

Marine Scrubbers 2020

Operations, Compliance and Claims

4 Modules | 13-16 October 2020 | 1:30pm-5:30pm (SGT) | Live Online Learning

**2+1
Offer!**

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registration
page for
details!

Delivered in **Live Online Learning** Format

**Course
Director**



Dr. Jens Peter Hansen, Owner, ECA Engineering Aps

Jens has more than 20 years of R&D and Project Management experience with technologies for emission reduction – including SO_x, NO_x and other particulate matter. He is specialised in Fuel Systems and Marine Scrubbers. He gained his pioneering experience at Haldor Topsøe, FLSmidth & Co and Most recently Alfa Laval, where he initiated the first R&D activities with exhaust gas scrubbers which led to successful installation of world's largest scrubber systems onboard a ship in 2010. In recent years, Jens has been advising scrubber projects for many major ship owners across Europe and Asia.

Key Learning Outcomes & Case Studies Include

- ▶ Updates on major scrubber-related claims, disputes and key operational, legal implications
- ▶ Preventive measures for claim mitigation and managing legal risks
- ▶ Understand key technical problems with scrubbers – from system selection, installation, commissioning to daily operations
- ▶ Case studies and group exercise include:
 - Supplier selection,
 - System design and engineering
 - Retrofit & commissioning management
 - Problems arising during installation and on-board operations
- ▶ Best practices for on-board operations, scrubbers' maintenance and downtime management
- ▶ Wash water management, monitoring and compliance reporting

REGISTER NOW > www.informacconnect.com.sg/marinescrubbers

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WHY LIVE ONLINE LEARNING

The current Covid-19 pandemic has put strains on various areas of business, especially when it comes to deriving commercial value from new initiatives. During this phase of self-isolation and working from home, we can help you meet your professional development needs and you can still take your professional development plans to the next level.

To support your learning goals we have converted our face-to-face trainings to LIVE Online Sessions. This way you can continue to attend live and interactive training sessions within the virtual classroom space where you can see and speak, with your Subject Matter Expert and other participants.

- Progress through the course with fellow participants as you would in a classroom
- 20% price advantage, plus travel budget savings
- Controlled environment with speaker managing the Q&A and discussions
- Module based approach to help manage your time
- Earn your Digital Certification and broadcast your achievements to your peer

Trainer/Participant Interaction

- Conduct Q&A with course directors in real time
- Interactive format including breakouts, group discussions, real-time collaborative exercises and sharing of results
- Engage in live tests & polling, get immediate results and evaluations
- Chat with your fellow participants with text messages or by voice
- Follow online presentations or whiteboards in real-time
- Virtually "raise hand" to put forward Q&As with trainers
- Seamlessly receive case studies, video, documents

Learning Platform

GoToTraining

Hardware/Software Requirements

- Desktop or mobile device manufactured no earlier than 2016
- WiFi Connection, Cable or Fibre Broadband with minimum 1 Mbps of bandwidth available
- A USB headset with microphone, or a microphone and speakers built into your device

Participant Onboarding

1. Book a demo here: <https://www.goto.com/training>
2. Alternatively, request a personal onboarding session with Informa (only for confirmed participants) by contacting: register@informa.com

ABOUT THE COURSE

Timely and practical, this masterclass extrapolates important considerations in retrofitting, maintaining compliant marine scrubbers' operations and meeting sulphur regulations. Throughout 4 modules, participants will be provided latest global fuel outlook and scrubber-related claim trends, as well as technical commissioning and on-board operations. Topics will include how to effectively mitigate scrubber-related incidents; better manage retrofit at yards; washwater discharge monitoring and reporting. Legal considerations such as charterparties' clauses and scrubbers' downtime liability will also be included.

COURSE DIRECTOR



Dr. Jens Peter Hansen

Owner, ECA Engineering Aps.

Jens has more than 20 years of R&D and Project Management experience with emission reduction technologies - including SOx, NOx and Particular Matter (soot). He is among few independent experts in the world on Exhaust Gas Scrubbing technology for shipboard applications. He led major projects at Alfa Laval, Haldor Topsøe, FLSmidth & Co. A/S.

- Initiated first R&D activities at Alfa Laval and Aalborg Industries A/S with exhaust gas scrubbers involving pilot scale tests in cooperation with MAN Diesel and which led to successful installation of world's largest scrubber systems onboard a ship (20 MW MAN engine) in 2010.
- Jens founded ECA Engineering Aps in 2017 to help ship owners meet IMO 2020 by navigating between different scrubber options and also to manage complete scrubber projects involving manufactures, pipe suppliers, and yards. His knowledge entails an extensive network of sub-suppliers, institutions, engine builders, marine engineers and yards as well as new co-operations continuously formed as the scrubber market rapidly expands. His major clients include Torm A/S, Ultra Ship A/S.
- Full-scale installation onboard DFDS Ro-Ro vessel Ficaria Seaways which became the world's largest and first hybrid scrubber system.

WHAT PAST PARTICIPANTS SAID

"A very frank discourse. Trainer has in-depth experience and developed a course in a simple, honest approach. Helpful discussions across attendees about choices of suppliers, basic installation requirements, ship specifications and key operational practices"

Zareer Antia, General Manager – Marine & Technical, **TATA NYK Shipping**

"The programme was informative, easy to understand, relevant materials with well-structured content & delivery, good venue" **Muralikumar**, Senior Commercial & Operations Executive, **Sembcorp Marine**

"Great Interactions with participants. The trainer is personable & knowledgeable. Relevant materials and great delivery" **Samantha Leow**, AP Marine Logistic Advisor, **ExxonMobil Asia Pacific**

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- Module Commencement: **1:30pm** (SGT)
- Module Conclusion: **5:30pm** (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.

4-Module Course Syllabus

MODULE 1

SULPHUR COMPLIANCE UPDATE

- Fuel compliance trends globally)
- Global scrubber installation picture
- Port state control findings on scrubber compliance s

POST 2020 MAJOR SCRUBBERS-RELATED CLAIMS AND CONSIDERATIONS

- Fuel-related machinery damage
- Loss of hire
- Scrubber malfunction
- Engine damage and fire during installation/retrofit
- Corrosion, seawater ingress
- Thermal shock
- Discharge
- Others

LEGAL ISSUES RELATING TO MARINE SCRUBBERS

- Late delivery
- Non-compliance and off-hires
- Scrubber breakdown
- Scrubber clauses in time charterparties

MODULE 2

MANAGING SCRUBBER DOWNTIME AND COMPLIANCE REPORTING

- Data acquisition for system optimisation
- What to do when sensors fail?
- Wash water discharge and monitoring
- Report on-going compliance according to MEPC-259(68) procedures
- Contingency Planning in Ship Implementation Plan
 - Breakdown at remote regions
 - Continuous emissions monitoring
 - Risk management

SCRUBBERS WORKING PRINCIPLES AND TECHNOLOGY OPTIONS

- Scrubber working principles
- Packed-bed scrubbers, sprayer-based scrubbers, dry scrubbers
- Relationship between scrubber dimensions, water flow and pressure drop

- Compatible ship components and equipment (engine, boilers, SCR), etc)
- Treatment plant
- Technology options
 - Open loop, closed-loop, hybrid systems, alternative ideas such as dry scrubbers
 - Review of different patents, should we expect some revolutionary new technologies?
- Choosing the right scrubber system in terms of space onboard, power requirements, trading pattern, exhaust backpressure, installation time, etc).

GROUP EXERCISE: CALCULATE THE CAPEX, OPEX AND ROI

- Select an engine configuration and operating profile (bring your own, if you are shipowner)
- Enter the information in a pre-defined excel sheet ("ECA_design.xls")
- Optimise the system in terms of ROI.
- Investigate the impact of changes in fuel prices
- Investigate the impact of further restrictions in the discharge of open loop water
- Investigate the impact of sludge prices.

MODULE 3

COMPLIANCE SPOTLIGHT:

- Onboard operation, maintenance and calibration of different systems
 - Mechanical systems
 - Electrical systems

BEST PRACTICE: DESIGN & ENGINEERING OF SCRUBBER SYSTEMS

- Thermal tension
- Choice of scrubber materials, structural strength, hull integrity – case studies
- Resistance toward heat and corrosion of different steel types
- Price and availability of different materials and types – key considerations

- Support, fixation and connection of scrubber to minimise risks of cracks and issues with vibrations
- Considerations when space is limited

MANAGING RETROFIT WORKS AT YARD

- Overall project management (timeline, cost)
- Factory and harbour acceptance tests (FAT vs HAT)
- Why are installations delayed – group discussion
- Managing the commissioning
 - Scrubbers testing (max fuel Sulphur, low alkalinity waters)

MODULE 4

DAILY OPERATION AND MAINTENANCE OF THE SCRUBBER SYSTEM

- Gas analyser and water analyser calibration
- Waste management for closed loop and hybrid systems: What is it and is it dangerous, how much is typically generated, treatment methods post-discharge
- Recent stories: fire during installation, corrosion, flooding - what is up and down?
- Experiences from "normal" installations.
- Preventive measures

SCRUBBERS' WASHWATER DISCHARGE, MONITORING AND TREATMENT

- Wash water discharge and monitoring criteria
- Review of discharge across port states (Banning of open-loop discharge)
- Review the different studies world-wide

MARINE SCRUBBERS' MARKET OUTLOOK

- Scrubbers' supply chain
- Scrubbers' order outlooks
- Technology trends
- Exhaust gas recirculation system trends
- Legislation and class approval

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Informa Connect is A Trading Name of IBC Asia (S) Pte Ltd

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EASY WAYS TO REGISTER



Telephone

Contact Devi Nyunt +65 650 82476



Email

register@informa.com



Web

www.informacconnect.com.sg/marinescrubbers



Social Media



LinkedIn



Facebook

Live Online Learning!

- **20%** Price Advantage
- **Save** on Travel budgets
- **Replicate** on site classroom experience
- **Tools** for Enhanced Participant / Trainer interaction
- **Onboarding** for all attendees
- **Proven** and **secure** training platform

FEE PER DELEGATE	EARLY BIRD RATE Register and Pay on or before 21 August 2020	NORMAL RATE Register and Pay after 21 August 2020
<input type="checkbox"/> 4-Module Live Online Learning	SGD 3,395 SGD 2,716 (20% Learning Fee Discounted)	SGD 3,595 SGD 2,876 (20% Learning Fee Discounted)

- Special **Group Discount** pricing is applicable to groups of 2 or more delegates from the same organisation registering for the same event, at the same time.
- Fee stated is the discounted price **PER DELEGATE**. Only one discount applies - either the early bird rate OR the Special Group Discount.
- A **7% Goods & Services Tax (GST)** is applicable to all Singapore based companies for Singapore venue.

Register 2 Delegates & the 3rd attends
FREE!

**Applicable to Normal Rates only*

For Bank Transfer; Payment Terms & Conditions; Cancellation & Substitution Policies, please visit <https://www.informacconnect.com.sg/terms/>

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DATA PROTECTION

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.



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