Progetto HySchools - Hydrogen in Schools

Sito web del progetto: [https://www.hyschools.eu/it/](https://www.hyschools.eu/it/)

**Programma:** Erasmus + Cooperation for innovation and the exchange of good practices – Strategic Partnerships

**Durata:** 01/09/2017 - 29/02/2020

**Partner:** The Manchester Metropolitan University (UK) - coordinatore; ARAEN - Agenzia Regionale per l'Energia, Regione Abruzzo (IT); Université de Franche-Comté (FR); Università degli Studi di Perugia (IT); Patras Science Park SA (GR); Agentia de Management Energetic Maramures (RO); Université De Lorraine (FR); Campus Automobile SPA-Francorchampsasbl (BE).

**Obiettivi:** Migliorare le conoscenze fornite dagli istituti di istruzione superiore per garantire in modo efficace i futuri bisogni formativi dell'industria in relazione alle celle a combustibile e all'ampia economia dell'idrogeno.

**Azione:** Formazione degli insegnanti e degli studenti sul tema idrogeno e celle a combustibile con il fine ultimo di incentivare la carriera universitaria in tale ambito in accordo alle esigenze del comparto industriale.

**Materiale didattico**

Nell'ambito del progetto, con il coinvolgimento di esperti europei di settore, è stato realizzato del materiale "didattico" in tema di idrogeno in lingua inglese e in tutte le lingue dei paesi coinvolti nel progetto, ovvero italiano, francese, greco e rumeno.

Il materiale è stato articolato in 11 aree tematiche, ovvero:
- Politica e legge
- Gestione del rischio
- Economia e occupazione
- Impatti
- Storia
- Tecnologie
- I principi
- Distribuzione
- Applicazioni
- Produzione
- Conservazione

Per ciascuna area, sono disponibili **varie** tipologie di materiale, dai video alle presentazioni power point, e il tutto è scaricabile gratuitamente.

**SCARICA IL MATERIALE DIDATTICO**

Nelle pagine seguenti informazioni sui meeting di progetto

- HySchools Kick-off meeting - Manchester, UK, 23 – 24 November 2017
- Transnational Project Meeting 20 - 21 November 2018, Metz, France
- Multiplier event e transnational project meeting 28 e 29 Marzo 2019, Pescara – Italy Guarda il Video
- Transnational project meeting 8 e 9 Ottobre 2019, Liegi (Belgio)
- Final meeting e "Clean Energy Classrooms" 3 e 4 febbraio 2020, Manchester (UK)
HySchools First Transnational Project Meeting – Kick-Off Meeting

23 – 24 November 2017

Venue: The Manchester Metropolitan University, Manchester, UK

http://www2.mmu.ac.uk/contact/

Agenda

Day 1

9:30 Arrival to the Ormond Council Chamber, Ormond Building, MMU All Saints Campus (Building No 8 on map)

http://www2.mmu.ac.uk/media/mmuacuk/content/documents/how-to-find-us/Manchester-Campus-Map-A4.pdf

Coffee and refreshments
Meet the MMU team

10:00 Welcome and Introductions

10:30 Introduction to the HySchools Project

A detailed project overview of Hydrogen in Schools proposal and expectations of each partner. Feedback from the NA.

10:45 Intellectual Output (O1) – Education and Industry Alignment

UFC

11:15 Coffee Break

11:30 Intellectual Output (O2) – Creation of Practical Teaching Resource for Secondary Schools

MMU

12:00 Lunch

13:00 Demonstration of Hydrogen Kits for Schools

MMU

13:30 Intellectual Output (O3) – Creation of Practical Teaching Resource for Post 16

MMU

14:00 Intellectual Output (O4) – Online HFCT resource for Schools & Industry

Abruzzo

14:30 Coffee Break

14:45 Delivery of Intellectual Output (O1) – Education and Industry Alignment

UFC

17:00 Meeting Close

19:00 Dinner at Refuge, Oxford Road M60 7HA
Day 2

9:30  Arrival to Salutation  
      Coffee & refreshments

10:00  Budgeting and Monitoring Systems

10:30  Project Management

11:00  Record keeping and project reporting

11:30  Any other business

12:00  Lunch

      Partners depart
HySchools Third Transnational Project Meeting
20 – 21 November 2018

Venue: Montigny-lès-Metz - ESPE Campus, France

Agenda

Day 1
11:00 - 12:00  Arrival and welcome time at ESPE de Lorraine (Montigny-les-Metz)
12:00 - 13:30 Lunch
13:30 - 14:30 IO1 Education and Industry Alignment – status update
14:30 – 15:30 Review previous minutes and actions
15:30 – 16:00 Coffee Break
16:00 – 17:30 Project Management and Reporting

Day 2
9:00 – 9:30  Arrival and welcome
9:30 – 10:15 IO2 and IO3 approach to delivery  James Redfern, MMU
10:15 – 12:00 IO2 and IO3 Discussion amongst partners
12:00 – 13:00 Lunch
13:00 – 15:00 IO2 and IO3 – partners to agree clear responsibilities, objectives and milestones for delivery
15:30 - 16:00 Shift to Saulcy Campus (by bus)
16:00 -17:00 Presentation by C. Bastien, director of PERSEUS and Lab visit, including demo session in Hyve3D (Hybrid Virtual Environment 3D)
Di seguito una scheda di sintesi del progetto:

**Programma:** Erasmus + - Cooperation for innovation and the exchange of good practices – Strategic Partnerships

**Project Code:** 2017-1-UK01-KA203-036645

**Durata:** 01/09/2017 - 29/02/2020

**Partner:** The Manchester Metropolitan University (UK) - coordinatore; ARAEN - Agenzia Regionale per l’Energia, Regione Abruzzo (IT); Université de Franche-Comté (FR); Università degli Studi di Perugia (IT); Patras Science Park SA (GR); Agentia de Management Energetic Maramures (RO); Université De Lorraine (FR); Campus Automobile SPA-Francorchampsasbl (BE).

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**Azione:** Formazione degli insegnanti e degli studenti sul tema idrogeno e celle a combustibile con il fine ultimo di incentivare la carriera universitaria in tale ambito in accordo alle esigenze del comparto industriale.

Le attività principali svolte ad oggi sono:
- Preparazione di una sintesi del sistema scolastico italiano;
- Realizzazione di una ricerca sul materiale didattico disponibile in italiano sul tema idrogeno e celle a combustibile;
- Collaborazione alla realizzazione di un’indagine rivolta ai professori della scuola secondaria di tutti i paesi coinvolti con lo scopo di comprendere se e in che modo il tema dell’impiego dell’idrogeno in ambito energetico viene trattato nelle scuole.

Il questionario è rivolto principalmente, ma non esclusivamente, ai professori di materie tecniche-scientifiche.

Ho appena controllato e sono arrivati 150 questionari.

Le suddette attività sono state svolte in stretta collaborazione con il laboratorio celle a combustibile dell’Università degli Studi di Perugia, altro partner italiano del progetto.

Nelle prossime settimane dovremo analizzare i risultati dei questionari (durante il meeting, bisognerà discutere della data di chiusura questionari. Ad ogni modo, il partner greco ha fatto presente che non ha ancora proceduto alla traduzione del questionario e alla sua somministrazione, quindi penso che abbiamo ancora tempo) e noi, come Regione Abruzzo, dovremo organizzare un evento (nei primi mesi del nuovo anno come da application form).

The expenditure is related to the working hours of Ms. Iris Flacco, Local coordinator e Steering Group member. even if she takes care mainly of activities of project management and coordination, she also contributes to other WPs.

Method for the calculation of the staff cost: C. Full-time flexible number hours.

During this month, she has worked at WP1, WP2 and WP3.

N. of hours for this month for WP3: 12; n. of hours for WP1:4; n. of hours for WP2: 11.

It is worth to highlight that in the AF there are no staff costs for the Abruzzo Region within WP3. However, the staff of the Region has worked with the municipality of Pescara at the preparation of the pilot case and has contributed and participated at the workshop held on 28/06/2018 in Pescara (activity 3.2).
HySchools

Transnational Partnership Meeting and mid-term event

Pescara, Thursday 28th and Friday 29th March 2019

Venue

SALA FAVETTA at Museo delle Genti d’Abruzzo
Via delle Caserme, 24-Pescara
http://www.gentidabruzzo.com/?page_id=343
Walking distance from the hotels suggested by Regione Abruzzo

Programme for the two days

Thursday 28th March 2019 – Transnational Partnership Meeting and facilitators training

09:30 – 11:00

- Project management and implementation (MMU)
  Financial update: what is the remaining budget to deliver the rest of the project?
  - Completion of IO1 report and recommendations (Damien Tamisier – UFC/UL)
  - What’s next and what end result(s) do we need / do we want to get?
    - Reminder of agreed outputs and deliverables (MMU)
    - Partners discussion on the project end results (publication? curriculum change? recommendations for policy change? etc.)

11:00 – 11:15

Coffee Break

11:15 – 14:30

(with lunch 12.30 -13.30)

- Next phase: development of hydrogen education resource
  - Timeframe and process for IO2 / IO3 / IO4
  - Development of a monitoring framework (capturing feedback from users’ experience to improve resources created)
  - Engagement of end users and test of resources - Partners’ roles and responsibilities
    - IO4 – Online platform and its implementation in each country
    - Dissemination - promotion of the project and dissemination of results
    - Agree partners’ roles and action plan

14:45 – 18:30

- Training of facilitators for the multiplier event
Friday 29th March 2019 – Workshop/multiplier event

Participants: 3 tables of approx 13 people. On each table, a mix of teachers, policy makers, hydrogen experts (academics and senior staff from national agencies, industry representatives)

09:00 – 09:20 Registration of participants
09:20 - 09:30 Welcome by ARAEN and Abruzzo Region
09:30 – 09:40 Presentation of the HySchools project (Project coordinator)
09:40-10:10 Presentation of the activities of the day, facilitators and participants and organisation of tables (Project coordinator / ARAEN)
10:10 -11:00 Multiplier event / workshop
11:00-11:20 Coffee break
11:20-12:30 Multiplier event / workshop
12:30 – 13:00 Presentation of the outputs of the day and conclusions (Facilitator and the project coordinator/ARAEN)
HySchools
Transnational Partnership Meeting
Liege/Spa-Francorchamps, Tuesday 8th and Wednesday 9th October 2019

Tuesday 8th October 2019

Venue
Technifutur head office
Liège Science Park,
Rue Bois Saint-Jean 15-17, B-4102 - Seraing

9h00 – 12h00  Teacher engagement event hosted by Technifutur
Optional for HySchools partners (the event will be in French)

12h00 – 14h00  Lunch at Technifutur canteen³

14h00 – 14h15  Transnational Partnership Meeting - Welcome and introduction

14h15 – 15h15  IO4 online platform
Display, explanation and feedback from partners
Outstanding tasks / issues

15h15 – 15h30  Break

15h30 – 16h30  IO2 / IO3 / IO4 Resources to test and evaluate
Plans for testing from each HySchools partner
Evaluation
Update and sustainability of the resources

16h30 – 17h00  Dissemination

Evening  Evening meal (timing and venue TBC)

¹ Partners to pay for their own meal – CARD ONLY. A full meal and non-alcoholic drink would cost approx. €10
**Wednesday 9th October 2019**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8h00</td>
<td><strong>Partners to be picked up from Hotel Ibis Liège Seraing</strong>&lt;br&gt;Route du Condroz 15b - 4100 Boncelles</td>
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<tr>
<td>9h30 – 9h45</td>
<td><strong>Recap of actions agreed / outstanding questions</strong></td>
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<tr>
<td>9h45 – 10h30</td>
<td><strong>Project management</strong>&lt;br&gt;Budget / payments / timesheets / reports</td>
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<tr>
<td>10h30 – 11h15</td>
<td><strong>Final event and project legacy</strong></td>
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<td>11h30 – 12h00</td>
<td><strong>Practical demonstration by Marc Nelis</strong></td>
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<tr>
<td>12h00 – 12h30</td>
<td><strong>Lunch (offered by Technifutur)</strong></td>
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<tr>
<td>12h30 – 14h00</td>
<td><strong>Visit of the racetrack</strong>&lt;br&gt;Visit delivered in English by a specialised guide – courtesy of Technifutur</td>
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<tr>
<td>14h00 – 15h30</td>
<td><strong>Visit of the training centre / Francorchamps campus</strong>&lt;br&gt;Delivered by your very own Cendrine Marchal</td>
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<tr>
<td>15h30</td>
<td><strong>Leave to return to Liège</strong>&lt;br&gt;Travel arrangements to be confirmed</td>
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HySchools
Transnational Partnership Meeting and Final event
Manchester Metropolitan University, Monday 3rd and Tuesday 4th February 2020

Monday 3rd February 2020 - Transnational Partnership Meeting (TPM) – part 1

Venue
Manchester Fuel Cell Innovation Centre (MFCIC)
Faculty of Science and Engineering
Manchester Metropolitan University - John Dalton Building
Chester St, Manchester M1 5GD

See map on p. 2
(Use postcode for Google Maps search)

Please report to Reception, at the entrance of the John Dalton Building; Mathilde and/or Laura will come and collect you to take you to the MFCIC.

12h00 – 13h30 Buffet lunch offered by Manchester Met and visit of the lab

13h30 – 14h00 Brief on the final event – Clean Energy classrooms
Context of the event, programme, HySchools partners’ roles

14h00 – 15h00 IO2 / IO3 / IO4 - Testing phase of the resources: first results, key recommendations and possible response from HySchools partners

15h00 – 15h15 Break

15h15 – 15h45 Final report
What we need to report on, timescales, documents required, input from partners in the narrative

15h45 – 16h30 Project management
Final budget

16h30 – 17h00 Dissemination

19h30 Evening meal: The Anthologist, One St Peter's Square, Manchester, M2 3DE
Tuesday 4th February 2020 – TPM (part 2) and Clean Energy Classrooms event

Morning venue
Manchester Fuel Cell Innovation Centre
(Same venue as day before)

8h45 – 9h00  Tea&coffee on arrival
9h00 – 9h30  Outstanding issues / conversations from day before
9h30 – 10h00 IO1 report – to be published?
10h00 – 11h00 Beyond the end of the project: sustainability of the resources
11h00 – 11h30 Other issues / topics
# Clean energy classrooms: educating for the climate crisis

**12h30 – 16h00**

## PROGRAMME

**Brooks building**

Event compere – Dr Samuel Rowley-Neale, Research Associate, Manchester Met

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Activity</th>
<th>Duration</th>
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| 12.30-1.30 | Brooks building Ground floor hall | Delegate arrival  
  - Registration  
  - Networking Lunch  
  - Exhibitions | 1h       |
| 1.30 – 1.40 | Brooks building Lecture theatre G4 | Welcome  
  Helen Laville  
  Pro-Vice Chancellor for Education, Manchester Met  
  **Brief:** Helen was the opening speaker for HySchools kick off meeting in Manchester 3 years ago; Will mention key points about what has happened since, with a focus on importance of skills development | 10 mins |
| 1.40 – 1.55 |                        | The global clean energy skills challenge  
  Gina Dowding  
  Green Party MEP for the North West of England | 15 mins |
| 1.55 – 2.05 |                        | Local Skills Challenge (Manchester and Region-focused)  
  Nichola Wallwork  
  STEM and HS2 Programme Manager  
  Greater Manchester Combined Authority | 15 mins |
| 2.05 – 2.10 |                        | HySchools: teaching hydrogen education and inspiring the careers of tomorrow  
  Amer Gaffer  
  Director of the Manchester Fuel Cell Innovation Centre, Manchester Met | 5 mins |
| 2.10 – 2.50 |                        | Panel discussion | Overall: 40 mins |
How has a European transnational project addressed the clean energy skills gap and what is the next step?

Chair: Amer Gaffar

Panel members:

**Chris Hatherall, Head of technology** in Warrington University Technology College  
*Brief: Sharing experience on using HySchools resources*

**Dr Stéphanie Fleck, Lecturer in Learning sciences**, Faculty of Education, Université de Lorraine  
*Underpinning research on Hydrogen and making it accessible*

**Chiara Barchiesi, Project Manager** for ARAEN, Regional Energy Agency (Abruzzo Region, Italy) and  
**Dr Giovanni Cinti, Researcher** at the University of Perugia (Italy)  
*Addressing the skills gap from a local authority’s perspective, in partnership with an education institution*

**Cendrine Marchal, Project Manager at Technifutur**  
(vocational and technical skills training centre in Belgium)  
*Creating skills required for the immediate needs of the industry*

Questions to the Panel

2.55 - 3.05  
Summary and introduction to workshop sessions  
Dr Samuel Rowley-Neale

3.05– 3.45  
Breakout sessions

How can we influence policy change at an educational level?

1. **Curriculum**  
*Facilitators: Laura Currid and Stéphanie Fleck*

The current curriculum makes little or no reference to the application of fuel cells in a clean energy economy. As our students are going to be the workforce in this developing, job market, we are doing them a disservice by not equipping them with the skills they need to succeed. There is simply no time
to deviate from the curriculum, so in order for it to be delivered, it needs to be included as a statutory requirement.

*HySchools partner in attendance: AMEMM*

2. **Cooperation**  
*Facilitators: Giovanni Cinti and Dimitris Trachylis*

Effective partnerships and joined-up approaches are key to ensure that clean energy such as hydrogen and fuel cell become THE energy of the (near) future. Industry leaders, educators, academics, local authorities, politicians must work together to make this happen. Find out about positive examples of partnership work in other countries, and key recommendations which could help implement change.

*HySchools partners in attendance: Universite de Lorraine (Healthcliff Demaie) and Regione Abruzzo (Chiara Brachesi)*

3. **Change**  
*Facilitators: Amer Gaffar and Cendrine Marchal*

As the challenge of climate change grows, the search for low carbon energy sources has become critical. The interest in Hydrogen and Fuel Cells is now gaining an unprecedented momentum around the world as a clean solution to multiple needs (initially for domestic energy, public transport and private vehicles). To seize this opportunity academia, government and the private sector need to take ambitious and real-world actions now. Our project HySchools has identified opportunities for educators to provide a view of the near-and long-term opportunities that exist and to mitigate the requirement for more widespread curriculum change required by a wholesale shift to alternative low carbon energy sources.

*HySchools partner in attendance: Université de Franche-Comté (Prof. Samir Jamei)*

| 3.45 | Refreshments and close |