











### ERASMUS+ capacity building programs of yesterday and tomorrow

Feedback from 2015-21 experiences for the 2021-27 proposals

May 19-21, 2022, ICISE, Quy Nhon, Vietnam

# MARE - Marine Coastal and Delta Sustainability for Southeast Asia (2020-2023)









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### 1434 - 2021

The oldest university in Sicily and one of the oldest in Italy

#### **HIGHER EDUCATION**

45 Bachelor's Degrees

7 One-Cycle Degrees

49 Master's Degrees

18 PhD Programmes

31 Additional Master's Degree Programmes

#### RESEARCH

- 58 Research Laboratories
- 24 Research Centres
- 458 Researchers









# Department of Civil Engineering and Architecture (DICAR) Degree programs:

- Bachelor of Science in Civil and Environmental Engineering
- Master of Science in Structural and Geotechnical Civil Engineering
- Master of Science in Water and Transport Civil Engineering
- Master of Science in Environmental and Land Engineering
- Master of Science in Mechanical Engineering
- Master of Science in Management Engineering
- Master of Science in Chemical Engineering for Indust
- Single cycle Master degree in Building Construction a
- Single cycle Master degree in Architecture (in Siracu



ity

al Engineering

Ph.D. program in 'Assessment and mitigation of Urban and Territorial Risks'.









# What is the aim of ERASMUS+ Capacity Building projects?

Capacity-building projects in the field of higher education are transnational cooperation projects, based on multilateral partnerships, primarily between higher education institutions from <u>Programme and eligible Partner</u> Countries.

The aim of these projects is to support eligible Partner Countries to:

- •modernise, internationalise and increase access to higher education
- •address the challenges facing their higher education institutions and systems
- •increase cooperation with the EU
- •voluntarily converge with EU development in higher education, and
- •promote people to people contacts, intercultural awareness, and understanding.









# What is MARE?

ERASMUS+ project on Capacity Building in Higher Education aimed at reforming the system of higher education in the area of sustainable management of coastal areas in Vietnam and Malaysia to comply with the Bologna Declaration.

# A specific focus and emphasis on Climate Change related issues

https://blogs.uni-bremen.de/mare

3 years project (2020-2023)

Total funded costs: 967.788 €

13 partners from 5 countries



































#### **Coordinator**

University of Bremen, ZMML

# **Partners from Europe**

- Estonian University of Life Sciences, Tartu (Estonia)
- University of Catania (Italy)
- •Consiglio Natzionale Delle Ricerche, Roma (Italy)

#### **Partners from Vietnam**

- •Ho Chi Minh City University of Natural Resources and Environment, Ho Chi Minh City
- •Vietnam Maritime University, Hai Phong
- •Can Tho University, Climate Change Research Institute, Can Tho
- Vietnam Institute of Oceanography (VNIO), Nha Trang
- •Centre for Marinelife Conservation and Community Development (MCD), Hanoi

# **Partners from Malaysia**

- University of Kuala Lumpur (Malaysia)
- •Universiti Teknologi Malaysia, Johor Bahru (Malaysia)
- •Institute of Technology Petronas SDN BHD, Bandar Seri Iskandar (Malaysia)
- Universiti Malaysia Terengganu, Kuala Nerus (Malaysia)



## Marine Coastal and Delta Sustainability for Southeast Asia







# Main objectives

#### New curriculum contents

 new and revised courses, revised curricula of existing BSc/BA & MSc/MA courses, revised PhD agenda and research training guidelines

#### E-learning suite

• eMARE – learning management system, e-modules, MOOC-like contents

#### Stakeholder engagement

Sectoral collaborative platforms (SCPs)

#### Capacity development and sustainability

 Training in subject areas, teaching and curriculum development methodology, ICT, stakeholder engagement; development of business plan; hard- and software purchases and development, exploitation of MARE products

#### Dissemination

 MARE www & social media, features in corporate and mass media, conference talks, newsletters and news updates, stakeholder seminars, open-call training events, international conferences, research & educational publications, open access e-learning materials











#### Revision and innovation in HEI course offer

#### **New courses**

- Tropical Ocean and Climate (Masters of Science (by Research))
- Marine Pollution and Management (Bachelor of Science (Marine Science))
- Control of marine pollution 3 ECTS (Bachelor Marine environment and resource management-HCMUNRE)
- Management of marine resources and environment 3 ECTS (Bachelor Marine environment and resource management-HCMUNRE)
- Ocean Environmental Management 4.5 ECTS (Bachelor Global Maritime Affairs, VMU).
- Environmental Law 4.5 ECTS (Bachelor Global Maritime Affairs, VMU).
- Management and Control of marine pollution 6 ECTS (Bachelor Environmental Engineering, VMU).
- Port and Marine constructions 3 ETCS (Bachelor Marine environment and resource management, HCMUNRE)
- Adapting building construction to the effects of climate change 4.5 ETCS (Master, VMU).

#### Revised courses

- Environment: Global Issues and Perspective (Bachelor of Science (Marine Science))
- Modeling the marine environment (Bachelor of Marine environment and resource management-HCMUNRE)
- Fundamentals of climate changeand natural disasters 3 ECTS (Master of Climate change and Delta Management)
- Watershed management 3 ECTS (Master of Climate change and Delta Management)
- Watershed and coastal zone management 3 ECTS (Master of Environment and Natural Resources Management)
- Principles of Climate change mitigation and adaptation 4.5 ECTS (Master of Climate change and Delta Management)
- Hydrological Modelling 3 ECTS (Master of Engineering)







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## **New Sillabi (according the Bologna Process)**



MARE -Marine Coastal and Delta Sustainability for Southeast Asia



Bachelor's course

#### Introduction

Description: The marine environment is becoming increasingly stressed by growing global populations and industries. The world population has witnessed spectacular growth in the twentieth century, and may double in size by the middle of the twenty-first. This growth, combined with economic development and modernization, places extreme stress on all-natural resources, ocean resources included. In this class, we will look at environmental issues such as maritime pollution; ocean oil, as, and natural resource exploration; coastal dynamics and shoreline protections. We will also explore and analyze the various solutions proposed to deal with them. Designed for students with little or no scientific background, the course provides basic science education integrated with major international environmental concerns, offshore energy, waste management, sustainable development, coastal dynamics and shoreline protections.

Contents: The course consist of 11 main topics as follows:

- 1. The world oceans
- 2. How climate change alters the ocean chemistry
- 3. Climate change impacts on marine ecosystems
- 4. Living resource and medical knowledge from the sea
- 5. Marine minerals and energy, and maritime highways
- 6. Polluting the seas
- 7. Oil spill
- 8. Pollution cleanup
- 9. Coastal processes and classification
- 10. Coastal erosion and flooding
- 11. Coastal protection and shoreline management











Course Name: River-sea interactions

Number of credits: 4.5 ECTs

Institute of Oceanography Credits 4.5 ECTs

Lecturers Bui Hong Long, Phan Minh Thu

Level

Host institution Ho Chi Minh City University of Natural Resources and Environment

Course duration 1 semester (the classes will be scheduled in accordance with the

New/revised New course

#### Summary

Coordinator

Estuary and continental shelf areas cover 5.2% of the earth's surface area and only 2% of the ocean volume. However, they are the bridge between the land through continents and the oceans, and every year, the world's major rivers pour about 20,199 m3 of sediment along the shores of the oceans (Miilliman & Syvitski, 1992; Lugwig & Probst, 1998), forming large deltas such as: Yellow River, Yangtze, Mekong, Red, Nile, Mississippi and etc. In the world, there are more than 50 large deltas distributed on almost all continents with a total population of about 325 million people (ORNL, 2002). There are often major political-economic centers such as: Shanghai (Changjiang), Guangzhou (Zhoujiang), Bangkok (Chao Phraya), Yangon (Irrawaddy), Calcutta and Dhaka (Ganges-Brahmaputra), Karachi-Hyderabad (Indus), Buenos Aires (Parana), Vancouver (Fraser), New Orleans (Mississippi), Lagos (Niger), Ho Chi Minh City (Mekong), Hanoi/Hai Phong (Red River), and Marseilles (Rhone) (Syvitski & Saito.,

According to studies, most of the world's deltas have been facing 3 major problems in the world:

- Shrinking deltas;
- The lands of the delta are being subsided (Ground subsidence);

The cause is believed to be the complicated effect of climate change and the impact of climate change and Human activities.

Vietnam is one of the most vulnerable countries in the world to the effects of climate change. Increasing temperature, drought, saltwater intrusion... are getting worse,









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#### **eMARE**

In accordance with the project work plan, the infrastructure was modernized at all partner universities aimed by introducing modern ICT technologies into the training of academia in the field of marine environment and ecosystem. At the preliminary stage of the project, the needs of each partner university were determined for ICT equipment necessary for the effective implementation of the MARE project. Based on the analysis of the required equipment, list of equipments have been submitted for verification and approval.

Report HCMUNRE

Report VMU

Report CTU

Report UTP Report UNIKL

Report UMT

#### e-Learning Modules

All partner ub'niversities prepared eLearning modules, that are hosted on their platforms and shared with the other partnres.

#### HUMHINDE

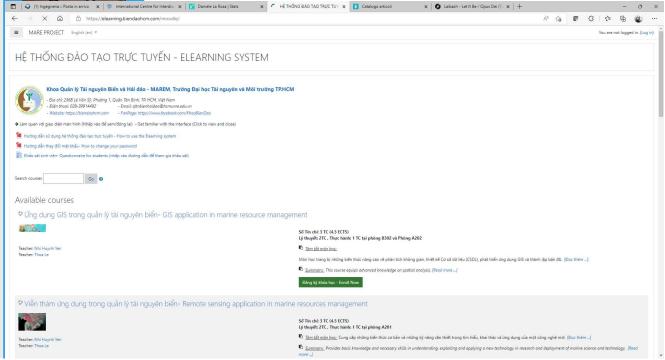
- · River sea interaction E-learning
- Modelling marine environment E-learning
- . Management of marine resources and environment E-learning

- Ocean Environmental Management E-learning presentation
- . Management and Control of marine pollution E-learning presentation
- Port and Marine Constructions E-learning presentation
- Hydrometeorology E-learning presentation
- . Environmental Law and Policy E-learning presentation
- Sustainability in coastal construction E-learning presentation

- Integrated Marine Pollution and control E-learning presentation, E-learning
- . Oceanography E-learning presentation, E-learning
- . Law of the Sea and Ship Operation E-learning presentation, E-learning
- . Marine and Coastal Environment E-learning presentation, E-learning



#### River-Sea Interaction course









#### Master and PhD Research framework

The MARE research framework is a framing document outlining issues, problems, discussing the latest international literature and possible directions of relevant PhD research. It is based on an overview of policy-relevant issues related to the thematic scope of MARE and offers references to international and European policy documents and scientific assessments focusing on or strongly featuring MARE issues. Based on the MARE research framework, departments at partners higher education institutions in Malaisia and Vietnam develop their institutional and/or departments research agendas. Such agendas provide support to PhD (but also MSc/MA) students and their supervisors to identify the research topics and plan thesis contents relevent to the latest scientific and policy developments.

To consolidate the activities under the MARE research framework, dedicated PhD positions were created across the partnership to pursue the MARE agenda.

Profiles of PhD supervisors available in the MARE partnership

PhD programs available in the MARE partnership

Development of PHD Research Framework UMT Report

Development of PHD Research Framework UTP Report

Development of PHD Research Framework VN Partners

# VIETNAM MARITIME UNIVERSITY CONFERENCES, EVENTS AND ACTIVITIES

VIETNAM MARITIME UNIVERSITY AMFUF – Asia Maritime & Fisheries Universities Forum
International Association of Maritime Universities - IAMU Activities — This project has been funded
by Erasmus+ CBHE programme of the European Union. Disclaimer The European...

#### Research topics

Prof. Dr. Kalev SeppEstonian University of Life Sciences suggests research topics: Ecosystem service provision in coastal wetlands: implications of global change. Ecosystem service provision in coastal ecosystems in Vietnam: implications of global change. Ecosystem...



#### **MARE Supervisors**

Name & scientific profile Institute 1 Prof. Dr. Kalev Sepp Estonian University of Life Sciences 2 Prof. Adi Maimun Universiti Teknologi Malaysia 3 Dr. Kang Hooi Siang Universiti Teknologi Malaysia 4 Dr. Shamila Azman Universiti Teknologi Malaysia 5 Dr. Mohamad...

#### Profiles of MARE PhD students

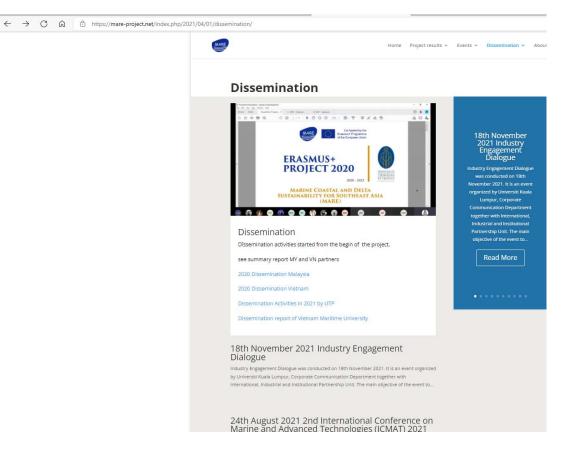
MARE PhD students as of the fall 2021 Name of the student, year Supervisor Thesis title Partner
1 Nursahliza Binti Muhamat Yain, 2018-22 Prof. Adl Maimun Diverter Effect on Vertical Axis
Current Turbine Universiti Teknologi Malaysia 2 Khor Wei Han, 2019-22...

#### MARE research framework - the questionnaire

The name of the partner organisation: Insstitute of Oceanography and Environment, Universiti Malaysia Terengganu Contact person and e-mail address: Assoc. Prof. Dr. Mohd Fadzil Mohd Akhir, mfadzil@umt.edu.my Departments or other academic units at your organisation...

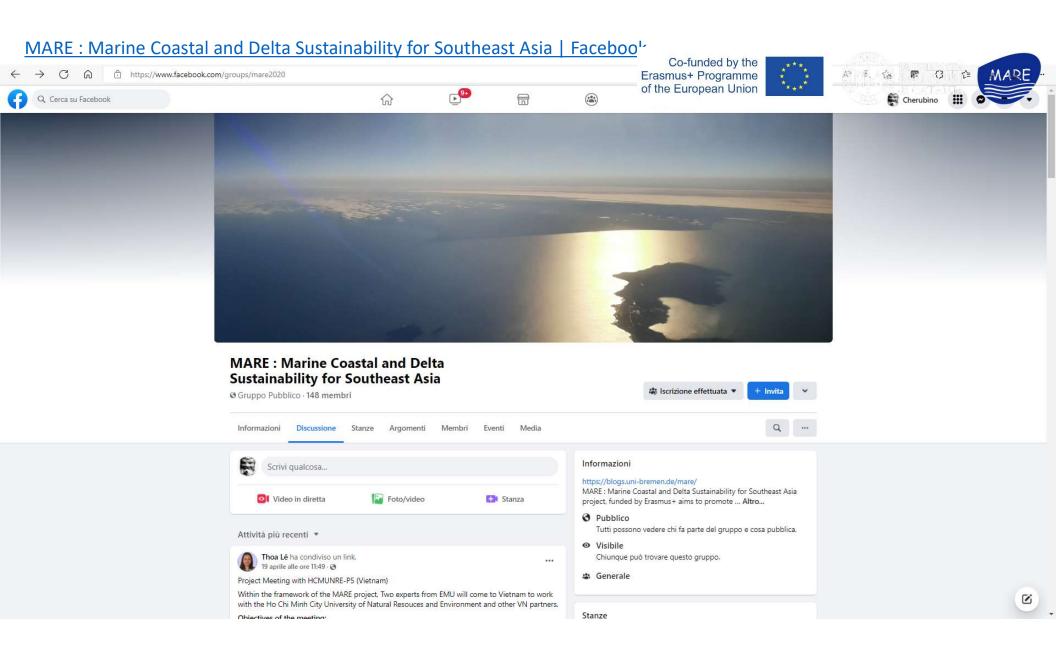


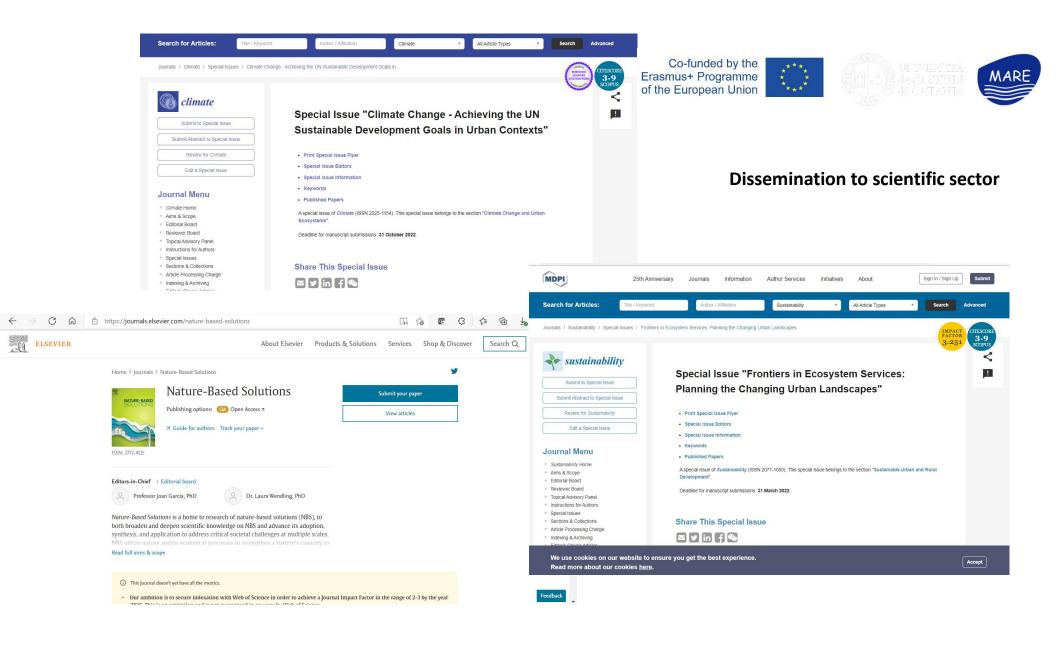
#### **Dissemination activities**













MARE -Marine Coastal and Delta Sustainability for Southeast Asia

Meeting with MARE Partners Agenda 28 May- 1 June 2022



+

Title:	MARE - Marine Coastal and Delta Sustainability for Southeast Asia
Number:	610327-EPP-1-2019-1-DE-EPPKA2-CBHE-JP
Coordinator:	Center for Multimedia in Higher Education (ZMML), University of Bremen
Partners:	UniHB, UNICT, EMU, CNR, HCMUNRE, VMU, CTU, MCD, VNIO, UniKL, UTM, UTP. UMT

#### Location:



University of Catania, Catania, Italy

Department of Civil Engineering and Architecture,
Museo della Rappresentazione, Via Etnea 742, Catania
https://www.facebook.com/museorappresentazione.CT/



#### Objectives of the meeting:

- · Evaluation of the TLM development
- · Presentation and discussion of current activities
- · Discussion and refinement of upcoming activities
- Discussion on the refining and improving the teaching and learning materials according to the evaluations of the results
- Open problems or critical points should be discussed and solved
- · QA of the current activities
- Discussing the need to extend the project.
- · Concretize project planning; determine next steps (Micro Management)

#### Saturday, 28th May 2022 The preparation day- Discussions with EU Partners.

10:00 Opening

 $10{:}15\,$  Evaluation of the Syllabi and TLM by EU partners. Preparation of the recommendations for the partners

11:15 Coffee break

 $11:30\ \ Preparation of the modified Mobility plan and discussing the need to extend the project. Discussion on short-term mobility to and from the EU to achieve specific tangible outputs related to curriculum$ 

dovalanment and receased training Diagning of individual mobility of DCLL students to ELL universities Inglese (Regno Unito)



















#### ERASMUS+ capacity building programs of yesterday and tomorrow

Feedback from 2015-21 experiences for the 2021-27 proposals

May 19-21, 2022, ICISE, Quy Nhon, Vietnam

# Thank you!

Daniele La Rosa, <u>dlarosa@darc.unict.it</u>









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