Training Course on Marine Renewable Energy

Professional Development Training Course Outline

Category	Blue economy	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

As the world pivots toward clean and sustainable energy, **Marine Renewable Energy (MRE)** emerges as a pivotal force in the transition from fossil fuels to **green, low-carbon alternatives**. This course dives deep into the **technological, economic, and environmental dimensions** of marine energy sources such as **offshore wind, tidal, wave, ocean thermal, and salinity gradient energy**. Designed for professionals, policymakers, and stakeholders, this program equips participants with a solid understanding of **innovative marine energy systems**, current **global trends**, and the role of **ocean-based renewables in achieving net-zero goals**.

With a sharp focus on **project development**, **regulatory frameworks**, **environmental impact assessments**, and **investment models**, the course delivers practical insights into the **deployment and management of MRE projects**. Through hands-on simulations, real-world case studies, and expert-led discussions, participants will gain a competitive edge in this rapidly evolving energy sector.

Programme Curriculum

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Course Objectives

1. Understand global **marine renewable energy trends** and market dynamics.
2. Analyze **offshore wind energy technologies** and deployment strategies.
3. Explore **wave and tidal energy systems** with real-world applications.
4. Assess **ocean thermal energy conversion (OTEC)** and salinity gradient technologies.
5. Evaluate **environmental and social impacts** of MRE projects.
6. Navigate **regulatory and permitting processes** for marine energy deployment.
7. Examine **project financing and risk assessment** in marine energy investments.
8. Gain proficiency in **site selection and resource assessment tools**.
9. Apply **marine spatial planning** and grid integration strategies.
10. Integrate **sustainability and climate adaptation** into marine energy planning.
11. Understand **data analytics and digital tools** in MRE systems.
12. Develop **policy frameworks and incentive schemes** for marine renewables.
13. Design, manage, and monitor **full-scale marine renewable energy projects**.

Organizational Benefits

- Position your organization at the forefront of **clean ocean energy innovation**.
- Improve strategic decision-making with up-to-date knowledge of **marine power infrastructure**.
- Enhance project ROI through **optimized deployment strategies** and **risk management**.
- Boost team capabilities in **climate-smart, sustainable energy practices**.
- Promote **compliance with global environmental regulations** and marine spatial planning.
- Leverage knowledge to tap into **blue economy investment opportunities**.

Target Participants

1. Energy professionals and engineers
2. Environmental scientists and marine biologists
3. Policymakers and regulatory bodies
4. Renewable energy investors
5. Project managers in clean energy
6. Researchers and academic scholars
7. Utility and grid operators
8. NGOs and environmental advocacy groups

Course Outline

Module 1: Introduction to Marine Renewable Energy

- Global energy challenges
- Overview of marine energy sources

- Marine energy vs. traditional renewables
- Key players and markets
- Strategic importance of MRE

Module 2: Offshore Wind Energy

- Wind turbine technologies
- Offshore platform types
- Siting and resource mapping
- Installation and maintenance
- Economic viability

Module 3: Tidal Energy Systems

- Types of tidal technologies
- Site selection criteria
- Environmental considerations
- Case studies: UK and Canada
- Power generation efficiency

Module 4: Wave Energy Conversion

- Principles of wave dynamics
- Technology types (point absorbers, oscillating bodies)
- Design and cost analysis
- Real-world implementations
- Operation challenges

Module 5: Ocean Thermal Energy Conversion (OTEC)

- Working principle of OTEC
- Deep-sea heat gradients
- Plant designs and system types
- Global potential
- Environmental impacts

Module 6: Salinity Gradient Energy

- Reverse electrodialysis & pressure-retarded osmosis
- Site and resource availability
- Efficiency and scalability
- Tech development trends
- Challenges and future scope

Module 7: Environmental & Social Impact Assessment

- Biodiversity risks
- Coastal community effects
- Regulatory guidelines
- Mitigation strategies
- Case study reviews

Module 8: Marine Spatial Planning (MSP)

- Introduction to MSP
- Integrating marine energy projects
- Conflicts and coordination
- Stakeholder engagement
- GIS tools in MSP

Module 9: Site Assessment & Resource Mapping

- Bathymetry and oceanographic data
- Wind/wave/tide resource tools
- Remote sensing and drones
- Data validation and analytics
- Technical feasibility

Module 10: Legal & Regulatory Frameworks

- International marine laws
- Licensing and permits
- Risk and liability
- Compliance strategies
- Role of governmental agencies

Module 11: Financing & Investment Models

- Capital sourcing for MRE
- PPP frameworks
- Risk assessment tools
- ROI and IRR calculations
- Funding case studies

Module 12: Grid Integration and Storage

- Challenges of offshore connections
- Transmission infrastructure
- Energy storage systems
- Smart grid integration
- Case studies

Module 13: Digital Tools & Data Analytics

- Real-time monitoring systems
- AI and predictive analytics
- Simulation software
- Performance optimization
- Cybersecurity in marine energy

Module 14: Climate Change & Marine Energy

- Role in emission reduction
- Climate resilience designs
- Carbon credits and MRE
- Adaptation strategies
- Policy synergy

Module 15: Project Development and Lifecycle Management

- Feasibility study
- Design and engineering
- Procurement and logistics
- Deployment and maintenance
- Monitoring and decommissioning

Training Methodology

- Instructor-led virtual/physical sessions
- Interactive group discussions
- Case studies and simulations
- Hands-on technical assignments
- Final project presentation and peer review

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com