Hydrogen Winter School 8-12 January 2024

Location: Loughborough, Keele, Cranfield, Nottingham, Birmingham

Places: 35

Target audience:

We would like to provide content which is tailored to the needs of a diverse audience - newcomers to the field, researchers, professionals working in energy or other relevant sectors.

Intended learning outcomes will include:

- Awareness of climate change strategy and policy in the UK.
- Understand how hydrogen can be a realistic alternative to fossil fuel and meet the challenges of net zero.
- Understand the Midlands role in leading research and innovation in different hydrogen technologies.
- Understand the hydrogen value chain and the opportunities and challenges of integrating hydrogen into the energy system.

Schedule (*subject to change*)

	Morning	**Afternoon**
8 Jan 2024 **Day 1: Loughborough /Warwick**	**9-9:30am** Arrival - refreshments **9:30-10am** Welcome and introductions Dr Kathryn North **10-11am** Battery electrolysers for green hydrogen production Dr Elizabeth Ashton **11-12:15pm** EDI workshop **12:15-1pm** Lunch	**1-1:50pm** Ammonia as carbon-free hydrogen carrier Prof. Shanwen Tao (Warwick) **2pm-3:30pm** Tour of Loughborough facilities **3:30pm** Drinks break **3:45-4:15pm** Reflections and Q&A Dr Kathryn North **4:15pm** Close
9 Jan 2024 **Day 2: Keele**	**8-9:30am Travel time** **9.30-10am** Arrival - refreshments **10-10:30am** Introduction - history of HyDEPLOY, SEND and HyDEX Julian Read **10:30-11:30am** Smart Green Hydrogen (Green Hydrogen: large scale offshore challenges to smaller distributed networks) Dr Sharon George **11.30am-12pm** Energy Use and experiences in communities Prof. Zoe Robinson **12-12:45pm** Lunch	**12:45-3pm** Tour of Keele facilities x3 rotating groups: 1) SEND room 2) Renewables site 3) HyDEPLOY compound **3-3:30pm** Drinks break **3:30-4pm** Questions and reflections **4pm** Close

10 Jan 2024 **Day 3: Cranfield**	**8-9:20am Travel time** **9:20-9:45am:** Arrival - refreshments **9:45-10am:** Welcome – Chris Fogwill **10-10:30am:** Hydrogen research at Cranfield University Prof. Upul KG Wijayantha **10:30am-12:15pm:** Tour of the demonstrator facilities **12:15-1pm:** Lunch	**1-1:15pm:** Update on HyPER digital twins project – Dr Simon George, Director, Novasci **1:15-2pm**: Parallel workshops with industry representatives (45 mins) x3 **2-2:20pm**: Review/debrief from workshops **2:30-2:40pm** Drinks break **2:40pm-3:40pm**: Industry presentations (30 mins) x2 **3:45-4:15pm:** Q&A and close – Upul Wijayantha
11 Jan 2024 **Day 4: Nottingham – University Park**	**8:30-9:15am travel time** **9-9:30am** Arrival - refreshments **9:30-10am** Welcome and introductions Dr Ming Li **10am-12pm:** Industry speakers & presentations including Q&A **Dr James (Jamie) Stevens,** Research Group Leader in Water Electrolysis at Johnson Matthey Technology Centre **Charles CALVERT PhD**, Chief Engineer Vanguard Sustainable Transport Solutions **Richard Penn**, Founder/Director, Penn Engineered Solutions Ltd **Andrew Garrison**, Sustainable Energy Safety Scientist, HSE Science and Research Centre **12-1pm** lunch	**1-2pm** Lecture - Hydrogen Engines for Power and Propulsion Dr Abdelrahman Hegab **2-3:30pm** Tour of Flex Fuel Engine demonstrator x3 groups / parallel talks and skills workshop **3:30-3:45pm** Drinks break **3:45-4:15pm** Panel Q&A, reflections, close
12 Jan 2024 **Day 5: Birmingham - Tyseley Energy Park**	**8:15-9:30am travel time** **9:30-9:45am** Arrival - refreshments **9:45-10am** Welcome and introductions Prof. Robert Steinberger-Wilckens **10-10:40am** UK hydrogen strategy and policy work – Faye McAnulla **10:40-11:15am** Lecture - Fuel cells for transport applications and hydrogen fuel infrastructure Prof. Robert Steinberger-Wilckens **11:15-12:15pm** Tyseley Energy Park visit and tour (Birmingham Energy Innovation Centre) Prof. Martin Freer	**1-3pm – x4 Staff talks** **1-1:30pm** Miloud Ouadi (Hydrogen Production from Waste Biomass) **1:30-2pm** Shangfeng Du (Water Electrolysis) **2-2:30pm** Artur Majewski (AmmoGen project) **2:30-3pm** Yousif Al-Sagheer (Energy Management of Fuel Cells/Electrolyser Systems) **3-4pm** Closing presentation 10-15mins Prof. Martin Freer Evaluation and networking **4pm** Close

	Dr Yousif Al-Sagheer **12:15-1pm** Lunch	