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An Essential Guide to Hydrogen Safety

March 2021

Course Parts will commence at **12:30** and end at **15:30 (SGT)**.
There will be short breaks during each course Part.

Part 1: **9th March**

Part 2: **10th March**

July 2021

Course Parts will commence at **12:30** and end at **15:30 (SGT)**.
There will be short breaks during each course Part.

Part 1: **20th July**

Part 2: **21th July**

2 Part
Series



Delivered in **Live Online Training** Format

**Course
Directors**

Charley Rattan



Shaun Minty



James Hamilton



Paul Pinkerton



Key Learning Outcomes & Case Studies Include

- ▶ To understand practical risks associated with the use of Hydrogen
- ▶ To understand the scale of risk depending on the application and quantity of Hydrogen
- ▶ To understand previous major accidents involving hydrogen and lessons learned
- ▶ To understand the risk control, mitigation and elimination strategies and techniques for the production and use of hydrogen
- ▶ Understand the practical approaches to Risk Management

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ABOUT THE COURSE

The hydrogen economy is expected to grow exponentially across the globe in the coming years. For example, the UK recently set a target to produce five gigawatts of hydrogen by 2030, representing a 40-fold increase from the current situation. This ambition is replicated across the globe where hydrogen strategies are appearing on a weekly basis. The journey to a hydrogen economy will be challenging and the very top priority will be that it is implemented and delivered safely. This course details how global leaders can do just that. Developers require their people and supply chain to possess the necessary skills and competencies to deliver hydrogen projects safely, on time and with the highest quality standards.

The course aims to enable companies to make informed health and safety related decisions and plans based on the real opportunities that are emerging as the global hydrogen economy develops. Delegates will be guided as to where early opportunities are most likely to lie, who is involved and how to engage on their top priority with them.

WHO WILL BENEFIT

- Existing energy companies particularly those who are already part of the oil and gas supply chain and those looking to future proof their capabilities
- Particularly relevant to engineering companies, those involved in storage compression equipment and shipping
- Those companies seeking to enter the energy arena with its myriad opportunities in a market valued by the Bank of America at 11 trillion dollars.

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Catering to meet all your learning needs:

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- From **Face To Face**, **Online** and **Blended Learning**, get a superior solution for your learning needs
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Register today for our **Live Online Training** courses and find out how they can help you transform the way you work. Contact one of our training consultants on sgtraining@informa.com to find out more.

COURSE DIRECTORS



Charley Rattan, CRA

International hydrogen trainer and offshore wind energy arenewable dvisor with +25 years' real-world experience and successful major project delivery for Shell, SSE and EON. Supports UNIDO and the North German Offshore Wind and hydrogen group.



Shaun Minty

20 years experience in international emergency response, skills and safety training. Led the development of international digital standards and associated training products. Led and managed international accreditation and competency services.



James Hamilton

Over 15 years experience delivering skills and training solutions to the global energy industry. Delivered competency frameworks and nationalisation projects for governments, IOCs and NOCs. Led and managed the delivery of the UKCS apprenticeship program on behalf of operators.



Paul Pinkerton

15 years experience in global Project & Business Delivery. Project Lead for Strategic Staffing Plans, Statistical Labour Market Analysis & Resourcing Delivery for Major Capital Projects up to £50bn, inc. gap analysis and training, nationalisation planning.

Would You Like To Run This Course On-Site?

Informa Corporate Learning: On-site & Customised Training

If you have **8+** interested people, an onsite course can be an ideal solution. Speak with **Anton Long** or **Holly Baldwin** on **+65 6508 2897** to discuss your customised learning solution, or email sgtraining@informa.com

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- Module Commencement: **12:30pm (SGT)**
- Module Conclusion: **3:30pm (SGT)**

Timing is based in Singapore Time (GMT+8) unless otherwise stated. These timing schedules act as a guide and may be modified slightly on the depth of class discussion and whether assessments are being conducted.

Course Outline

HYDROGEN OVERVIEW AND INTRODUCTION

- Hydrogen Rollouts and National Plans
- Common Uses of Hydrogen Now and into the Future
- The Production of Hydrogen for Industrial Uses
- Hydrogen Storage and Associated Costs
- Hydrogen Transportation Methods

PHYSICAL PROPERTIES AND CHARACTERISTICS OF HYDROGEN

- Propane and H₂ Flame Comparison
- Fukushima Nuclear Disaster

LEGISLATION AND HYDROGEN

- Typical Legislation Hierarchies
- The Role of the Regulator

MAJOR ACCIDENT CLASSIFICATION

TYPICAL DOCUMENTATION REQUIREMENTS

- Safety Report
- Emergency Response: Internal and External]
- Major Accident Prevention Policy
- Safety Management System

TYPICAL NOTIFICATION REQUIREMENTS

- Regulator
- Local/Regional Authorities
- Environmental Agencies
- Emergency Services

EMERGENCY RESPONSE CONSIDERATIONS

GENERAL SAFETY HIERARCHY OF CONTROL

- Hydrogen Specific Controls

DANGEROUS SUBSTANCES AND EXPLOSIVE ATMOSPHERE REGULATIONS

- Gas and Dangerous Substance Risk Controls
- Gas and Dangerous Substance Mitigation
- Swiss Cheese Model
- HSE Publications

ORIGINAL EQUIPMENT MANUFACTURERS

CASE STUDIES

- Fukushima
- Muskingum River Power Plant
- Uno X Hydrogen Refueling Station



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4 Easy Ways to Register

- 1 Telephone**
Customer Service Hotline +65 6973 3567
- 2 Email**
sgtraining@informa.com
- 3 Fax**
+65 6508 2407
- 4 Web**
www.informaconnect.com.sg/hydrogensafety

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Course Codes	Location	Course Dates	Standard Price	4+ Dels Discount
P21GR39SGV	Live Online Training	9 – 10 March 2021	SGD 1,495	Great Savings: When you book 4 or more participants! Call us today on +65 6973 3567 or email sgtraining@informa.com to take advantage of the discount offer.
P21GR39SG02V	Live Online Training	20 – 21 July 2021	SGD 1,495	

A 7% Goods & Services Tax (GST) is applicable to all Singapore based companies.

Delegate 1 Details Name: Dr/Mr/Ms _____ Job Title: _____ Department _____ Tel: _____ Mobile No.: _____ Email: _____	Delegate 2 Details Name: Dr/Mr/Ms _____ Job Title: _____ Department _____ Tel: _____ Mobile No.: _____ Email: _____
Delegate 3 Details Name: Dr/Mr/Ms _____ Job Title: _____ Department _____ Tel: _____ Mobile No.: _____ Email: _____ Who is Head of your Department? _____	Delegate 4 Details Name: Dr/Mr/Ms _____ Job Title: _____ Department _____ Tel: _____ Mobile No.: _____ Email: _____ Who is Head of Training? _____
Company Information Company Name: _____ Main Business/Activity: _____ Address: _____ Postal Code: _____	

Please photocopy for additional delegates

Payment Method (Please tick):

- I enclose my bankers draft / cheque payable to IBC Asia (S) Pte Ltd
- I am paying by bank transfer (copy attached)
- Payment by Credit Card. (AMEX, VISA or MasterCard accepted)

CREDIT CARD PAYMENTS

The best way to pay by credit card is through our secure on-line registration process, simply log on to the website at www.informaconnect.com.sg/hydrogensafety and click "Register On-line". If you would prefer to pay over the phone please complete the contact name and details and our Customer Services Team will call within 24 hours to take payment. As we treat your credit card information in the strictest confidence, please do not send payment details by email.

Credit card contact: _____ Department: _____
 Direct phone number: _____ Email: _____

PAYMENT TERMS

Payment must be received 10 business days prior to the event. To take advantage of discounts with an expiry date, registration and payment must be received by the cut-off date.

- Payment by bankers draft or cheque in S\$ or US\$ should be made in favour of "IBC Asia (S) Pte Ltd" and mailed to:
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103 Penang Road, Visioncrest Commercial #04-01, Singapore 238467
Attn: The Accounts Receivable Team
- Payment by bank transfer in S\$ or US\$ made payable to:
IBC Asia (S) Pte Ltd
A/C No.: 147-059513-001 (S\$)
A/C No.: 260-457866-178 (US\$)
The Hongkong and Shanghai Banking Corporation Limited 21 Collyer Quay, HSBC Building Singapore 049320
Bank Swift Code: HSBCSGSG
Bank Code: 7232
- Payment by Credit Card (AMEX, VISA or MasterCard). The best way to pay by credit card is through our secure portal built into the website. To pay by phone please indicate the contact name and details below and our Customer Services Team will call within 24 hours to take payment. Please do not send credit card information by email.

CANCELLATIONS / SUBSTITUTION

Should you be unable to attend, a substitute delegate is welcome at no extra charge. Cancellations must be received in writing at least 10 business days before the start of the event, to receive a refund less 10% processing fee per registration. The company regrets that no refund will be made available for cancellation notifications received less than 10 business days before the event.

IMPORTANT NOTE

Please quote the name of the delegate, event title and invoice number on the advice when remitting payment. Bank charges are to be deducted from participating organisations own accounts. Please fax your payment details (copy of remittance advice, cheque or draft to +65 6508 2407).

Attendance will only be permitted upon receipt of full payment. Participants wishing to register at the door are responsible to ensure all details are as published. Informa Connect Singapore assumes no further liability or obligation, beyond the refund of the paid registration fee, in the event of postponement or cancellation by Informa Connect Singapore.

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The personal information entered during your registration/order or provided by you will be held on database and may be shared with companies in the Informa Group in the UK and internationally. Occasionally, your details may be obtained from or shared with external companies who wish to communicate with you offers related to your business activities. If you do not wish your details to be used for this purpose please contact our Database Department at Email: database.sg@informa.com, Tel: +65 6508 2400 or Fax: +65 6508 2408.