Marine -port Strategic Sciences
A.A. 2025-2026
Safeguarding of coastal areas
(ICAR/01) - 6 CFU

General information	
Year of the course	1nd year
Academic calendar (starting and ending date)	1nd Semester (15/09/2025 al 11/12/2025)
Credits (CFU/ETCS):	6
SSD	ICAR 01
Language	Italian
Mode of attendance	optional

Professor/ Lecturer	
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Virtual room	https://teams.microsoft.com/l/team/19%3aN28MOGM3sgnnH29Bmp7tQMvlip9oKDDwuWkdMBAPrFI1%40thread.tacv2/conversations?groupId=176dc583-9211-4da3-a0a5-0df1549e4552&tenantId=5b406aab-a1f1-4f13-a7aa-dd573da3d332
Office Hours (and modalities: e.g., by appointment, on line, etc.)	Wednesday

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
150	48		102
CFU/ETCS			
6	6		

Learning Objectives	Basic knowledge for environmental management of coastal areas 1. Environmental management of dredging activities; 2. Dredged sediments characterization and legislation; 3. treatment technologies; 4. wastewater discharge legislation; 5. dispersion and mixing processes of flows discharged in natural water bodies; 6. guidelines for drawing up a monitoring system (parameters, instruments, analysis data) and numerical modelling; 7. management of coastal area to mitigate human impact and climate change effects: numerical modelling and monitoring activity.
Course prerequisites	-

Teaching strategie	Lectures, exercises lessons
Expected learning outcomes in terms of	
Knowledge and understanding on:	○ The course will provide the technical and procedural expertise for environmental management of coastal areas.

Applying knowledge and understanding on:	○ Management of dredging activities or dispersion of pollutants discharged in natural water bodies (technical legal aspects). Production of the monitoring plan.
Soft skills	• *Making informed judgments and choices* ○ Ability to orient correctly the appropriate skills involved in the Coastal Environmental Management. • *Communicating knowledge and understanding* ○ Ability to communicate the use of methodologies involved in the Coastal Environmental Management. • *Capacities to continue learning* ○ Ability to learn the operational tools needed in Coastal Environmental Management.
Syllabus	
Content knowledge	Topic 1 (4 hours – 0.5 CFU): Introductive notes on coastal environment. Topic 2 (16 hours – 2.0 CFU): Management of dredging activities; Dredging legislation; treatment technologies. Topic 3 (16 hours – 2.0 CFU): Dispersion and mixing processes of flows discharged in natural water bodies; Near field and far field; Jets and plumes; wastewater discharge legislation. Topic 4 (8 hours – 1 CFU): Monitoring system (parameters, instruments, analysis data) and numerical modelling. Topic 5 (4 ORE – 0.5 CFU): Monitoring activity and numerical modelling of coastal hydrodynamics. Case studies about planning and management to mitigate human impact and climate change effects. Targeted maps.
Texts and readings	- Dispense fornite dal docente e appunti di lezione - Testo: Mossa M., Petrillo AF., *Idraulica*, CEA, 2013. - Shore Protection Manual, US Army Corps of Engineers - Testo: Herbich, John B. *Handbook of Dredging Engineering* McGraw-Hill, New York, 1992. Testo: Fischer HB., Koh J., List J., Imberger J., Brooks H., *Mixing in Inland and Coastal Waters*, Academic Press, 1988.
Notes, additional materials	
Repository	*https://teams.microsoft.com/l/team/19%3aN28MOGM3sgnnH29Bmp7tQMvIip9oKDDwuWkdMBAPrFI1%40thread.tacv2/conversations?groupId=176dc583-9211-4da3-a0a5-0df1549e4552&tenantId=5b406aab-a1f1-4f13-a7aa-dd573da3d332*

Assessment	
Assessment methods	Oral examination with discussion of a case study.
Assessment criteria	• *Knowledge and understanding* Basic knowledge for environmental management of coastal areas: dredging activities and waste water diffusion. • *Applying knowledge and understanding* Coastal Environmental Management: Production of the monitoring plan. • *Autonomy of judgment.* Ability to orient correctly the appropriate skills involved in the Coastal Environmental Management. • *Communication skills* Ability to communicate the use of methodologies involved in the Coastal Environmental Management. • *Capacities to continue learning* Ability to learn the operational tools needed in Coastal Environmental Management.

Final exam and grading criteria	The final grade is on a scale of 30. The minimum learning requirements for passing the exam consist in the discussion of the case study.
Further information	
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