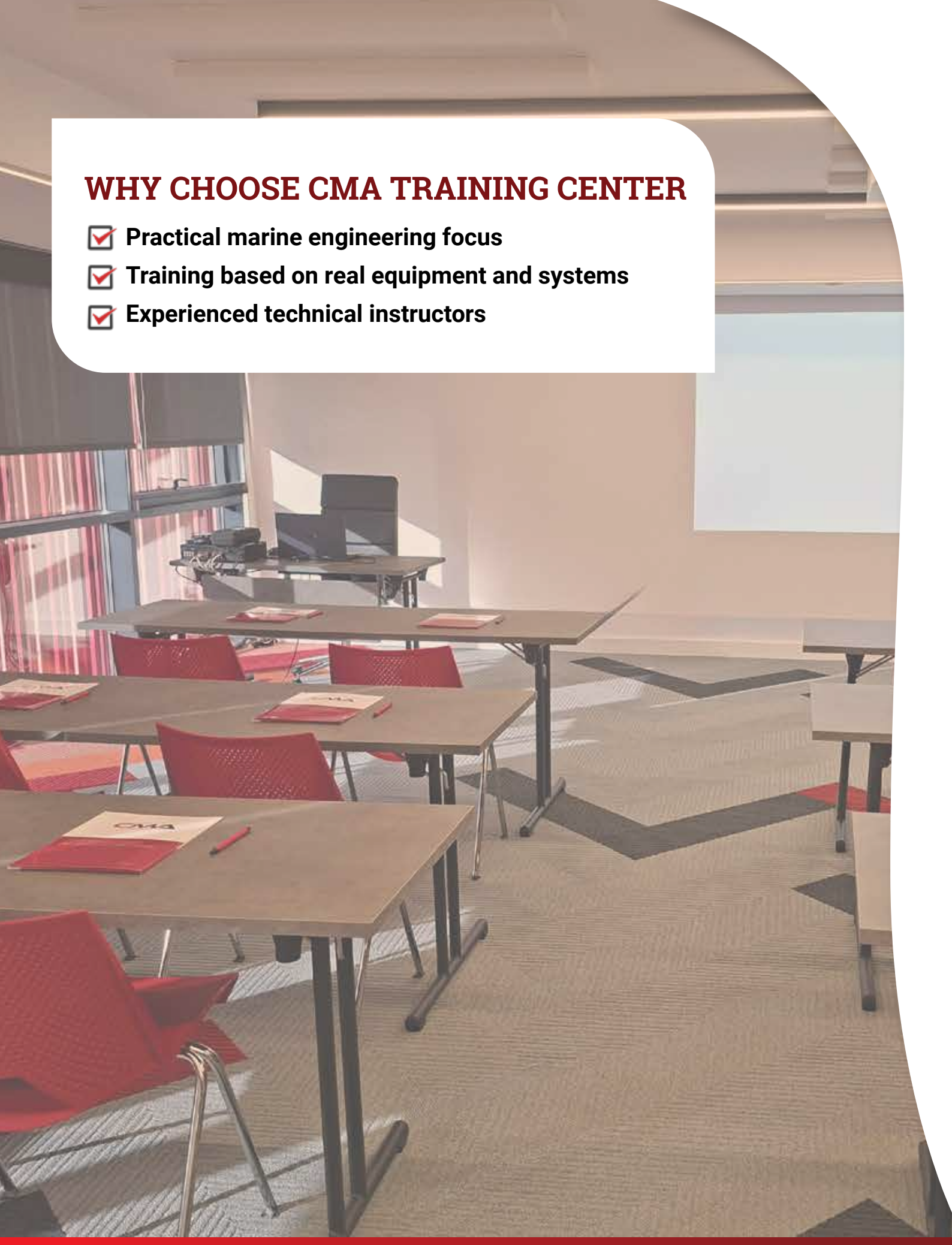
MARINE·INDUSTRY·ENERGY

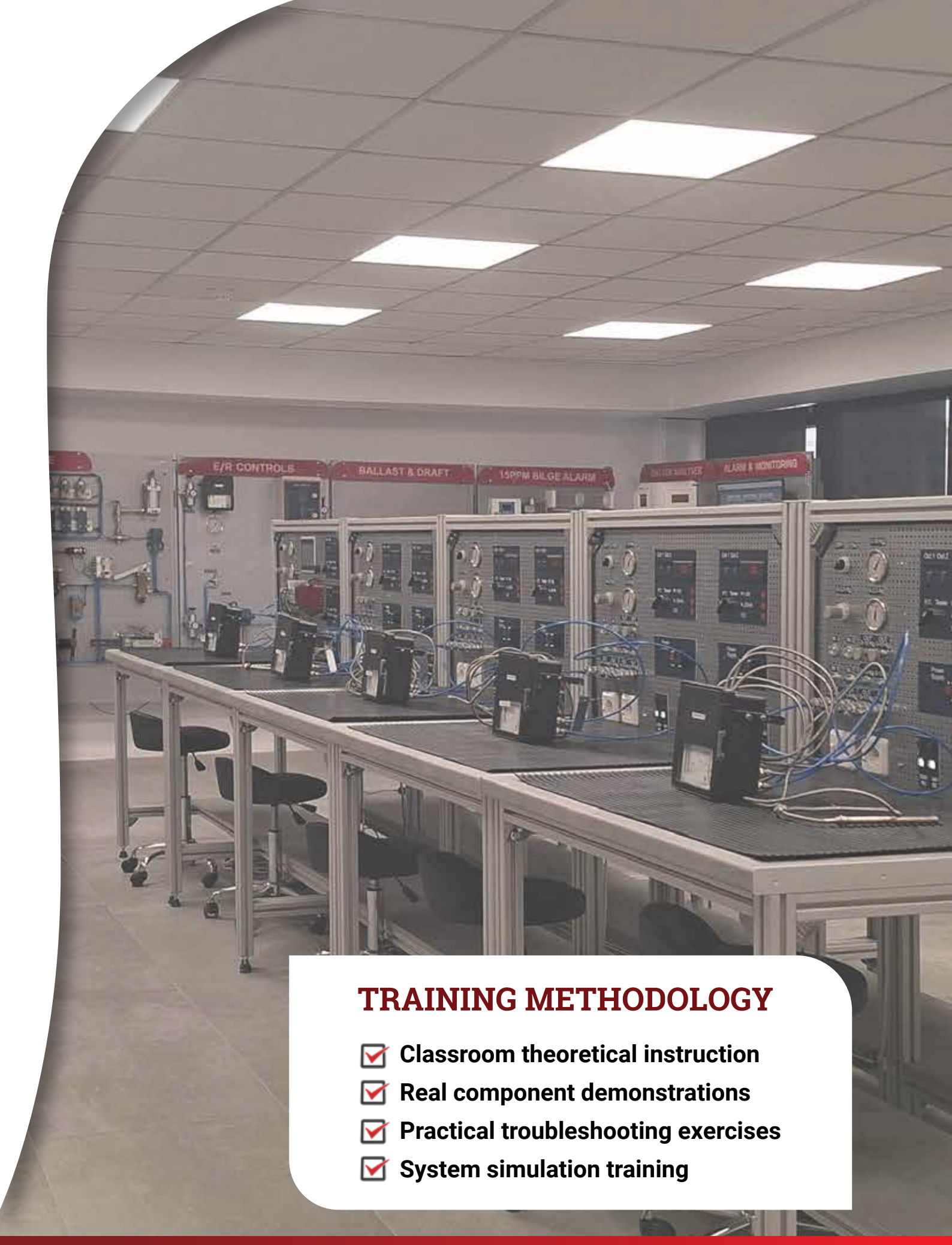
TRAINING CENTER

Technical Training & Innovation Hub

WHY CHOOSE CMA TRAINING CENTER

- ☑ Practical marine engineering focus
- ☑ Training based on real equipment and systems
- ☑ Experienced technical instructors





TRAINING METHODOLOGY

- ☑ Classroom theoretical instruction
- ☑ Real component demonstrations
- ☑ Practical troubleshooting exercises
- ☑ System simulation training

MAIN ENGINE
MANEUVERING SYSTEMS
MAN B&W – Sulzer – Electronic Engines

COURSE OBJECTIVE

Provide comprehensive theoretical and hands-on practical training on the operation, control philosophy & troubleshooting of Main Engine Maneuvering Systems, covering pneumatic & electro-pneumatic automation on conventional & electronic low-speed engines.

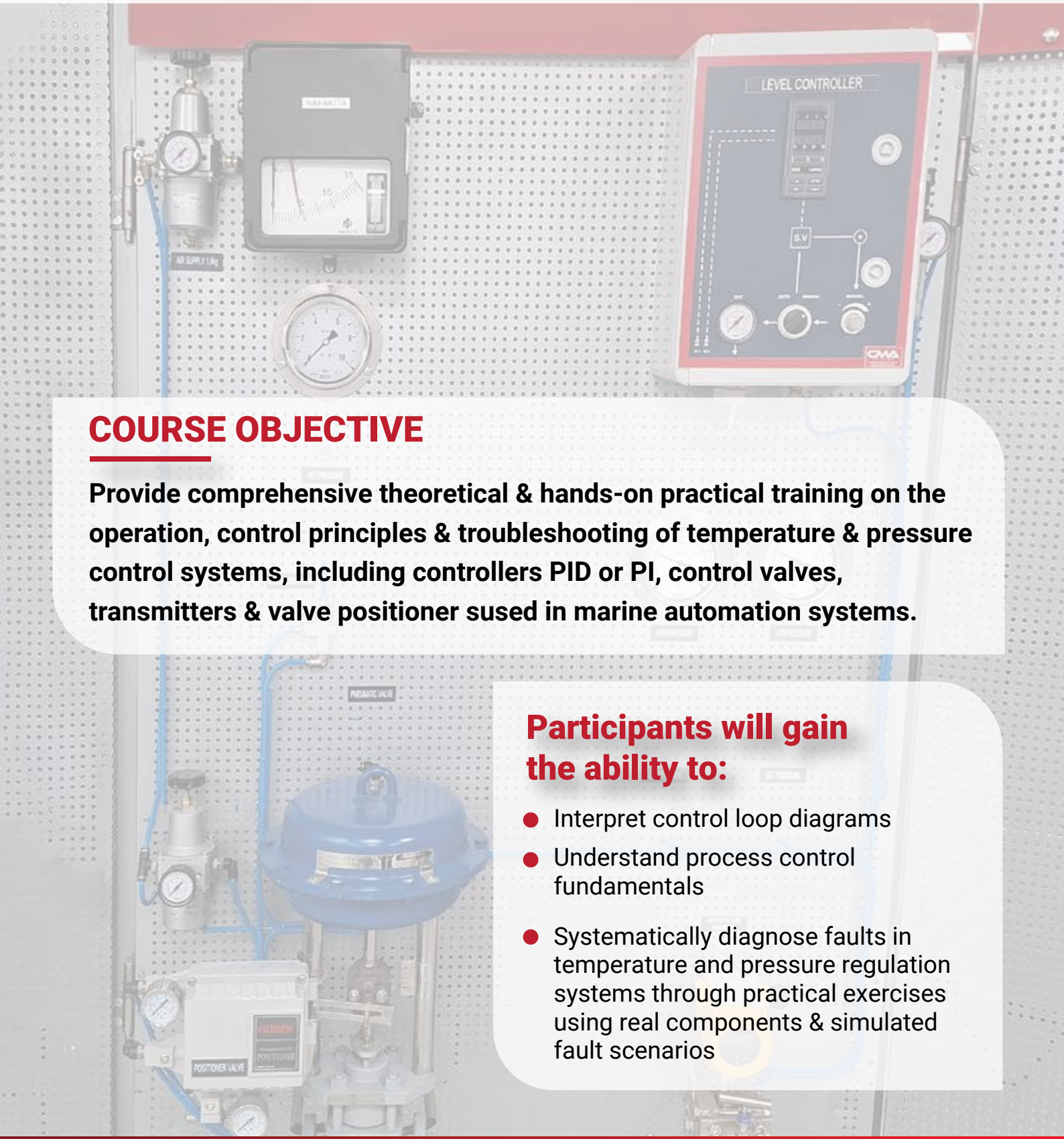
Participants will gain the ability to:

- Interpret maneuvering system diagrams
- Understand starting reversing sequences
- Systematically diagnose faults using real workshop components & simulated failure scenarios.

Duration

16 Hours (2 Days Training Program)

TEMPERATURE/ PRESSURE
CONTROLLERS & VALVE POSITIONERS
Operation, Calibration & Troubleshooting



COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, control principles & troubleshooting of temperature & pressure control systems, including controllers PID or PI, control valves, transmitters & valve positioner sused in marine automation systems.

Participants will gain the ability to:

- Interpret control loop diagrams
- Understand process control fundamentals
- Systematically diagnose faults in temperature and pressure regulation systems through practical exercises using real components & simulated fault scenarios

Duration

8 Hours (1 Day Training Program)

BOILER AUTOMATION SYSTEMS

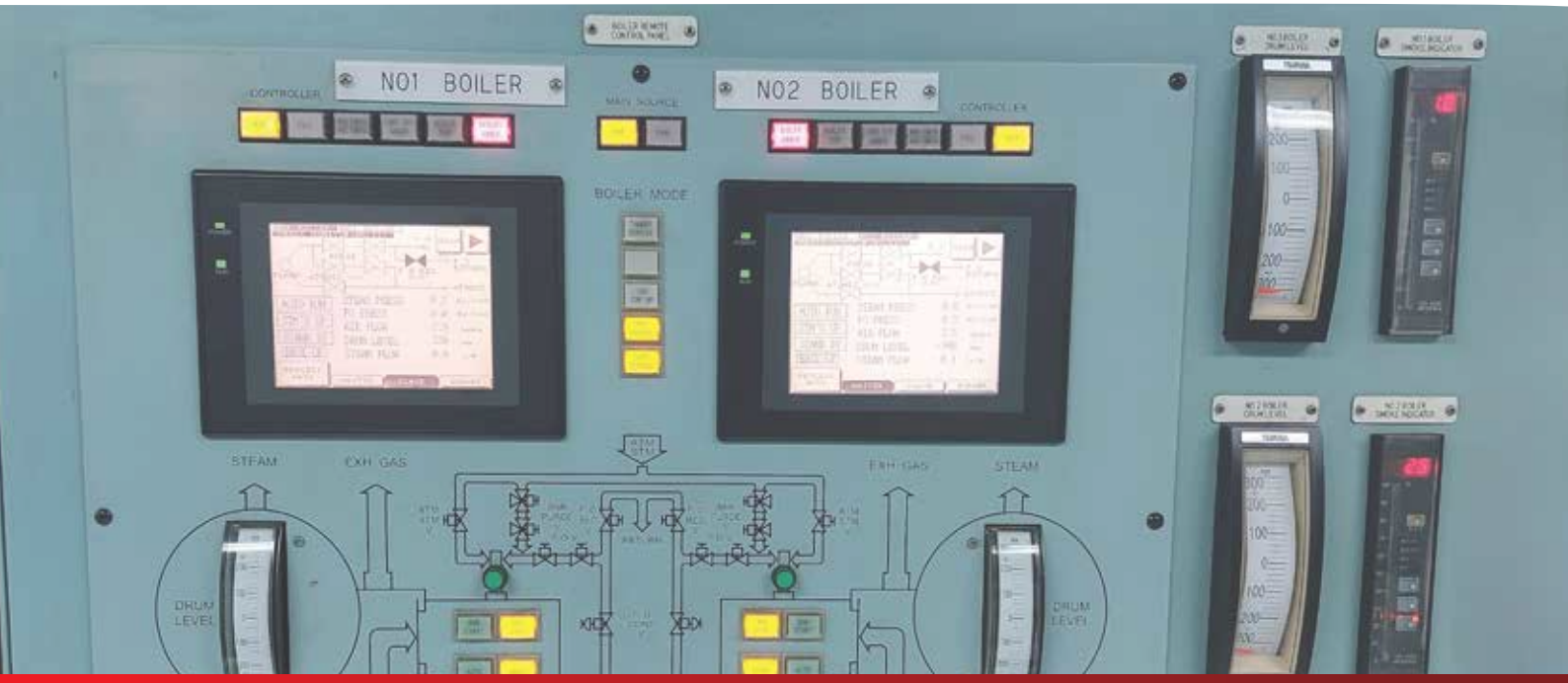
Control, Safety & Alarm Systems & Troubleshooting

COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, control philosophy & troubleshooting of marine boiler automation systems, including burner management systems, combustion control & safety interlocks used in auxiliary & composite marine boilers.

Participants will gain the ability to:

- Understand boiler control logic
- Interpret automation & control diagrams
- Systematically diagnose faults related to burner operation, fuel supply, flame monitoring & safety shutdown systems

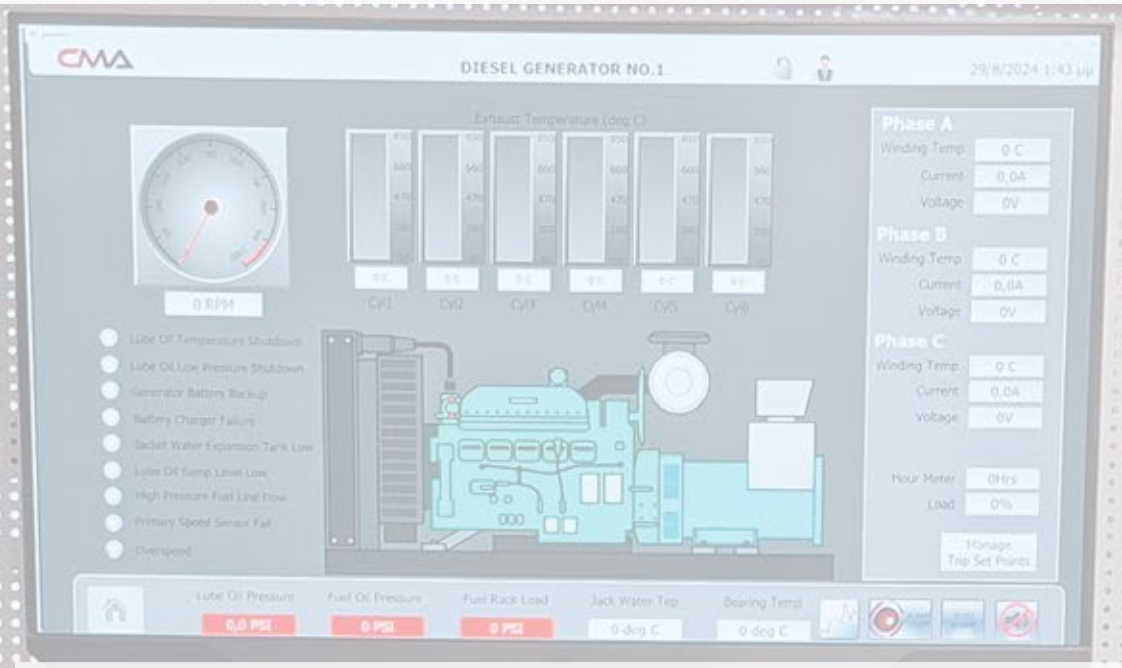


Duration

8 Hours (1 Day Training Program)

ALARM, MONITORING & AMS

Operation, Control Logic & Troubleshooting



COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, structure & troubleshooting of marine Alarm & Monitoring Systems (AMS) used for supervision & protection of engine room machinery & auxiliary systems.

Participants will gain the ability to:

- Understand alarm logic
- Interpret monitoring system diagrams and signal flows
- Systematically diagnose faults related to sensors, transmitters, signal interfaces & alarm handling through practical exercises and simulated fault scenarios

Duration

8 Hours (1 Day Training Program)

THERMOGRAPHY FOR
MARINE & INDUSTRIAL APPLICATIONS

Thermal Inspection & Fault Detection

COURSE OBJECTIVE

Provide comprehensive theoretical & practical training on the principles & applications of infrared thermography for equipment inspection & preventive maintenance in marine & industrial environments.

Participants will gain the ability to:

- Understand thermal imaging principles
- Correctly operate thermal cameras
- Interpret thermographic images
- Identify abnormal temperature patterns related to electrical, mechanical and process equipment

Duration

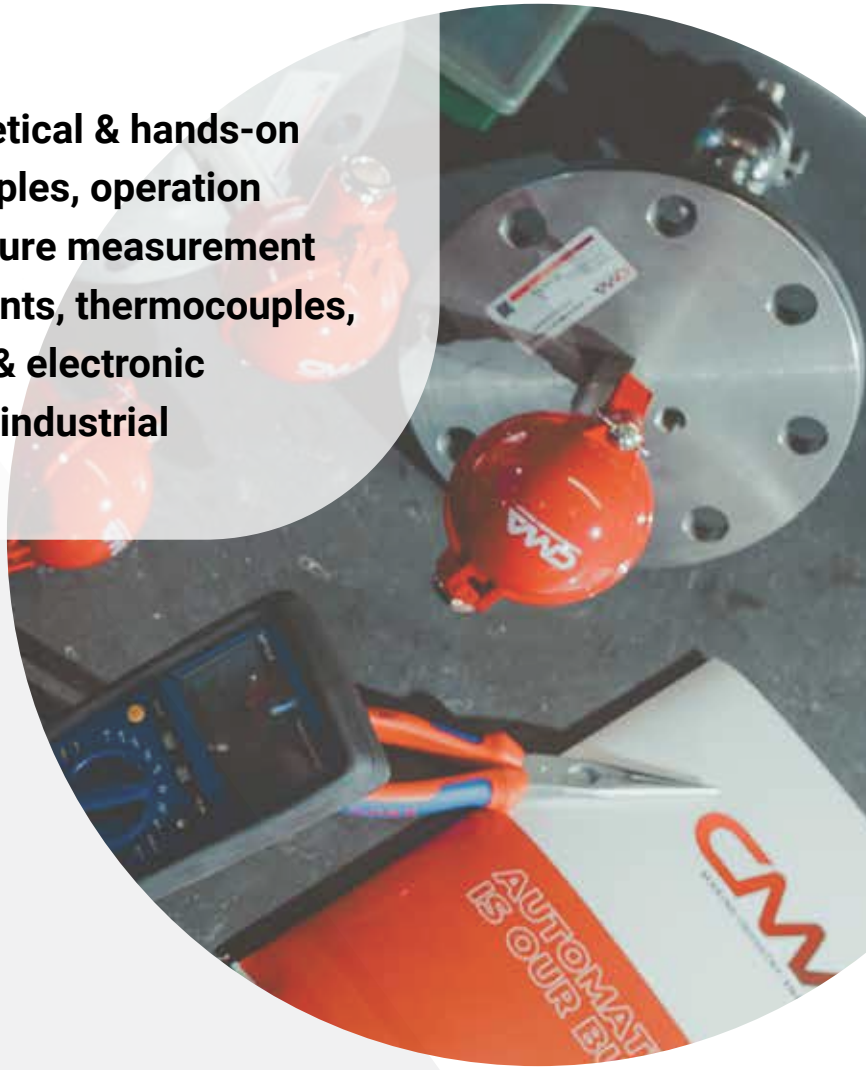
4 Hours (1/2 Day Training Program)

TEMPERATURE
MEASUREMENT & INSTRUMENTATION

RTD Sensors, Thermocouples, Displays & Signal Transmitters

COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the principles, operation & troubleshooting of temperature measurement systems, including RTD elements, thermocouples, analogue and digital displays & electronic transmitters used in marine & industrial applications.



Participants will gain the ability to:

- Understand temperature sensing technologies
- Interpret instrumentation diagrams
- Perform basic calibration and signal verification of temperature measurement loops

Duration

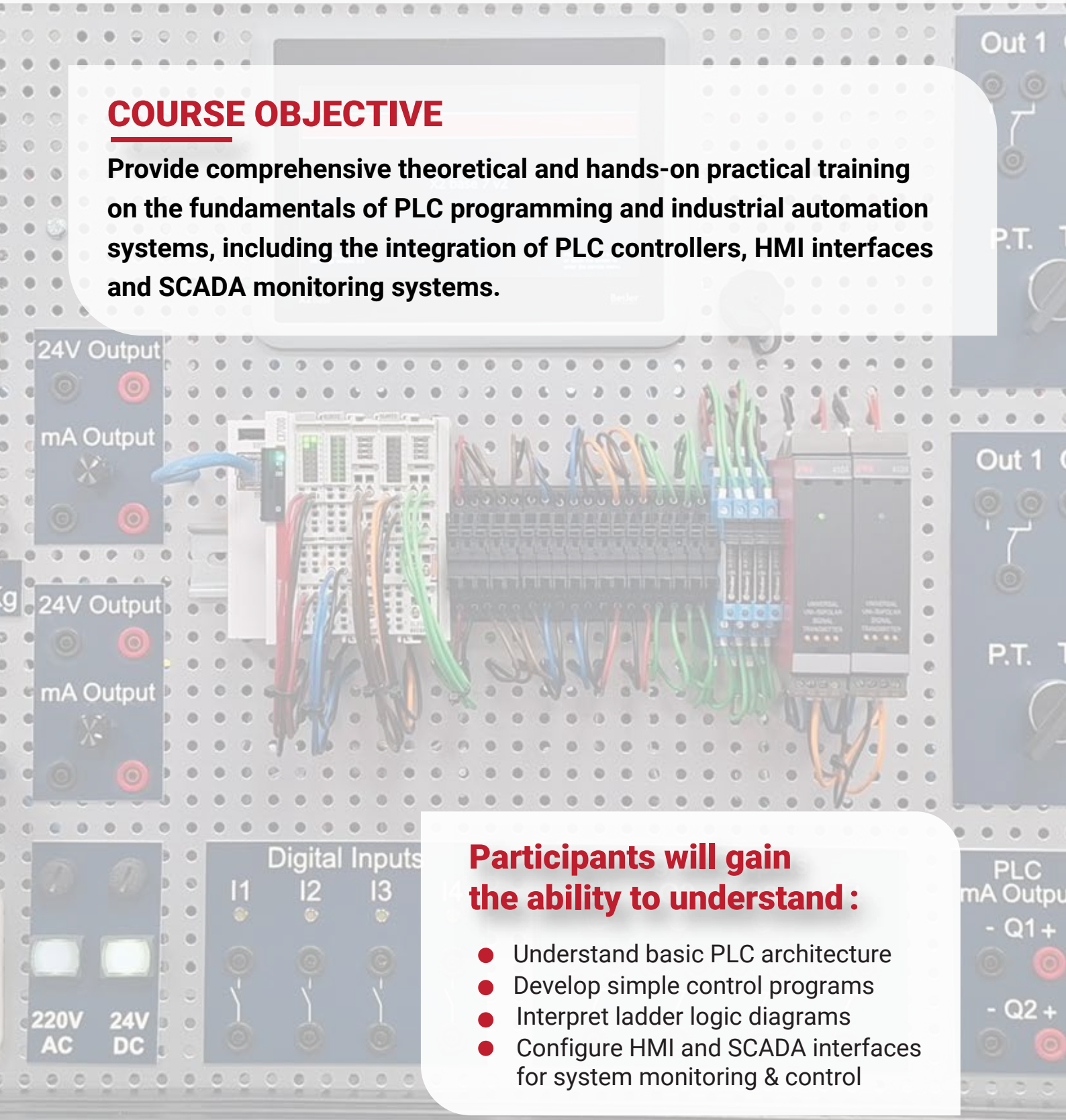
8 Hours (1 Day Training Program)

INDUSTRIAL PLC PROGRAMMING

PLC, HMI & SCADA Basic Programming and Diagnostics

COURSE OBJECTIVE

Provide comprehensive theoretical and hands-on practical training on the fundamentals of PLC programming and industrial automation systems, including the integration of PLC controllers, HMI interfaces and SCADA monitoring systems.



Participants will gain the ability to understand :

- Understand basic PLC architecture
- Develop simple control programs
- Interpret ladder logic diagrams
- Configure HMI and SCADA interfaces for system monitoring & control

Duration

16 Hours (2 Days Training Program)

MARINE POWER
MANAGEMENT SYSTEMS (PMS)

Training with DEIF Power Management Simulator

COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, control philosophy, and troubleshooting of marine Power Management Systems (PMS) using a DEIF Power Management Simulator.

Participants will gain the ability to understand :

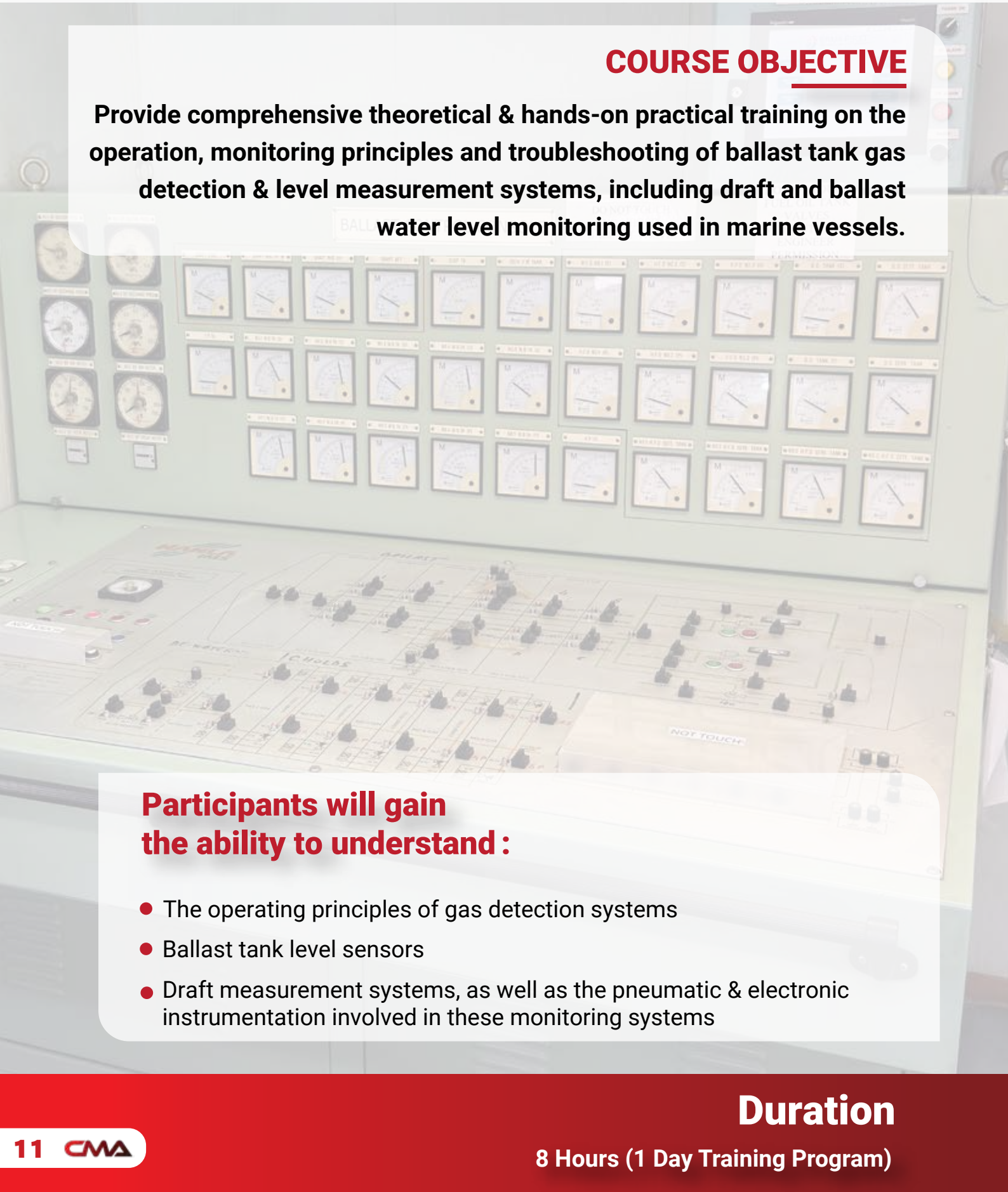
- Generator load sharing principles
- Automatic start/stop sequences
- Load shedding logic
- Synchronization procedures within a ship's electrical power plant

Duration

24 Hours (3 Days Training Program)

BALLAST TANK GAS DETECTION
& LEVEL MONITORING SYSTEMS

Pneumatic & Electronic Instrumentation



COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, monitoring principles and troubleshooting of ballast tank gas detection & level measurement systems, including draft and ballast water level monitoring used in marine vessels.

Participants will gain the ability to understand :

- The operating principles of gas detection systems
- Ballast tank level sensors
- Draft measurement systems, as well as the pneumatic & electronic instrumentation involved in these monitoring systems

Duration

8 Hours (1 Day Training Program)

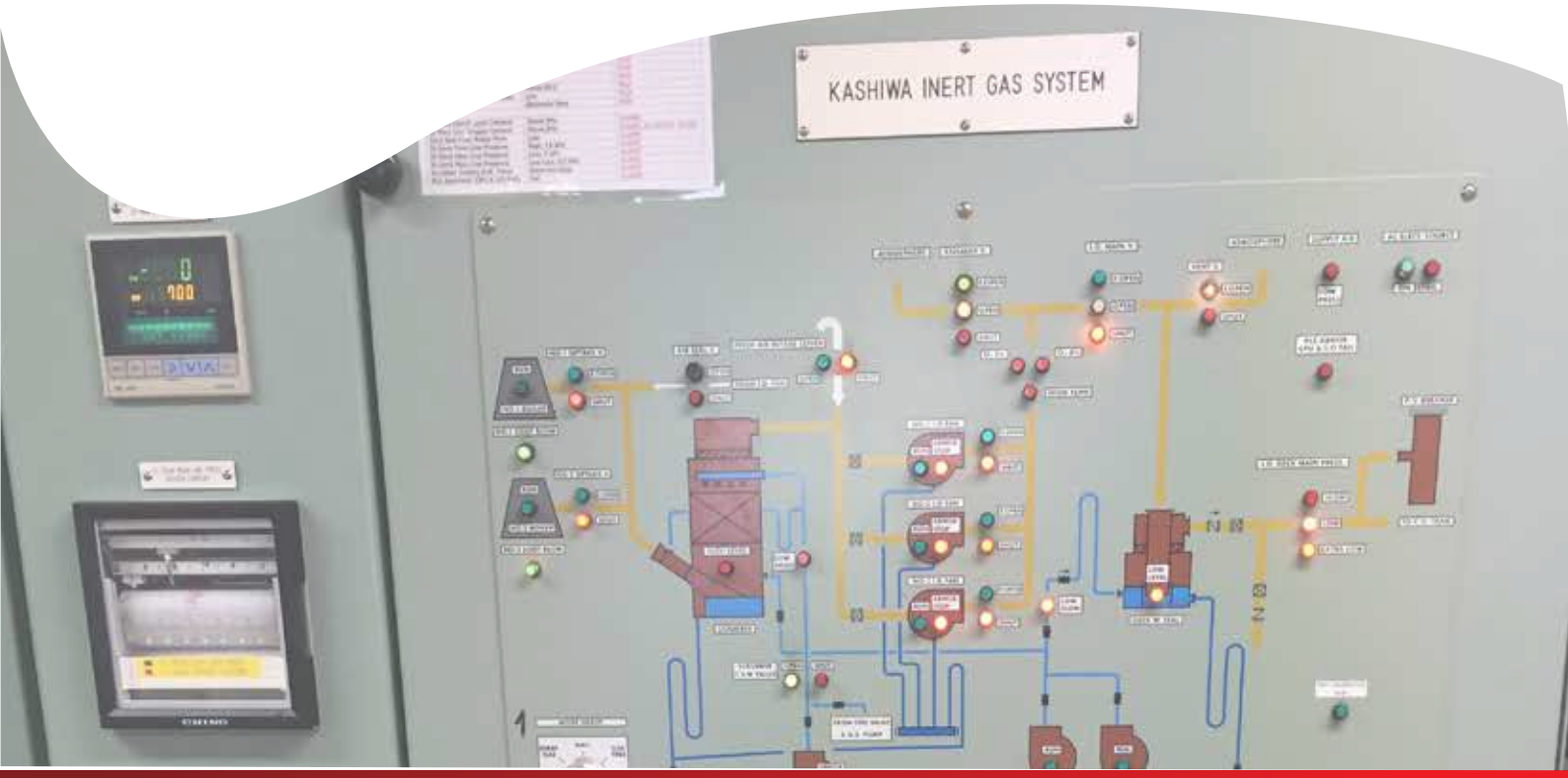
INERT GAS SYSTEM
& OXYGEN ANALYZER OPERATION
Monitoring, Safety Control & Troubleshooting

COURSE OBJECTIVE

Provide comprehensive theoretical & hands-on practical training on the operation, monitoring principles, and troubleshooting of marine Inert Gas Systems, with emphasis on oxygen analyzer operation and calibration used for safe cargo tank inerting.

Participants will gain the ability to:

- Understand the working principles of inert gas generation & distribution
- Interpret system diagrams
- Monitor oxygen levels to ensure safe tank atmospheres



Duration

8 Hours (1 Day Training Program)

MARINE HYDRAULIC SYSTEMS

Principles, Components, Safety & Troubleshooting

COURSE OBJECTIVE

Provide comprehensive theoretical and hands-on practical training on the basic principles, operation & troubleshooting of marine hydraulic systems used in ship machinery and control applications.

Participants will gain the ability to understand:

- Hydraulic system components such as hydraulic pumps, motors, valves, actuators and other equipment used in hydraulic installations, as well as interpret hydraulic circuit diagrams & system layouts.
- The course will also cover essential safety rules and safe working practices when operating or maintaining hydraulic systems

Duration

16 Hours (2 Days Training Program)

WHO SHOULD ATTEND

There are **no mandatory pre-requisites** for participation. Programs can support both **experienced technical personnel** and **entry-level participants**, depending on the selected course and the profile of the client team.

INSTRUCTORS

All courses are delivered by **experienced** and **technically qualified professionals** with extensive hands-on expertise in the respective marine systems & related technical applications.

CERTIFICATION

Participants receive a **Certificate of Attendance** upon successful completion of the training program.

PORTFOLIO DEVELOPMENT

CMA continuously upgrades the equipment of its training facilities and expands its course portfolio in line with **market developments** and the **evolving needs of clients**.

MARINE·INDUSTRY·ENERGY

Where Expertise Becomes Capability

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