Syllabus – 2° year
(AA 2017/2018)

Course	Course Code	Course Credits	Course Year
COASTAL RISKS AND DYNAMICS	**F7502Q023**	**6**	**2**

Lecturer:
Prof. Diego Vicinanza

Contents:
The part of the course on Coastal Dynamics is intended to provide basic knowledge of coastal processes for the proper management of the coastline from a physical point of view. The knowledge on marine hydraulics (wave genesis, wave transformations, coastal currents), sediment transport and beaches morphodynamic will be deepened. Coastal risk elements will be presented, with particular regard to coastal erosion and possible defense approaches. The main techniques for studying and monitoring the coastal system will be examined. The part of the Coastal Risk Course aims to provide the student with advanced knowledge in the study and forecast of the impact of catastrophic events on the coastline and on the seabed. The training obtained can be applied for Civil Protection purposes and to minimize impacts on coastline and seabed activities.

References:
Davidson-Arnott R. (2010). INTRODUCTION TO COASTAL PROCESSES AND GEOMORPHOLOGY. Cambridge University Press.
Gerhard Masselink, Michael G. Hughes (2003-2011). INTRODUCTION TO COASTAL PROCESSES AND GEOMORPHOLOGY, Arnold
Paolo Ciavola, Giovanni Coco (2017) COASTAL STORMS: PROCESSES AND IMPACTS, ISBN: 978-1-118-93710-5, Wiley-Blackwell

Aims:
The need to have one appropriate knowledge in these areas is crucial for the national territory when the European directives are to be implemented on Maritime Spatial Planning and Maritime Spatial Planning detail on Integrated Coastal Zone Management (integrated management of the coastline). The relevance of these topics in the Master's Degree in Marine Sciences results particularly obvious and only in the national context the maritime cluster currently contributes 2.6% to the formation of the National GDP and the presence in Lombardy of numerous design companies and construction of maritime works of various nature, consulting companies and design justifies the need to provide graduates in Marine Sciences experienced in the marine and marine sector. At international level, the presence of the Marhe Center, highlight the needs to complete Marine Sciences students skills with knowledge of coastal dynamics and coastal protection, especially in an area that is heavily at risk in the present climate change.

Recommended a priori knowledge: none

Teaching form:
- Lessons: 6 credits

Period:
first semester

More information:
Website: www.marinesciences.unimib.it

Examination type:

- Oral examination

Mark range:
18-30/30

Syllabus:

- **Wind Wave. Wave Theories. Wave Statistics. Wave Transformations.**
- **Coastal zone processes. Coastal protection systems. Port Planning**
- **Breakwaters**
- **Marine Renewable Energy**

- Lessons: 1 credits = 7 hours
- Tutorials: 1 credits = 12 hours
- Field activities: 1 credits = 10 hours