

ACTIVITY	Bilateral Project Activity
ORGANIZER	University of Catania, Italy
VENUE	Department of Civil Engineering, University of Catania, Italy
DATE	6 th to 19 th March 2023
ATTENDEES	4 students and 2 teaching staffs

MARE, an Erasmus+ CBHE project spanning from 2020 to 2023, aims to cultivate adaptive and end-user-centric curricula with international relevance. The project's focal point is the sustainable management and governance of coastal and adjacent marine areas in partner countries, namely Malaysia and Vietnam. Aligned with the goals of enhancing the capacity of non-EU countries within the Erasmus+ Program, this three-year endeavor seeks to revolutionize the educational offerings of universities in the realms of sustainable and integrated coastal area management in Vietnam and Malaysia.

The initiative involves a series of brief instructor and student mobility exchanges between Asian nations, orchestrated as a collaborative effort among the project partners. Among these partners, students from University Kuala Lumpur will spend time at Dicar, engaging in research for their theses that pertain to maritime hydraulics and the planning and administration of coastal regions.

Personal enrichment through learning from Prof. Pietro Sandura and Prof. Daniele La Rosa at Dicar has been a remarkable experience. Sharing space and knowledge with him has highlighted the extensive breadth of expertise awaiting exploration in this field. I am deeply appreciative of the continuous learning every time we meet, which significantly contributes to the advancement of my research paper for the final year project.

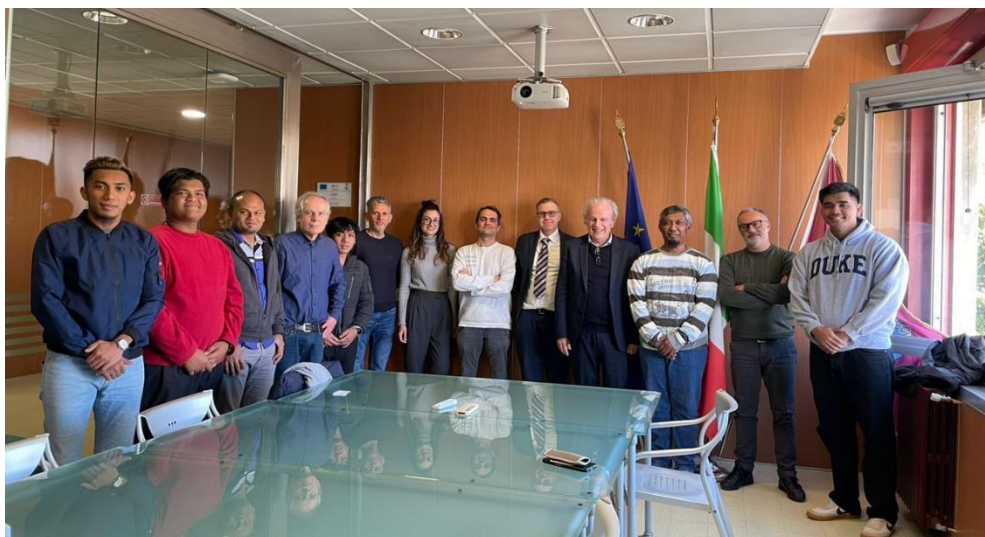
Diary Activities:

Day 1: Embarked on a promising research expedition and planning with Professor Pietro Scandura and Professor Danielle La Rosa. Their warm welcome set the promising environment for enhance the research activities and culture journey ahead.



Day 2: Immersed into the academic environment with meetings of great significance and prominent researchers and reactor from University of Catania, Italy. Engagement with their managements delights and discovered the contribution of MARE projects and future collaboration between both universities. Universiti Kuala Lumpur expressed the warm gratitude from the management to the students and academia throughout the research activities period.

In-depth discussions with Professor Pietro Scandura and Professor Danielle La Rosa organized the project content and objectives, unveiling the unique pathways each project would take.



Days 3 and 4: The days were consumed by voracious reading, a deep dive into the sea of literature guided by Professor Pietro Scandura and Professor Danielle La Rosa. This exercise

not only enhanced our understanding of the research landscape but also honed our critical analysis skills.

The lecturer had a chance to deliver a public lecture for year 3 Master program with regards to the title Maritime Operation and Basics Offshore Structure. The sharing session exposes the students the new knowledge out of their contents.

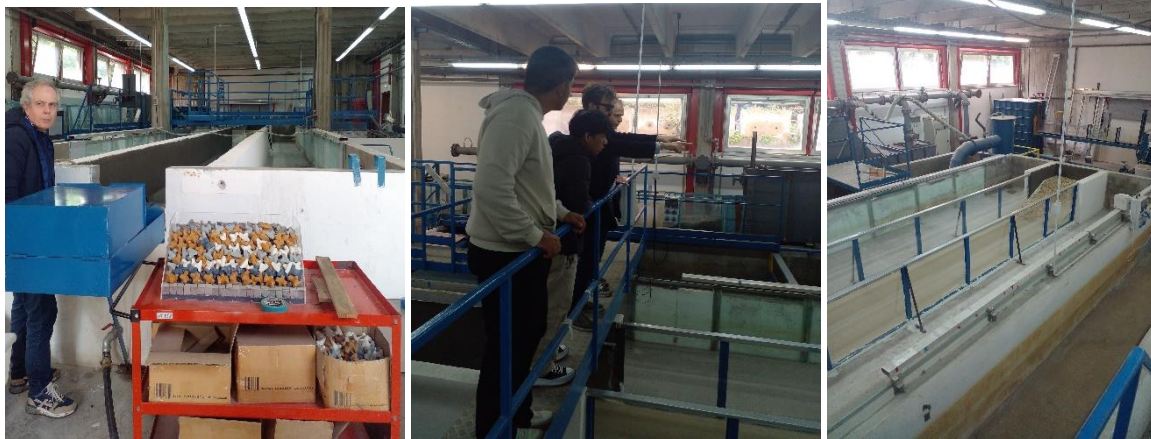




Day 5: Professor Pietro Scandura and Professor Danielle La Rosa, expanded our horizons with an engaging discussion on turbines. The quest for knowledge led us to reach out to colleagues in Portugal, underscoring the collaborative nature of research. Our exploration extended to calculations involving the momentum of rigid bodies, where the ANSYS platform revealed its power as a tool for simulation and analysis.



Day 6: An enlightening day as Professor Pietro Scandura generously shared his own derivations related to momentum mathematics of rigid bodies. Engaging in numerical calculations specific to each project further solidified our understanding. Our minds were set abuzz with discussions on various turbine types, and we brainstormed strategies to innovate the design of radial impulse turbines. A highlight of the day was our visit to the University of Catania's wave tank, where theoretical concepts met tangible reality.



Day 7: Maintaining a delicate equilibrium between personal study and academic commitments, we delved into our own final year project while also fulfilling tasks from the Integrated Marine Pollution Control assignment.

Day 8: Theoretical concepts evolved into practical applications as we explored boundary layers, resistance, dynamics of wave motion, and model scaling. ANSYS modelling began to take shape as we immersed ourselves in understanding and applying the software's capabilities. Intriguing discussions revolved around the potential of exchanging turbine ideas among our projects.

Day 9: The intricacies of ANSYS continued to unfold as we ventured into meshing. While grappling with the input and solution aspects, we navigated the geometry phase of the turbine with growing confidence.

Days 10 and 11: Dedicated time to homework on our individual final year projects granted us a deeper connection to our research topics. Simultaneously, our mastery of software tools such as ANSYS, FLOW3D, and CFTURBO expanded, equipping us for more sophisticated analysis.

Day 12: Engaging with PhD students from UTP provided fresh perspectives. Our discussions, led by Professor Pietro, plunged deeper into the nuances of the ANSYS platform. The introduction of CFTurbo software marked a turning point, as its potential to aid in designing radial turbines left us excited and intrigued.



Day 13: We were privileged to learn ANSYS intricacies from Ing. M. Mouro, an experience that elevated our comprehension. Engaging discussions revolved around software options, with Flow 3D capturing our interest.

Day 14: The journey culminated in a comprehensive meeting with Prof. Pietro, where logbook intricacies were addressed. This final touchpoint underscored the importance of maintaining meticulous records.



With 14 days, this research diary encapsulates our transformative journey. From theoretical concepts to practical application, from intensive discussions to engaging with software tools, each day contributed to our growth as researchers. The University of Catania proved to be a nurturing ground for knowledge, fostering an environment where questions led to discussions, and discussions led to discovery.

Benefits of programme:

Upon reaching the culmination of the immersive and intellectually invigorating 14-days research program at the esteemed University of Catania, the array of benefits and transformative gains garnered is both extensive and deeply enriching. Throughout this program, a multifaceted tapestry of advancements has been woven, contributing to various facets of our academic and personal journey.

Firstly, the program's comprehensive curriculum and engaging interactions have led to a significant expansion of our knowledge and expertise in the intricate realms of turbine dynamics and marine engineering. Under the thoughtful mentorship of Professor Pietro, a seasoned expert in the field, our academic trajectory has been guided and honed, allowing us to fine-tune our research goals and sharpen our problem-solving skills.

The program's emphasis on practical application has been a cornerstone of its value proposition. Engaging in activities such as visiting the University of Catania's wave tank and actively participating in ANSYS modelling has effectively bridged theoretical concepts with tangible, real-world scenarios. This holistic approach to learning has granted us a deeper appreciation for the practical implications of academic theories.

The collaborative environment fostered by interactions with fellow students, visiting PhD scholars, and respected faculty members has not only expanded our network but has also broadened our perspectives. These connections have the potential to evolve into future partnerships and collaborations, enhancing the multidimensional scope of our academic pursuits.

Equally impactful has been the exposure to cutting-edge software tools, including ANSYS, FLOW3D, and CFTURBO. Mastery of these tools equips us with a competitive edge, ensuring that we are well-prepared to navigate complex simulations and analyses in both academic and industry settings.

Beyond academics, this program has facilitated personal growth on various fronts. Overcoming challenges, adapting to a new cultural and academic environment, and participating in intellectually stimulating discussions have collectively contributed to bolstering our self-confidence and resilience.

In the broader context, the benefits reaped from this program are poised to create a ripple effect, extending far into the horizon of our academic and professional journey. The knowledge base fortified, the practical skills honed, and the network established have collectively provided a robust foundation for future research endeavors, educational pursuits, and potential collaborative ventures. This program stands not only as a snapshot of intensive learning but as a catalyst for sustained growth and impactful contributions in the intricate domains of turbine dynamics and marine engineering.

Conclusion:

In conclusion, the MARE project has proven to be a beacon of collaborative learning and transformative experiences. Its overarching goal of developing adaptable curricula for sustainable coastal and marine management has yielded remarkable outcomes over the course of its three-year journey. The diary entries, a snapshot of this profound endeavor, vividly capture the blend of academic rigor, practical exploration, and personal growth that participants have undergone.

From engaging with experts like Professor Pietro Scandura and Professor Danielle La Rosa to delving into cutting-edge software tools, the program has provided an immersive education that transcends traditional boundaries. The collaborative efforts between partner countries, exemplified through student and instructor mobility, have not only widened horizons but also cultivated lasting connections and shared knowledge.

The benefits reaped from the MARE project are a testament to the transformative potential of international education and collaboration. By fostering expertise, practical skills, and a global perspective, the program has ignited a spark that promises to drive positive change in the realms of coastal and marine management. As this chapter closes, the impact of the MARE project continues to resonate, leaving participants equipped, inspired, and poised to make meaningful contributions to their fields and the world at large.



Co-funded by the
Erasmus+ Programme
of the European Union



APPENDIX

Visit Wave Tank:

