



Hydrogen Technology Training program

General information

Number of Training Days: 6 Days

Duration: 3rd-17th September

Venue: Novotel Bangkok on Siam Square Hotel, Bangkok

Scope & Form: The class is taught full days from 9:00-17:00. The teaching will be a combination of lectures, Q&A sessions and project work.

Evaluation: Pre- and Post-tests, Assignment, Software simulations, and Physical experiments

Curriculum

Day 1: 3 rd September 2026	
Module 1. Hydrogen System Engineering: From Molecule to Megawatt	
	Speaker: Asst. Prof. Dr. Nutthapon Wongyao, KMUTT Venue: Novotel Bangkok on Siam Square Hotel, Bangkok
9:00 - 9:20	– Welcome and Course Introduction (20 min)
9:20 - 9:30	(What Hydrogen Means for Our Future) – Pre-test (10 min) (Gauge Your Hydrogen Knowledge Baseline)
9:30 - 10:30	Session 1: How Is Hydrogen Made? Unlocking Production Pathways – The Hydrogen Color Spectrum: Green, Blue, Grey & Beyond — Comparing Electrolysis and Reforming Technologies (60 min)
10:30 - 10:45	Coffee break
10:45 - 11:30	– Deep Dive: Water Electrolysis — PEM, Alkaline, and Solid Oxide Technologies Compared (45 min)
11:30 - 12:00	– Steam Methane Reforming & Carbon Capture: Bridging Fossil Fuels to a Clean Hydrogen Future (30 min)
12:00 - 13:00	Lunch
13:00 - 14:00	Session 2: Moving Hydrogen: Storage, Transport & Distribution Infrastructure – Storing the Future: Compressed Gas, Liquid H ₂ , and Solid-State Storage — Technical Trade-offs for Real Applications (60 min)
14:00 - 14:45	– Getting Hydrogen Where It Needs to Go: Pipelines, Tube Trailers, and Carrier Molecules (Ammonia, LOHC) (45 min)
14:45 - 15:00	Coffee break
15:00 - 15:45	– System-Level Requirements: Designing a Hydrogen Supply Chain from Production to End-Use (45 min)





15:45 - 16:30	– Interactive Case Study: Mapping a Hydrogen Value Chain for a Thai Industrial Hub (45 min)
16:30 - 16:45	– Post-test (15 min) (& Day Wrap-Up)

Day 2: 7th September 2026
Module 2. Energy System Integration: Putting Hydrogen to Work Across Sectors

	Speaker: Dr. Visarn Lilavivat, National Energy Technology Center (ENTEC) Venue: Novotel Bangkok on Siam Square Hotel, Bangkok
9:00 - 9:10	– Pre-test (10 min) (How Well Do You Know Hydrogen Applications?)
9:10 - 10:00	Session 1: Hydrogen at Work: Industrial Applications & Hard-to-Abate Sectors – Decarbonizing Industry's Toughest Challenges: Steel, Cement, Chemicals & Refineries — Where Hydrogen Is the Only Answer (50 min)
10:00 - 10:45	– Green Ammonia & Green Methanol: Hydrogen as a Feedstock for Sustainable Chemicals and Fertilizers (45 min)
10:45 - 11:00	Coffee break
11:00 - 11:30	– Hydrogen Power Generation: Fuel Cells vs. Hydrogen-Ready Gas Turbines — Flexibility for the Grid (30 min)
11:30 - 12:00	– Long-Duration Energy Storage: Why Hydrogen Complements Batteries for Seasonal Grid Balancing
12:00 - 13:00	Lunch
13:00 - 13:50	Session 2: Hydrogen on the Move: Transport Sector & System Integration Realities – Fuel Cell Electric Vehicles, Buses, Trains & Ships: Which Transport Segments Make Hydrogen Compelling? (50 min)
13:50 - 14:40	– A Study of Carbon standards and certifications of hydrogen for Thailand context (50 min)
14:40 - 15:00	Coffee break
15:00 - 15:45	– Opportunities & Limitations: Honest Assessment of Where Hydrogen Wins — and Where It Doesn't (45 min)
15:45 - 16:30	– Workshop: Mapping Hydrogen Roles in Thailand's Industrial Decarbonization Roadmap (45 min)
16:30 - 16:45	Post-test (15 min) (& Day Wrap-Up)



**Day 3: 8th September 2026****Module 3. Safety & Regulatory Frameworks: Building Hydrogen Confidence**

	Speaker: Mr. Uthen Kanta, ERDI, Chiang Mai University Assoc. Prof. Dr. Pornchai Wisuttisak, ERDI, Chiang Mai University Assoc. Prof. Dr. Konlayutt Punyawudho, Chiang Mai University Expert, Bangkok Industrial Gas Company Limited (BIG) Venue: Novotel Bangkok on Siam Square Hotel, Bangkok
9:00 - 9:10	– Pre-test (10 min) (Safety & Regulations Awareness Check)
9:10 - 09:50	Session 1: Hydrogen Safety and Regulation in Thailand – Hydrogen's Unique Properties: Flammability, Buoyancy, Embrittlement — Why H ₂ Safety Is Different from Other Fuels (40 min)
09:50 - 10:50	– Ministerial Regulation on Hydrogen : Internation standard, Subordinate Legislation for Transportation (tube and truck), Service Station and Utilization Place (60 min)
10:50 - 11:00	Coffee break
11:00 - 12:00	– Ministerial Regulation on Hydrogen : Internation standard, Subordinate Legislation for Transportation (tube and truck), Service Station and Utilization Place (Cont'd)
12:00 - 13:00	Lunch
13:00 - 13:30	– Hazard & Risk Assessment Methodologies: HAZOP, QRA, and Bow-Tie Analysis for Hydrogen Systems (30 min)
13:30 - 14:00	– Lessons from Real-World Hydrogen Incidents: What Went Wrong and What We Learned (30 min)
14:00 - 14:40	Session 2: Compliance with Confidence: Regulatory Frameworks & Safe Deployment – International Standards & Codes: ISO, IEC, NFPA, and How They Apply to Hydrogen Projects in Thailand (40 min)
14:40 - 15:20	– Designing for Safety: Separation Distances, Ventilation, Leak Detection, and Emergency Response Planning (40 min)
15:20 - 15:30	Coffee break
15:30 - 16:10	– Thailand's Regulatory Landscape: Permitting, Licensing Pathways & Working with Regulatory Authorities (40 min)
16:10 - 16:40	– Applied Risk Assessment Workshop: Evaluate a Hydrogen Refueling Station Scenario Using Basic Safety Frameworks (30 min)
16:40 - 16:55	– Post-test (15 min) (& Day Wrap-Up)



**Day 4: 14th September 2026****Module 4. Economics of Hydrogen: Building the Business Case for Clean H2**

	Speaker: Dr. Visarn Lilavivat, National Energy Technology Center (ENTEC) Prof. Dr. Shabbir H. Gheewala, KMUTT Venue: Novotel Bangkok on Siam Square Hotel, Bangkok
9:00 - 9:10	– Pre-test (10 min) <i>(Economics Readiness Check)</i>
9:10 - 10:00	Session 1: What Does Hydrogen Really Cost? Unpacking the Numbers – The Levelized Cost of Hydrogen (LCOH): Key Cost Drivers — Electrolyzer CAPEX, Electricity Prices, Capacity Factors, and the Race to \$H2/kg (50 min)
10:00 - 10:45	– Financial Modeling Fundamentals: NPV, IRR, and Payback Analysis — Applied to a Green Hydrogen Production Plant (45 min)
10:45 - 11:00	Coffee break
11:00 - 11:30	– Business Models for Hydrogen Projects: Offtake Agreements, Contract Structures, and Revenue Streams (30 min)
11:30 - 12:00	– Financing Hydrogen: Blended Finance, Green Bonds, Multilateral Development Bank Instruments, and Risk Mitigation Tools (30 min)
12:00 - 13:00	Lunch
13:00 - 16:30	Session 2: The Carbon Value of Hydrogen: Life Cycle Assessment and Scenario-Based Decision-Making for Hydrogen Technologies – Understanding the Concept of Life Cycle Thinking in Relation to Hydrogen Fuels. – Understanding the Life Cycle Assessment (LCA) Methodology Through Hydrogen Case Studies. – Completing Simple Practical Exercises to Gain a Basic Understanding of How an LCA Is Conducted. Coffee break
16:30 - 16:45	– Post-test (15 min) <i>(& Day Wrap-Up)</i>



**Day 5: 15th September 2026****Module 5. Policy & Market Development: Shaping the Hydrogen Economy**

	Speakers: Ms. Suphatchaya Chonchanachai, Energy Policy and Planning Office (EPPO) Representative from the Department of Energy Business (DOEB) Dr. Neran Suwanchotchuang, Hydrogen Thailand Association Dr. Narit Lorpradit, ERDI, Chiang Mai University (CMU) Mr. Tanai Potisat, Enapter Thailand/Germany/Italy Dr. Watcharin Ngampuengpis, PTT Public Company Limited Venue: Novotel Bangkok on Siam Square Hotel, Bangkok
9:00 - 9:10	– Pre-test (10 min) <i>(Policy Awareness Check)</i>
9:10 - 9:55	Session 1: Global Policy Landscape: What Governments Are Doing to Accelerate Hydrogen – Thailand's Hydrogen Roadmap: Current Status, Target Sectors, and the Regulatory Environment Being Shaped Today (45 min)
9:55 - 10:30	– Regulatory and Safety Standards: Business Facilitation, Safety & Reliability, and Regulatory Progress & Roadmap (35 min)
10:30 - 10:40	Coffee break
10:40 - 11:30	– National Hydrogen Strategies in Focus: EU, Japan, Korea, Australia, and the USA — What Is Working and Why? (50 min)
11:30 - 12:00	– Creating a Favorable Investment Climate: What Policy Signals Do Developers and Investors Need to Commit? Green H2 production (30 min)
12:00 - 13:00	Lunch
13:00 - 13:30	Session 2: Hydrogen in Action: Lessons from Industrial-Scale Safe Operations – Can Hydrogen Decarbonize Thailand's Energy Sector? Real Projects, Real Numbers, Real Challenges (30 min)
13:30 - 14:40	– Panel Discussion: Industry Leaders on Barriers, Enablers, and the Path to Commercial-Scale Hydrogen (70 min) Moderator: Asst. Prof. Dr. Nutthapon Wongyao Panel list: Mr. Tanai Potisat Dr. Neran Suwanchotchuang Mr. Wongpan Louvapong, WATTANAWONG 2023 Co., Ltd Mr. Kachen Salee, Green Energy Cell Co., Ltd.
14:40 - 15:00	Coffee break
15:00 - 15:45	– Emerging Hydrogen Technologies: Innovations Shaping the Future Hydrogen Value Chain (45 min)
15:45 - 16:15	– Expert Feedback
16:15 - 16:30	– Post-test (15 min)



**Day 6: 17th September 2026 (Thursday)****Site Visit**

Location: Hydrogen Energy Storage and Management System Project at the Government Complex Commemorating His Majesty the King's 80th Birthday Anniversary (Chaengwattana)

9:00	– Arrive at meeting point
9:30 - 11:30	– Site Visit: Hydrogen Energy Storage and Management System Project at the Government Complex Commemorating His Majesty the King's 80th Birthday Anniversary (Chaeng Watthana)
11:30 - 12:00	Q&A Session and Group Photo
12:00	– Depart for the return trip

