MECO
Marine Electrician Training

MECO Training

For trainee and upskilling marine electricians

MET 1–4
Curriculum

- **MET 1 Basic: Marine DC Electrical**
- **MET 2 Intermediate: Marine AC & DC Electrical**
- **MET 3 Advanced: Marine Electronics & Networks**
- **MET 4 Unlimited: Marine Lithium Battery Systems**

IMO IEC ISO ABYC NMEA bsi

Aligned with international industry standards

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Curriculum

The Expert in everything Was once a beginner!

Choose your training pathway

New to the trade? Start with MET 1. Already working on board? Choose the package that covers the systems you want to take on.

MET 1

Foundation

Marine DC electrical

Use a multimeter, size cables and trace a basic charging or starting circuit.

MET 2

Technician

Marine AC and DC electrical

Investigate shore power, inverters, charging sources and corrosion.

MET 3

Master Pro

Marine electronics and networks

Trace NMEA 0183 and NMEA 2000 data between sensors, gateways and displays.

MET 4

Unlimited

Marine lithium battery systems

Assess lithium protection and learn how class rules and flag-state regulations apply to a refit.

Which levels are included?

Technician includes MET 1–2. Master Pro includes MET 1–3.
Unlimited includes all four courses and their online exams.

Compare course packages at mecotraining.com →

Group enrolments offer savings. Ask about a group rate →

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Study 12h Time

Course Description

Start with the DC circuits you'll meet on your first jobs. Learn to use a multimeter, size a cable and choose circuit protection. Follow current from the battery through the switch and load, then back to the battery. Apply the same approach to charging circuits, starter motors and engine gauges.

Course Features

Pre-course requirement: None
Format: Self-paced online
Active Study Time: 12 hours
Time limits: None.
Accreditation: Industry-recognised
Validity: International
Standards: ABYC, ISO, BSI, RCD, IEC
Vessel Size; Small Craft <50m <500GT
Limited to: Basic DC Electrical System, 2 battery banks, 2 sources, simple single phase AC shore power.
Ability After the course: Prevent, find, and fix faults with a basic marine electrical system inline with (BS:EN) ISO 13297 2023, ABYC E11 2025, IEC 60092- 507 - 2014

Curriculum

Electrical fundamentals

Voltage, current and resistance
Electrical power
Testing with a multimeter

Wiring and protection

Batteries and busbars
Cable sizing to ISO and ABYC
Switches and circuit protection

Engines and charging

Alternators and starter motors
Engine and shore charging
Monitoring voltage and current
Engine gauges

Installation practice

Terminations and ingress protection
Standards and regulations
MET 1 examination

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Course Description

Build on MET 1 to work with AC and DC systems on board. Trace how shore power, an inverter or a generator supplies a load. Study battery charging, corrosion protection and fault finding, then apply what you learn on suitable jobs with an experienced electrician.

Study 12h Time

Course Features

Pre-course requirement: MET 1
Format: Self-paced online
Active Study Time: 12 hours
Time limits: None.
Accreditation: Industry-recognised
Validity: International
Standards: ABYC, ISO, BSI, RCD, IEC
Vessel Size; Small Craft <50m <500GT
Coverage: Complex DC Electrical System and equipment, multiple battery banks, multiple sources, 3 phase AC power.
Ability After the course: Prevent, find, and fix faults with a more complex marine electrical system. Instal equipment, and re-wire, inline with (BS:EN) ISO 13297 2023, ABYC E11 2025, IEC 60092- 507 - 2014
Reflective Practice: Yes**:** Online Form

Curriculum

Batteries and DC protection

Battery types, C-rates and CCA
Charging and circuit protection
External regulators and alternators

Power generation and AC

Solar panels and wind turbines
Shore power and power factor
Transformers and AC protection
Inverters and generators

Corrosion protection

Galvanic and electrolytic corrosion
Cathodic protection
Isolation transformers

Onboard equipment

Refrigeration and watermakers
VHF radio and large cable crimps
MET 2 examination

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Study **24h** Time



Course Description

Trace the data from a sensor to a display. Learn how NMEA 0183 and NMEA 2000 networks carry information, and how to investigate faults in cabling, gateways and instruments. Available in the MET 3 package or as an upgrade from MET 2.

Curriculum

NMEA 2000
Introduction
CAN BUS
Network Stack
Bytes Binary & Hex
Physical Layer
Data Link Layer
Management
Instancing
Application Layer
PGN Reference
Limitations
Fault Finding

NMEA 0183
Introduction
Network Stack
Physical Layer
Data Link Layer
Management
Application Layer
Fault Finding
Compatibility
Other Networks
Raymarine
MODBUS
IP Networks

Transducers
Depth & Speed
Wind and Weather
Heading Sensors
Tank Levels
Pressure
High Speed
Ethernet
NMEA OneNet
Gateways
Engine Gateway
J1708 - N2k
J1939 Reference

Radio Systems
Radio Spectrum
Coaxial Loss
Connectors
dB Loss & VSWR
Radar
VHF
AIS Page
MFD Networks
Electronic Charts
Pre-Exam Quiz
Exams

Course Features

Pre-course Req: MET 1 & 2 (Available as package MET 3)
Format: Self-paced online
Active Study Time: 24 hours
Time limits: None.
Accreditation: Industry-recognised
Validity: International
Standards: ABYC, ISO, BSI, RCD, IEC, NMEA
Coverage: Marine Electronic System, Data networks new and legacy, transducers, engine data integration, radio systems, digital switching.

Ability After the course:

Fully understand, and able to prevent, find, and fix faults with the marine electronic systems.Evaluate an existing system for conformity, instal new equipment, design and install networked marine electronic systems inline with (BS:EN) ISO 13297 2023, ABYC E11 2025, IEC 60092- 507 - 2014, and NMEA 0400
Reflective Practice: Yes**:** Online Form, required in order to validate.

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MET 4 Unlimited

Marine lithium battery systems



In MALIBAS, follow a lithium refit from cell behaviour and battery management system (BMS) limits to charging, isolation and protection against fault current.

Protection and installation

Assess fuse and breaker interrupt ratings, BMS shutdown behaviour and the battery layout.

Fire risk and response

Recognise thermal runaway hazards and evaluate fire protection and emergency arrangements.

Beyond ABYC and ISO

ABYC E-13 and ISO 23625 cover small-craft lithium installations. MET 4 goes further into classification society rules and flag-state regulations.

For a refit on a classed yacht, check its class notation, look up the rules of the relevant society, such as DNV or Lloyd's Register, and identify what needs review. Then check the flag-state requirements and where SOLAS applies.

How to take MET 4

Take the full Unlimited package, or add the lithium course after MET 3 or equivalent.

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View MET 4 course and upgrade options →

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Industry Standards

Which requirements apply to this job?

Start with the vessel and the work

Before altering an installation, identify the vessel's service, the system you are changing and the standards used for the original design. Check which requirements apply to the proposed work.

Connect the drawing to the job

A technician tracing an AC fault may need the vessel's wiring plan and the applicable installation standard. For a lithium refit on a classed vessel, also establish which changes the classification society needs to review.

Use MECO LOG to record the checks you made, the work you carried out and who supervised or verified it.

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MECO LOG

Record the electrical work you do on board

In your MECO learner area, enter each job in MECO LOG. Describe what you did, what you learned and who can verify the work.

Earlier experience

Add relevant jobs you did before enrolling. Use the original job date, describe your role and include any evidence you still have.

During and after training

Add entries as you apply a lesson on board. Record what you tested or installed, the result and any supervision.

Example log entry

Diagnosing a dim cabin light

My role	I carried out voltage-drop tests on a 12 V lighting circuit under supervision.
What I found	With the lamp on, I measured 0.8 V across the return terminal. After my supervisor renewed it, I measured 0.02 V at the same points.
Evidence	I recorded both readings and asked my supervisor to confirm the work they witnessed.

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Choose your training package

Train individually or enrol your workshop team. Group enrolments offer savings.

Training a team?

Ask MECO about group rates →

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