



CODE
Centre for Outreach and Digital Education

Center for Outreach and
Digital Education
IIT Madras

CERTIFICATE
COURSE

Certificate Course on Blue Technology

(Innovation and Sustainability in the Ocean Economy)

By the end of this 33-hour course, students will develop a comprehensive understanding of the Blue Economy and its technological foundations, critically evaluating the role of AI, IoT, and robotics in ocean exploration and resource management. Engaging with environmental, legal, and ethical dimensions, students will culminate their learning by proposing innovative BlueTech solutions for sustainable ocean use

Course Modules

Module 1

01 August 2026, 18:00–21:00 IST

Introduction to Blue Economy and Ocean Systems

- Ocean as a resource base: physical, chemical, biological, and mineral wealth
- UN Sustainable Development Goal 14 (“Life Below Water”)
- Global and Indian Blue Economy initiatives
- Overview of Indian Ocean Region and national missions (e.g., Deep Ocean Mission, NIOT, NPOL, INCOIS)
- Case Study: Deep Ocean Mission – India’s roadmap for Blue Economy

Module 2

02 August 2026, 10:00–13:00 IST

Marine Observation and Sensing Technologies

- Oceanographic instruments: CTD, ADCP, nutrient sensors
- Remote sensing of oceans (satellite altimetry, scatterometry, ocean colour)
- Underwater wireless sensor networks (UWSN) and IoT in marine monitoring
- Data assimilation and ocean forecasting models

Salient Features

- Full access to all sessions and materials
- Certificate of Completion
- End-of-course quiz and answer key
- PDF handouts and visual summaries

Course Format

Duration: 3 hours/day × 11 days = 33 hours total

Mode: Live online via Zoom / MS Teams / Google Meet

Format: Expert lectures + interactive Q&A

Materials: Downloadable handouts and visual summaries

Digital Certificate: Issued upon successful completion

Module 3

08 August 2026, 18:00–21:00 IST

Marine Robotics and Autonomous Systems

- ROVs (Remotely Operated Vehicles) and AUVs (Autonomous Underwater Vehicles)
- Design principles, navigation, and communication in underwater vehicles
- Artificial Intelligence & Machine learning in ocean exploration

Module 4

09 August 2026, 10:00–13:00 IST

Blue Energy and Marine Resources

- Wave, tidal, and offshore wind energy technologies
- Ocean thermal energy conversion (OTEC)
- Marine biotechnology and bioresources (biopolymers, enzymes, drugs)
- Deep-sea minerals and polymetallic nodules

Module 5

22 Aug, 18:00–21:00 IST | 23 Aug, 10:00–13:00 IST

Coastal and Marine Infrastructure Technologies

- Coastal engineering and protection
- Port and harbor technologies
- Offshore platforms and renewable integration
- Smart coastal cities and climate resilience

Module 6

29 August 2026, 18:00–21:00 IST

Policy, Governance, and Sustainability

- International conventions (UNCLOS, ISA, MARPOL)
- Blue carbon and ocean accounting
- Ethical, legal, and socio-economic issues
- Start-ups and innovation ecosystems in India

Module 7

30 August 2026, 10:00–13:00 IST

Student Seminars & Interactive Sessions

- Q&A session
- Brief on sustainable ocean technology
- Marine litter
- Digital twins

Register Now



[Click here to Register](#)

Fee Structure

Students:
₹ 16,000 + 18% GST
Professionals:
₹ 24,000 + 18% GST
Deadline: 30th July 2026

Contact

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