

Newsletter 2

Introducing Gems-Tech

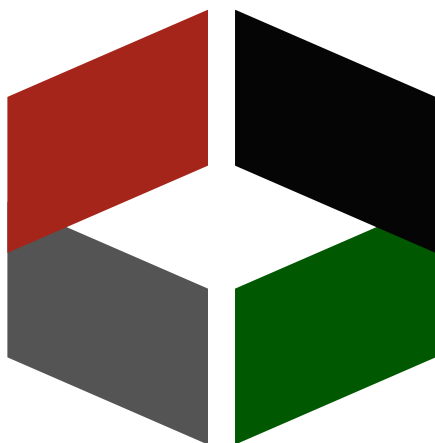


DECEMBER 2025

GEMS-TECH.EU

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Targeted Educational
enhancements across
partner universities in
Egypt and Kenya



Egyptian Universities

ASU

Ain Shams University

AASTMT

Arab Academy for
Science, Technology &
Maritime Transport

Kenyan Universities

JKUAT

Jomo Kenyatta
University of
Agriculture and
Technology

TUM

Technical University of
Mombasa



Green Maritime Horizons

Collaborative Innovation in
Ship Engineering
and Sustainable Technologies



Co-funded by
the European Union

WP2 Modernization of Existing Curricula

OBJECTIVES:

- Modernization of the curricula for the Egyptian (AASTMT and ASU) and Kenyan (JKUAT and TUM) Universities;
- Survey and co-design the new modernized courses, based on EU experience and Egyptian and Kenyan maritime industry needs;
- To promote industry active participation in co-design of the courses;
- To create upskilling paths in Higher Education and promote accreditation;
- To pilot test courses which present challenges to the Egyptian and Kenyan universities and maritime industry;
- To establish knowledge transfer and collaboration between European and Egyptian and Kenyan universities



INFO DAY & STUDENT ENGAGEMENT



Location:

Ain Shams University,
Innovation and
Entrepreneurship
Center

Info Day and Student Engagement



Date: September 1, 2025

Green Maritime Horizons (**Gems-Tech**)
Collaborative Innovation in Ship Engineering
and Sustainable Technologies



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Executive Summary



On 1 September 2025, Ain Shams University hosted a student engagement event under the framework of the GEMS-TECH project. Around 50 students from the Faculty of Engineering participated in activities at the iHub Building. The purpose of the event was to raise awareness about renewable energy, sustainable ship engineering, and to link academic curricula with innovation. This report provides a stockholders analysis, feedback from students, and recommendations for future activities.

Main Topics



Renewable
Energy
Resources



Solar Energy



WinEnergy
Management
Essentialsd

Energy Innovation



Sustainable Energy
Systems and Their
Impact on the Carbon

Footprint

Event Overview



**1 September
2025**

GEMS-TECH



PEDAGOGICAL VALUE & COURSE INTEGRATIO

The engagement session map explicitly to pre-existing and modernized ASU courses:

01

Wind Energy

Analysis of rotor sails, rigid wings, and offshore wind infrastructure integration



02

Solar Energy

Direct exploration of photovoltaic (PV) and thermal capture setups for auxiliary shipboard power grids.



03

Renewable Energy Resources

Practical insights into adapting solar, wind, and wave combinations to ocean-going vessels.



04

Energy Management Essentials

Focus on energy efficiency indexes (EEDI/EEI), smart grid monitoring, and marine hull efficiency.



Value to Student Stockholders



01 Educational Value

Linking classroom theories with practical applications in green maritime engineering.

02 Career Development

Equipping students for roles in the maritime industry, renewable energy, and sustainability.

03 Research Opportunities

Providing ideas and directions for graduation projects and future research aligned with GEMS-TECH.

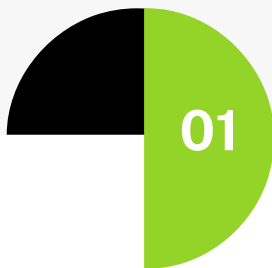
04 Empowerment: Students

Students positioned as active stockholders shaping the sustainable future of maritime engineering.

Student Feedback & Evaluation Analysis

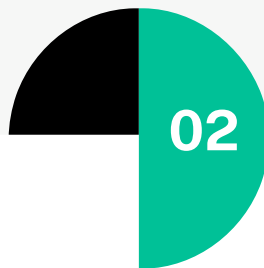


A quantitative and qualitative feedback collection post-event revealed key indicators:



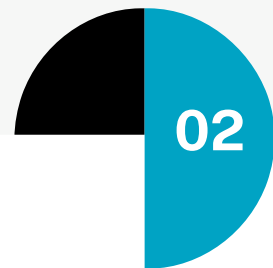
>85% of students

achieved a measurable increase in their technical understanding of marine-adapted renewable arrays.



90% baseline satisfaction

regarding instructional delivery and deep-dive technical discussions.



Primary Student Demand

: A strong mandate for hands-on labs, hardware prototyping workshops, and immediate access to the VR/AR environments.





Location:

Ain Shams University,
Innovation and
Entrepreneurship
Center

Industry Day 2025 &

Focus Group Insights Session Awareness



Date: October 13, 2025

Green Maritime Horizons (**Gems-Tech**)
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Meeting Overview:



**October 13,
2025**

Digital Documentation
& Media Asset Portals:
Awareness. Focus
Group



OVERVIEW



The meeting was conducted as part of the GEMS-Tech project activities aiming to strengthen collaboration between academia and industry in the field of green maritime technologies and sustainable energy systems.

The session emphasized the role of applied training and research–industry partnerships in achieving the project’s objectives under Work Packages WP2 (Curriculum Modernization) and WP4 (Industry Collaboration and Sustainability).



Executing Your Marketing Strategy



Industry Day 2025 concentrated on building the external leg of sustainability for WP4. By interfacing directly with shipping corporations, port authorities, and regulatory marine classification societies, the project accomplished:



Validation of Market Gaps

Ensuring that technical skill competencies designed in WP3 match real-world recruitment challenges in eco-shipping.

01



Focus Group Synergies

Discussions surrounding technology transfers, identifying regional maritime carbon pain points, and mapping how ASU's new engineering talent can fulfill upcoming decarbonization mandate.

02

Key Discussion Points and Outcomes



The discussion centered on identifying collaborative areas between Ain Shams University and the participating industrial partners to enhance the integration of sustainable energy concepts within educational and applied research activities. The participants emphasized the importance of linking academic programs with real-world applications in the fields of renewable energy, hydrogen technology, and green maritime systems. The meeting served as a platform to exchange technical insights, explore practical training opportunities, and outline potential joint initiatives that support the GEMS-Tech project's objectives of promoting innovation and sustainability in maritime engineering and clean energy.

Key Discussion



Applied Training Opportunities:



Hydrogen Fuel Cell Applications



Triple M Construction Collaboration



Next Steps

Conclusion:



The meeting successfully established a framework for collaboration between Ain Shams University, Jadeed Climate Tech, and Triple M Construction Company to advance experiential learning in renewable and maritime technologies. The outcomes will contribute directly to the capacity-building and curriculum modernization goals of the GEMS-Tech Project, while promoting Egypt's national vision for a green and sustainable maritime future.





Location:

Ain Shams University,
Innovation and
Entrepreneurship
Center

Awareness Session



Date: October 13, 2025

Green Maritime Horizons (**Gems-Tech**)
Collaborative Innovation in Ship Engineering
and Sustainable Technologies



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the European Union

Awareness Session Overview:



**October 13,
2025**

This session aimed to raise awareness about the project's vision, objectives, and expected impact on maritime education, renewable energy, and sustainable engineering technologies.



OVERVIEW



As part of Ain Shams University's commitment to promoting sustainable innovation and strengthening university–industry collaboration, an Awareness Session was organized under the GEMS-Tech Project activities.

The event was held within the framework of “Made in Ain Shams University – Industry Day”, marking the first edition of this unique initiative that bridges academia, research, and industrial practice.

Awareness Session Attendance Summary



The workshop attracted a diverse audience of students from various faculties and institutes across Ain Shams University, and other University including:

- Faculty of Engineering
- Faculty of Computer and Information Sciences
- Faculty of Science
- Faculty of Commerce
- Faculty of Graduate Studies for Childhood
- Faculty of Education
- Faculty of Agriculture
- Faculty of Arts
- Faculty of Law

In addition to the university participants, representatives from civil society and external organizations also attended, notably Misr El-Kheir Foundation, emphasizing the importance of community engagement and cross-sector collaboration in advancing sustainability goals.

Session Highlights



The awareness session featured an engaging presentation and open discussion covering key themes related to the Green Maritime Horizons Project, including:

- ✓ The latest trends in **green ship design and technologies**
- ✓ The importance of **sustainable energy systems** in maritime and transport applications
- ✓ The role of **university–industry partnerships** in driving innovation and real-world impact
- ✓ The contribution of the **Erasmus+ Programme** to knowledge exchange, modernization of higher education, and sustainability transformation





Location:

at Technical University
of Mombasa
Mombasa, Kenya

Industry Day 2025

in Mombasa, Kenya



Date: 5 December 2025

Green Maritime Horizons (**Gems-Tech**)
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Stakeholder Engagement Meeting in Mombasa, Kenya



A stakeholder engagement meeting was successfully conducted on 5 December 2025 in Mombasa, Kenya, as part of the GEMS-TECH Project's commitment to promoting collaboration and ensuring active stakeholder participation throughout the implementation of the project. The meeting brought together more than 20 stakeholders drawn from academia, government institutions, industry, professional bodies, and other organizations with an interest in advancing digital education and skills development. The engagement provided an important platform for consultation, knowledge sharing, and the collection of stakeholder perspectives to enhance the quality and relevance of the project's outputs.



Project Overview and Strategic Objectives



The primary objective of the meeting was to introduce stakeholders to the GEMS-TECH Project and provide a comprehensive overview of its vision, objectives, expected outcomes, and implementation strategy. Participants were taken through the project's goals of strengthening digital learning, promoting innovation in higher education, and developing high-quality learning resources that address current and emerging skills needs. The project team also highlighted the collaborative partnership between institutions in Kenya and Egypt and emphasized the importance of stakeholder involvement in ensuring that the project's deliverables respond to the needs of industry, higher education institutions, and society.



MOOCs Curriculum Development and Review



A key agenda item during the engagement was the development of the Massive Open Online Courses (MOOCs) curriculum. The project team presented the proposed curriculum structure, course content, learning outcomes, teaching methodologies, assessment approaches, and delivery strategies. Stakeholders were invited to critically review the proposed curriculum and provide recommendations to ensure that the courses would be relevant, practical, inclusive, and aligned with current technological trends and labour market demands. Discussions focused on strengthening competency-based learning, integrating emerging technologies, enhancing employability skills, and ensuring that the curriculum addresses both regional and international educational standards.



Stakeholder Feedback and Recommendations



The stakeholder engagement was highly interactive, with participants actively contributing their expertise, experiences, and recommendations throughout the discussions. Valuable feedback was received on curriculum content, course organization, industry relevance, digital learning approaches, quality assurance mechanisms, accessibility, and strategies for increasing learner engagement. Stakeholders also emphasized the importance of incorporating practical case studies, real-world applications, and industry participation into the MOOCs to improve the learning experience and enhance graduate employability.





Location:

Ain Shams University,

External Review Delegation Visit



Date: December 14-16, 2025

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External Review Delegation Visit



External Review Visit

As part of its ongoing efforts to monitor international cooperation projects and strengthen academic partnerships with European institutions, Ain Shams University hosted an international external review delegation for the GEMS-TECH project (Green Maritime Horizons: Collaborative Innovation in Ship Engineering and Sustainable Technologies), funded by the European Union's Erasmus+ programme.

Official Reception

The delegation was received by Prof. Dr. Amani Osama Kamel, Vice President for Postgraduate Studies and Research, in the presence of Prof. Dr. Neveen Asem, CEO of the Innovation and Training Sector and GEMS-TECH Project Coordinator at Ain Shams University, alongside academic representatives from the Faculty of Engineering.

Key Activities and Highlights



01



International Project Review:

The review committee, comprising representatives from Bulgaria, Greece, Croatia, and Estonia, assessed project progress and strategic objectives.

02



Curriculum Modernization & Training Development

Reviewed efforts to modernize curricula at the Faculty of Engineering and develop specialized training programmes in renewable energy-powered shipbuilding and green maritime technologies through the Innovation and Training Sector.

03



Innovation & Training Facilities Tour

Explored the Sector's training facilities, specialized laboratories, and infrastructure supporting advanced training programmes.

04



Cultural Visit – Zaafaran Palace Museum

Explored the museum's historical and cultural collections, reflecting Egypt's rich heritage across different historical periods.

Key Activities and Highlights



01



Partner Visit – AASTMT

The review committee, comprising representatives from Bulgaria, Greece, Croatia, and Estonia, assessed project progress and strategic objectives.

02



Faculty of Engineering Visit

Visited laboratories and held meetings with students, academic staff, and industry representatives involved in curriculum development, reinforcing the alignment of academic education with industry needs and the advancement of sustainable maritime solutions.



Project Impact

The external review visit strengthened cooperation among project partners, supported quality assurance and implementation monitoring, and reinforced the project's commitment to modernizing maritime engineering education and promoting sustainable maritime technologies in line with European and international standards.

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