Aquaculture Facility Design Training Course

Professional Development Training Course Outline

Category	Veterinary and Animal Science	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Aquaculture Facility Design is a critical discipline driving sustainable seafood production, integrating cutting-edge aquaculture engineering, biosecure system design, and environmentally-friendly practices. Aquaculture Facility Design Training Course equips professionals with practical skills to design efficient, scalable, and eco-conscious aquaculture systems. Emphasizing innovative infrastructure, water quality management, and automated monitoring technologies, participants will master techniques essential to meet rising global seafood demand and regulatory standards. Dive into comprehensive training that transforms theoretical knowledge into actionable expertise, ensuring optimized production while safeguarding aquatic ecosystems.

Our course blends hands-on design strategies with real-world case studies, fostering skills in recirculating aquaculture systems (RAS), facility layout optimization, and energy-efficient operations. By integrating sustainable resource management and risk mitigation protocols, this course prepares aquaculture engineers, managers, and entrepreneurs for future challenges and technological advancements in the industry.

Programme Curriculum

Aquaculture Facility Design Training Course

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Course Duration

5 days

Course Objectives

1. Master aquaculture facility design principles for sustainable seafood production.
2. Apply biosecure system frameworks to minimize disease risk.
3. Integrate recirculating aquaculture systems (RAS) for water reuse efficiency.
4. Design energy-efficient and eco-friendly infrastructure for aquaculture.
5. Utilize automated water quality monitoring technologies.
6. Implement facility layout optimization to maximize productivity.
7. Analyze environmental impact assessments for regulatory compliance.
8. Develop skills in system scalability and modular design.
9. Understand waste management and nutrient recycling techniques.
10. Incorporate climate-resilient facility features.
11. Employ risk assessment and mitigation protocols.
12. Use advanced software tools for aquaculture design simulation.
13. Explore innovative trends in aquaculture technology and infrastructure.

Target Audience

1. Aquaculture engineers and designers
2. Facility managers and operators
3. Marine biologists and environmental scientists
4. Fisheries and seafood production entrepreneurs
5. Government regulators and policy makers
6. Agricultural extension officers
7. R&D professionals in aquaculture technology
8. Students and academicians in aquatic sciences

Course Modules

Module 1: Introduction to Aquaculture Facility Design

- Overview of aquaculture systems and types
- Key design considerations for sustainability
- Biosecurity principles and disease control
- Environmental and regulatory frameworks
- Case Study: Design of a commercial freshwater RAS facility

Module 2: Water Quality and System Engineering

- Water source assessment and treatment methods

- Monitoring parameters: pH, dissolved oxygen, temperature
- Filtration and aeration system design
- Automation in water quality management
- Case Study: Implementing IoT sensors in aquaculture ponds

Module 3: Recirculating Aquaculture Systems (RAS) Design

- Components and operation of RAS
- Energy-efficient system configurations
- Managing solids and biofilters
- Scalability and modular designs
- Case Study: Urban RAS facility design for tilapia production

Module 4: Facility Layout and Infrastructure

- Space optimization techniques
- Material selection for durability and biosecurity
- Energy-efficient lighting and power systems
- Wastewater management infrastructure
- Case Study: Coastal shrimp farm layout planning

Module 5: Environmental Impact and Sustainability

- Environmental risk assessments
- Mitigation of nutrient pollution
- Use of renewable energy sources
- Sustainable resource management strategies
- Case Study: Low-impact facility design in mangrove areas

Module 6: Automated Monitoring and Control Systems

- Overview of monitoring technologies
- Integration of AI and machine learning
- Real-time data analytics and decision support
- Maintenance and troubleshooting of systems
- Case Study: AI-driven water quality control in salmon farms

Module 7: Risk Management and Biosecurity

- Identifying biosecurity threats
- Quarantine and disease outbreak protocols
- Emergency response planning
- Training and operational policies
- Case Study: Disease outbreak containment in commercial hatcheries

Module 8: Emerging Trends and Innovations

- Advances in aquaculture robotics
- Genetic selection and breeding facility design
- Use of blockchain in supply chain transparency
- Smart facility design for climate change adaptation
- Case Study: Implementation of blockchain-enabled farm management

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- 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

Start Date	End Date	Location	Price
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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