



International Partnership
for Hydrogen and Fuel Cells
in the Economy

The International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)

EU Skills Activities

November 2023

The European Hydrogen Skills Strategy – Study overview



2 interview campaigns to question industry stakeholders & training providers on:

- Occupational profiles in the hydrogen sector
- Skills needs and level of hydrogen expertise
- Existing training offers
- Challenges and drivers to establishing hydrogen training & education



23

Countries covered



146

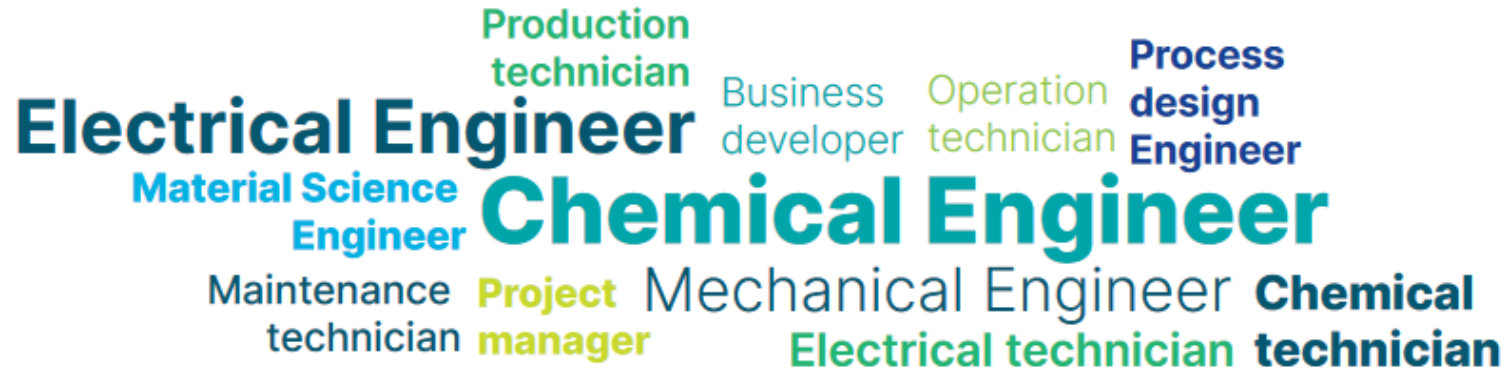
Stakeholders interviewed



Occupational profiles in the hydrogen sector

A diverse range of occupations: about **200 distinct job roles** identified in the 913 job roles mentioned.

Most mentioned occupational profiles



Demand level and hydrogen knowledge required across job roles



Mechanical engineer

Power electronics engineer
System production engineer
Design engineer / Project designer
Sales engineer
Administrative staff from public institutions: governments, regions, municipalities

Electrical engineer
Automation engineer
H2 production specialist
H2 storage specialist
Fuel cell specialist
Robotics engineer
Electrochemical engineer
Industrial chemists
Certification experts
H2 experts

Level of H2 knowledge required: **Low**, **Medium**, **High**
Bold = urgent need

Hydrogen knowledge required across job roles

Occupational Profile	ESCO xxx	Occurrence	H2 Knowledge
Physical and earth science professionals	211	40	2,4
Project Managers	210	56	2,4
Engineering professionals (excluding electrotechnology)	214	310	2,2
Chief executives, senior officials and legislators	112	28	2,1
Architects, planners, surveyors and designers	216	5	2,0
Electrotechnology engineers	215	85	1,9
Sales, marketing and development managers	122	22	1,9
Legal professionals	261	12	1,8
Sales, marketing and public relations professionals	243	60	1,5
Finance professionals	241	22	1,4
Process control technicians	313	45	1,4
Physical and engineering science technicians , drafts man,	311	105	1,3
Administration professionals including public servants	242	22	1,3
Other Stationary Plant and Machine Operators	818	7	1,3
Finance Managers, Human Resource Managers, Policy and	121	11	1,3
Sheet and structural metal workers, moulders and welders	721	16	1,1
Ship and aircraft controllers and technicians	315	3	1,0
Ships' deck crews and related workers	835	3	1,0
Information and communications technology operations t	351	1	1,0
Heavy truck and bus drivers	833	1	1,0
Software and applications developers and analysts	251	15	0,5
Chemical and Photographic Products Plant and Machine C	813	11	0,4
Electrical and electronic equipment assemblers	821	9	0,3
Database and network professionals	252	3	0,3
Electrical and electronic trades workers	741	4	0,0
Civil worker	712	1	0,0



Engineers, project managers, scientists, legal/regulatory professions are the profiles that require the highest level of knowledge of hydrogen.



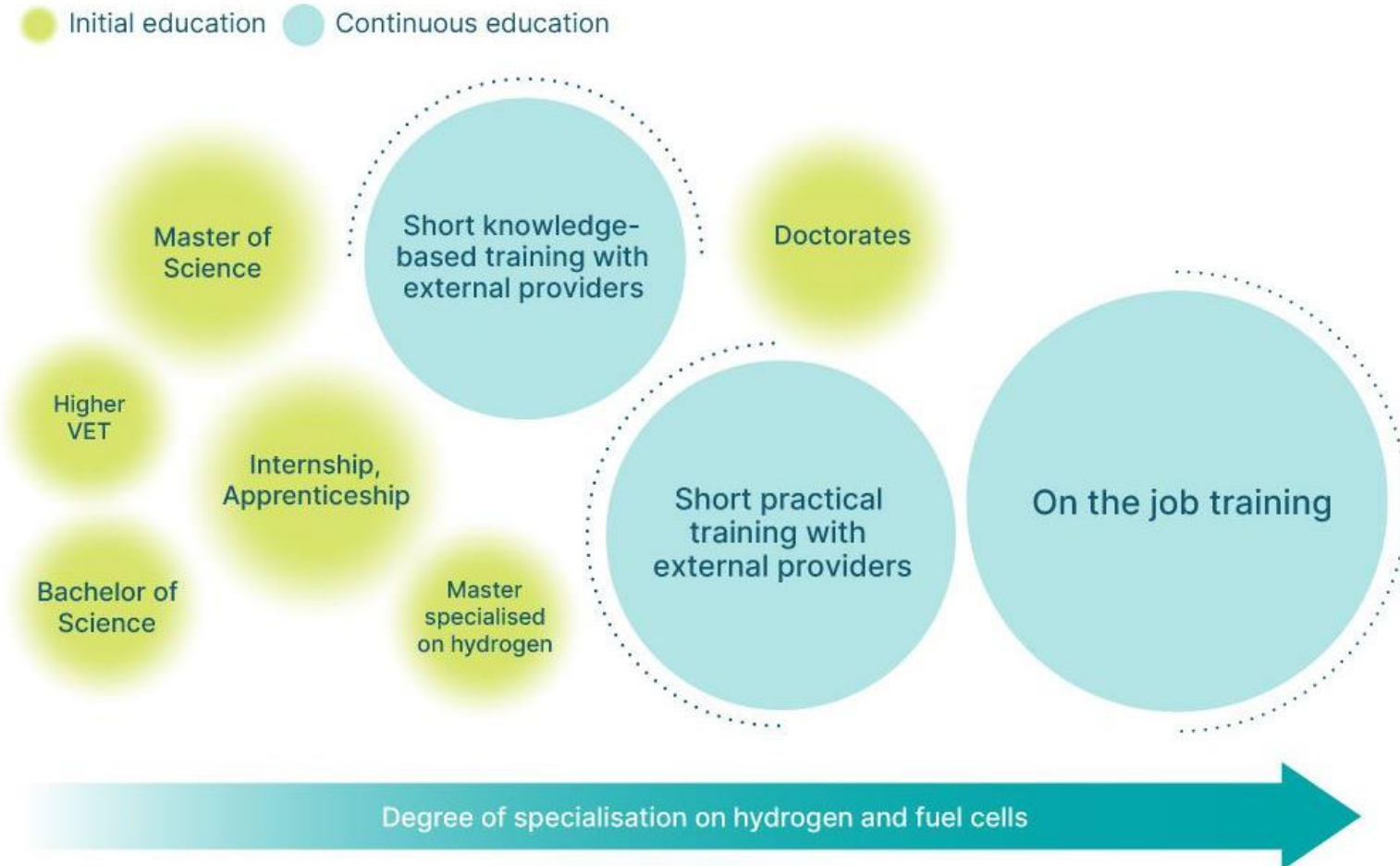
Technicians, operators, communicators, financiers and economists require an average knowledge of hydrogen, depending on their role.



IT engineers & technicians, construction and administrative roles require only a basic knowledge of hydrogen

- Connaissance de l'H2 :**
- 0 = Not required
 - 1 = Weak, from a few hours to a few days
 - 2 = Average, from months to a year
 - 3 = High, expert level, several years

Training of current workers in the field of hydrogen



Challenges identified by training providers



- Shortage of qualified teachers and trainers.
- Lack of infrastructures accessible and equipment available to deliver practical hands-on education.
- Absence of established **training standards** on safety.
- **Time constraints** faced by workers to attend training as part of continuing education.
- Lack of sustained **funding**.
- **Lack of flexibility in educational pathways** to introduce new topics such as hydrogen.
- Fear of **limited financial viability** of training and education programmes.

Recommendations from the Hydrogen Skills Strategy



Good practices and activities at EU level

Clean Hydrogen Partnership educational activities

- JU support** (with graduation cap icon)
- 15 Projects** (with presentation board icon)
- Funding 18,1M€** (with database icon)
- 18+ countries** (with globe icon)

Educational and training programs tailored to multiple target groups



Multiple levels and types of education, learning formats, features...

- Undergraduate
- Graduate
- Vocational
- Compulsory
- e-learning
- In person training
- Blended
- Serious games
- Mock-up installations
- Virtual reality

Thank you

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