHLIGHTS

On 25th May 2016 the KnowHy workshop took place during the FCH2 2016 Technical Conference in Birmingham gathering representatives from the industrial and academic world. The presentations offered during the event, including detailed information about the project, the core module and the specialisation modules are downloadable from the [project website](#).



Practical training at Environmental Park, Turin

In September 2016, the first running of the KnowHy courses has been launched in The Netherlands, Italy, Spain and UK with more than 140 registered students to the training programmes.

More sessions will be offered in Belgium, Germany, Portugal, France, Italy, The Netherlands, Spain and UK in the next months. If you are interested in participating in the next training courses, you can check the courses date for each Country and pre-register to the courses on the [project website](#).

Once, pre-registered you will be allowed to test the demo courses until the starting of the training. After completing successfully the training, you will obtain a Certificate of Knowledge in Hydrogen and Fuel Cell Technology for Technicians in the specialisation you have chosen.

During the Programme Review Days on 21 November 2016 in Brussel the KnowHy team will offer the possibility for interested participants to explore the courses by testing the demo courses.

In order to be updated about the courses and project developments, please, join [KnowHy LinkedIn page](#).

4. JOIN THE NEXT RUNNING COURSES

Below the timetable of the upcoming courses. The dates of the practical sessions are tentative and can change according to the number of students. More courses with different specialisations for each Country will be offered also in 2017. The complete calendar is available on the project [website](#).

Please visit the website to register for the upcoming courses or to receive more information about the courses.

NEXT RUNNING		
GERMANY		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	07/11/2016	28/11/2016
Fuel Cell Based Generators	01/12/2016	21/12/2016
ITALY		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	15/10/2016	14/11/2016
Fuel Cell Based Generators	19/11/2016	19/12/2016
BELGIUM (Wallonia)		

Core Module	21/11/2016	28/11/2016
H2 Fuel Cell for Transport	05/12/2016	12/12/2016
PORTUGAL		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	17/10/2016	11/11/2016
H2 Production and Handling	26/11/2016	21/12/2016
H2 Fuel Cell for Transport	22/02/2017	16/03/2017
SPAIN		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	05/12/2016	12/01/2017
H2 Fuel Cell for Transport	16/01/2017	06/02/2017
FRANCE		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	19/12/2016	23/01/2017
H2 Fuel Cell for Transport	30/01/2017	27/02/2017
NL		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core Module	28/11/2016	11/01/2017
Combined Heat and Power Generation	16/01/2017	13/02/2017
H2 Fuel Cell for Transport		14/02/2017
H2 Production and Handling		15/02/2017
Fuel Cell Based Generators		16/02/2017
Micro Fuel Cells		16/02/2017
UK		
MODULE	ONLINE COURSE*	PRACTICAL SESSION**
Core module	01/11/2016	24/11/2016
H2 Fuel Cell for Transport	01/12/2016	04/01/2017
H2 Production and Handling	01/01/2017	25/01/2017
Combined Heat and Power Generation	01/02/2017	22/02/2017
Fuel Cell Based Generators	01/03/2017	27/03/2017
Micro Fuel Cells	01/04/2017	24/04/2017

* starting date

** specific date

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