

Hydrogen Mobility

Pilot Training Course

AGENDA

28 November – 5 December 2024

Conference Hall, IEES-BAS

Acad. Georgi Bonchev Str., Block 10, Sofia 1113, Bulgaria

Organizer:

- *“Acad. Evgeni Budevski” Institute of Electrochemistry and Energy Systems at BAS ([IEES-BAS](#)), Sofia, Bulgaria*

Supported by:

- *[Centre of Competence HITMOBIL](#)*
- *[Trakia University \(ISTD-TrU\)](#), Stara Zagora, Bulgaria*



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Day 1: 28 November 2024		6 hours
Time (EET)	Item	
8:30 – 9:00	<i>Registration</i>	
9:00 – 9:30	<p>Welcoming address <i>Assoc.Prof. Dr. Plamen Nikolov, Director of IEES-BAS (TBC)</i></p> <p>Opening statement Introduction to the Green Skills for Hydrogen Project <i>Prof. DSc. Evelina Slavcheva, Corresponding member of BAS, IEES-BAS</i></p>	
9:30 – 11:00	<p>Hydrogen as energy carrier: properties, production methods, applications Electrochemical hydrogen conversion: Short introduction in the processes' thermodynamics and kinetics <i>Prof.DSc. Evelina Slavcheva, Corresponding member of BAS, IEES-BAS</i></p>	
11:00 – 11:15	<i>Coffee break</i>	
11:15 – 12:45	<p>Electrochemical hydrogen converters: fuel, electrolysis and reversible cells Hydrogen systems with polymer electrolyte <i>Prof. DSc. Evelina Slavcheva, Corresponding member of BAS, IEES-BAS</i></p>	
12:45 – 13:45	<i>Lunch Time</i>	
13:45 – 15:15	<p>Energy transition and electrochemical power sources Applications of hydrogen technologies <i>Assoc.Prof. Dr. Blagoy Burdin, IEES-BAS</i></p>	
Day 2: 29 November 2024		6 hours
Time (EET)	Item	
8:30 – 9:00	<i>Registration</i>	
9:00 – 10:30	<p>Hydrogen economy: Overview <i>Prof. DSc. Daria Vladikova, IEES-BAS</i></p>	
10:30 – 10:45	<i>Coffee break</i>	
10:45 – 12:15	<p>Hydrogen regulations and initiatives at international/EU/national levels <i>Prof. DSc. Daria Vladikova, IEES-BAS</i></p>	
12:15 – 13:15	<i>Lunch Time</i>	
13:15 – 14:45	<p>Hydrogen in transport: classification and terms Energy efficiency when using hydrogen <i>Assoc.Prof. Dr. Blagoy Burdin, IEES-BAS</i></p>	

Day 3: 2 December 2024		6 hours
Time (EET)	Item	
8:30 – 9:00	<i>Registration</i>	
9:00 – 10:30	Electric propulsion of vehicles Electric motors <i>Assoc.Prof. Dr. Borislav Traykov, TU-Sofia and TrU</i>	
10:30 – 10:45	<i>Coffee break</i>	
10:45 – 12:15	Components of a fuel cell electric vehicle Fuel cell/battery hybrid electric propulsion <i>Assoc.Prof. Dr. Blagoy Burdin, IEES-BAS</i>	
12:15 – 13:15	<i>Lunch Time</i>	
13:15 – 14:45	Hydrogen safety: Overview <i>Denis Paskalev, IEES-BAS</i>	
Day 4: 3 December 2024		6 hours
Time (EET)	Item	
8:30 – 9:00	<i>Registration</i>	
9:00 – 10:30	Hydrogen storage technologies <i>Assoc.Prof. Dr. Blagoy Burdin, IEES-BAS</i> Hydrogen safety: Storage <i>Denis Paskalev, IEES-BAS</i>	
10:30 – 10:45	<i>Coffee break</i>	
10:45 – 12:15	Hydrogen refueling (charging) stations <i>Assoc.Prof. Dr. Blagoy Burdin</i>	
12:15 – 13:15	<i>Lunch Time</i>	
13:15 – 14:45	Hydrogen safety: Transport and refueling <i>Denis Paskalev, IEES-BAS</i>	

Day 5: 4 December 2024		6 hours
Time (EET)	Item	
	<p><u>Group 1: Practical training/ laboratory work at the Integral Energy Systems Laboratory of HITMOBIL Centre of Competence at address: 11 Iskarsko Shosse Str., Iskar Municipality, Sofia</u></p> <ul style="list-style-type: none"> • Introduction to the Laboratory. Balancing energy from RES. • Hydrogen production system with PEM electrolyser • Hydrogen refueling station <p><i>Assoc.Prof. Dr. Blagoy Burdin, Denis Paskalev, IEES-BAS</i></p>	
9:30 – 11:45	<p><u>Group 2: Practical training/laboratory work at IEES-BAS laboratories</u></p> <ul style="list-style-type: none"> • Basic techniques for preparation of electrodes, electrolytes and membrane electrode assemblies • Methods and apparatus for surface and bulk analysis • Electrochemical techniques and performance characteristics of single fuel, electrolysis and reversible cells <p><i>Dr. Borislava Mladenova, Dr. Elitsa Petkucheva and Dr. Atanas Garbev</i></p>	
11:45 – 13:00	<p><i>Lunch time</i></p>	
	<p><u>Group 2: Practical training/laboratory work at IEES-BAS laboratories</u></p> <ul style="list-style-type: none"> • Basic techniques for preparation of electrodes, electrolytes and membrane electrode assemblies • Methods and apparatus for surface and bulk analysis • Electrochemical techniques and performance characteristics of single fuel, electrolysis and reversible cells <p><i>Dr. Borislava Mladenova, Dr. Elitsa Petkucheva and Dr. Atanas Garbev</i></p>	
13:00– 15:15	<p><u>Group 2: Practical training/ laboratory work at Integral Energy Systems Laboratory of HITMOBIL Centre of Competence, at address: 11 Iskarsko Shosse Street, Iskar Municipality, Sofia</u></p> <ul style="list-style-type: none"> • Introduction to the Laboratory. Balancing energy from RES. • Hydrogen production system with PEM electrolyser • Hydrogen refueling station <p><i>Assoc.Prof. Dr. Blagoy Burdin, Denis Paskalev, IEES-BAS</i></p>	
Day 6: 5 December 2024		4 hours
Time (EET)	Item	
8:30 – 9:00	<p><i>Registration</i></p>	
9:00 – 10:30	<p>Discussions <i>Prof. DSc. Evelina Slavcheva, Assoc.Prof. Dr. Blagoy Burdin, Denis Paskalev</i></p>	
10:30 – 10:45	<p><i>Coffee break</i></p>	
10:45 – 12:15	<p>Completion of feedback survey Closing remarks: Analysis by training organizers and announcement of future initiatives <i>Prof. DSc. Evelina Slavcheva, Assoc.Prof. Dr. Blagoy Burdin, Denis Paskalev</i></p>	