Offshore Wind Operations and Maintenance Training Course

Professional Development Training Course Outline

Category	Renewable Energy	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Offshore Wind Operations and Maintenance (O&M) Training Course is designed to build advanced capabilities for the safe, reliable, and cost-effective operation of offshore wind farms. As offshore wind projects become larger and more technically sophisticated, O&M teams increasingly need expertise spanning asset management, predictive maintenance, condition monitoring, reliability engineering, digitalisation, marine logistics, remote operations, safety, and performance optimisation. Modern digital technologies including advanced sensing, data analytics, artificial intelligence, and digital twins are increasingly important for predictive maintenance and reducing O&M costs.

The course combines technical knowledge, operational decision-making, real-world case studies, scenario-based learning, and interactive problem solving to prepare participants for the challenges of offshore wind asset management. Participants explore wind turbine systems, balance of plant, offshore substations, subsea cables, inspection strategies, vessel and access solutions, planned and corrective maintenance, RAM analysis, spare-parts strategy, weather-window planning, HSE, lifetime extension, and decommissioning. The structure reflects current industry training practice, where O&M strategies, vessels and access solutions, safety, compliance, and project-specific operational challenges are treated as interconnected disciplines.

Programme Curriculum

Offshore Wind Operations and Maintenance Training Course

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Course Duration

5 days

Course Objectives

By the end of the course, participants will be able to:

1. Understand the offshore wind O&M lifecycle and modern asset-management strategies.
2. Apply predictive maintenance and condition-monitoring principles to critical assets.
3. Use data analytics, AI, digital twins, and remote monitoring concepts to support maintenance decisions.
4. Develop effective preventive, corrective, and condition-based maintenance programmes.
5. Evaluate reliability, availability, maintainability (RAM) and key operational performance indicators.
6. Optimise OPEX, downtime, availability, energy yield, and maintenance productivity.
7. Assess wind turbine, foundation, electrical, offshore substation, and subsea cable maintenance requirements.
8. Plan marine logistics, vessel utilisation, access strategies, and weather-window optimisation.
9. Apply risk-based inspection (RBI) and technology-enabled inspection approaches.
10. Strengthen HSE, marine safety, compliance, permit-to-work, and operational risk management awareness.
11. Develop effective spares, tools, contractors, and supply-chain resilience strategies.
12. Evaluate lifetime extension, asset integrity, performance improvement, and end-of-life options.
13. Make informed O&M decisions using real-world case studies, operational scenarios, KPIs, and digital decision-support tools.

Target Audience

1. Offshore wind O&M managers and supervisors
2. Wind turbine service and maintenance technicians
3. Reliability and asset-management engineers
4. Electrical, mechanical, and structural engineers
5. Offshore wind operations/control-room personnel
6. Project, engineering, and operations managers
7. Marine logistics, vessel, and port operations professionals
8. Renewable-energy professionals transitioning from oil & gas, maritime, utilities, or onshore wind

Course Modules

Module 1: Offshore Wind O&M Fundamentals

- Offshore wind farm lifecycle and operational phase
- O&M organisation, responsibilities, contracts, and interfaces
- Turbine, foundation, array cable, export cable, and offshore substation systems
- **KPI-driven operations**
- **Case study:** Building an O&M strategy for a multi-turbine offshore wind farm

Module 2: Wind Turbine Operations & Maintenance

- Major turbine systems and common failure modes
- Preventive, corrective, and condition-based maintenance
- Gearbox, generator, drivetrain, blade, pitch, yaw, and hydraulic systems
- Inspection planning and maintenance work-order prioritisation
- **Case study:** Diagnosing recurring turbine downtime and improving maintenance intervals

Module 3: Predictive Maintenance, AI & Digital Twins

- **Condition monitoring systems (CMS)** and sensor-driven maintenance
- Predictive analytics, machine learning, and anomaly detection
- Digital twins for asset-performance monitoring
- Remote operations, diagnostics, prognostics, and decision support
- **Case study:** Using operational data to identify an emerging component failure before major downtime

Module 4: Reliability, Availability & Asset Performance

- **RAM analysis** and reliability block diagrams
- Failure-mode analysis and criticality assessment
- Mean time between failures and mean time to repair
- Availability improvement and downtime reduction
- **Case study:** RAM assessment of turbines and an offshore substation to identify production-critical bottlenecks

Module 5: Marine Logistics, Vessels & Access

- Crew transfer vessels, service operation vessels, and other marine assets
- Vessel selection, utilisation, mobilisation, and logistics planning
- Weather windows, metocean conditions, and offshore accessibility
- Port, warehouse, helicopter, and offshore logistics interfaces
- **Case study:** Optimising a vessel strategy following repeated weather-related maintenance delays

Module 6: Inspection, Asset Integrity & Electrical Systems

- Inspection planning for turbines, foundations, cables, and substations
- Structural integrity and corrosion-management principles
- Offshore electrical systems and subsea cable considerations
- Remote inspection, drones, sensors, and targeted inspection concepts
- **Case study:** Developing an inspection campaign for turbine foundations and subsea electrical assets

Module 7: HSE, Risk & Operational Excellence

- Offshore safety culture and operational risk management

- Permit-to-work, isolation, lockout/tagout, and emergency preparedness
- Working-at-height, marine transfer, lifting, and confined-space risk awareness
- Environmental, regulatory, and compliance considerations
- **Case study:** Risk assessment for a complex offshore corrective-maintenance campaign

Module 8: O&M Optimisation, Lifetime Extension & Decommissioning

- **OPEX optimisation** and maintenance-cost control
- Spare-parts, inventory, contractor, and supply-chain strategies
- Performance optimisation and lifetime-extension programmes
- End-of-life planning and decommissioning considerations
- **Case study:** Developing a 10-year asset-management roadmap balancing reliability, OPEX, availability, and lifetime extension

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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