



General information	
Academic subject	"Safeguarding of coastal areas" (ICAR/01)
Degree course	Marine -port Strategic Sciences
Academic Year	
European Credit Transfer and Accumulation System (ECTS)	: 6
Language	Italian
Academic calendar (starting and ending date)	1nd Semester
Attendance	optional

Professor/ Lecturer	
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Virtual headquarters	
Tutoring (time and day)	

Syllabus	
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	-
Contents	Topic 1 (5 hours – 0.5 CFU): Introductory notes on coastal environment. Topic 2 (20 hours – 2.0 CFU): Management of dredging activities; Dredging legislation; treatment technologies.

	<p>Topic 3 (20 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.</p> <p>Topic 4 (10 hours – 1 CFU): Monitoring system (parameters, instruments, analysis data) and numerical modelling.</p> <p>Topic 5 (5 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.</p>
Books and bibliography	<ul style="list-style-type: none"> - Dispense fornite dal docente e appunti di lezione - Testo: Mossa M., Petrillo AF., <i>Idraulica</i>, CEA, 2013. - Shore Protection Manual, US Army Corps of Engineers - Testo: Herbich, John B. <i>Handbook of Dredging Engineering</i> McGraw-Hill, New York, 1992. - Testo: Fischer HB., Koh J., List J., Imberger J., Brooks H., <i>Mixing in Inland and Coastal Waters</i>, Academic Press, 1988.
Additional materials	

Work schedule			
Hours			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
60	40	20	
ECTS			
6	4	2	
Teaching strategy		Lectures, exercises lessons	
Expected learning outcomes		Blended learning: oral examination with discussion of a case study	
Knowledge and understanding on:		<ul style="list-style-type: none"> ○ The course will provide the technical and procedural expertise for environmental management of coastal areas. 	
Applying knowledge and understanding on:		<ul style="list-style-type: none"> ○ Management of dredging activities or dispersion of pollutants discharged in natural water bodies (technical legal aspects). Production of the monitoring plan. 	
Soft skills		<ul style="list-style-type: none"> ● <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> ○ Ability to orient correctly the appropriate skills involved in the Coastal Environmental Management. ● <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> ○ Ability to communicate the use of methodologies involved in the Coastal Environmental Management. ● <i>Capacities to continue learning</i> <ul style="list-style-type: none"> ○ Ability to learn the operational tools needed in Coastal Environmental Management. 	

Assessment and feedback	
Methods of assessment	Oral examination with discussion of a case study.

Evaluation criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <ul style="list-style-type: none"> ○ Basic knowledge for environmental management of coastal areas: dredging activities and waste water diffusion. • <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> ○ Coastal Environmental Management: Production of the monitoring plan. • <i>Autonomy of judgment.</i> <ul style="list-style-type: none"> ○ Ability to orient correctly the appropriate skills involved in the Coastal Environmental Management. • <i>Communication skills</i> <ul style="list-style-type: none"> ○ Ability to communicate the use of methodologies involved in the Coastal Environmental Management. • <i>Capacities to continue learning</i> <ul style="list-style-type: none"> ○ Ability to learn the operational tools needed in Coastal Environmental Management.
Criteria for assessment and attribution of the final mark	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.
Additional information	