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

European Commission

New, innovative and multidisciplinary common curriculum on marine environment protection from pollution

NOVEMBER 2020 – APRIL 2021

KA2 - Cooperation for innovation and the exchange of good practices
KA203 - Strategic Partnerships for higher education
2020-1-R001-KA203-080388

Blue4Seas

MBNA * ENSM * UL * PRU * LMA

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

WHAT WILL BE DONE?

- To determine relevant skills on marine environmental protection in accordance with the IMO and STCW requirements.
- To establish a common list of the necessary competencies, skills, and knowledge to be acquired, correlated with the needs of the labor market and the requirements of employers, business, decision-makers and other stakeholders for designing the new, innovative and multidisciplinary common curriculum on marine environment protection from pollution

TASK	DEADLINE	MEETING DATE
What should the common curriculum on marine environment protection from pollution include?	29.01.2021	04.02.20121
Which competencies, skills, and knowledge students are required to have to successfully follow the courses and implement the outcomes?		
Identifying STCW requirements and seeing if what we decided upon correlates with them.	04.03.2021	08.03.2021
Identifying labor market requirements and seeing how what we have decided can be adapted to the curriculum to meet these requirements.		
Putting the finishing touches on the list and deciding how they can be incorporated into the curriculum.	25.03.2021	29.03.2021

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

HOW?

1. Discussions on the common curriculum on marine environment protection from pollution
2. Analyses of the necessary competencies, skills, and knowledge
3. Correlation of competencies, skills, and knowledge identified with STCW requirements
4. Adapting competencies, skills, and knowledge to labor market requirements
5. Elaboration of the final list of identified competencies, skills, and knowledge, as a working basis for the common curriculum development

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

Harmonized courses to comply with STCW standards

- *“Marine environment protection “*
- *“Applied chemistry to prevent marine pollution”*
- *“Marine environment issues in port operations”*
- *“Transport and operation of dangerous goods”*

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

BENCHMARKING

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

UNIVERSITIES

- MASSACHUSETTS MARITIME ACADEMY (USA)
- MAINE MARITIME ACADEMY (USA)
- CALIFORNIA MARITIME ACADEMY (USA)
- UNIVERSITY OF TASMANIA (AUSTRALIA)
- BARCELONA SCHOOL OF NAUTICAL STUDIES (SPAIN)
- BOSPHORUS UNIVERSITY (TURKEY)
- UNIVERSITY OF AEGEAN (GREECE)
- GDYNIA MARITIME UNIVERSITY (POLAND)
- NATIONAL SUN YAT-SEN UNIVERSITY (TAIWAN)

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

UNDERGRADUTE PROGRAMS

- Coastal and Marine Environmental Science
- Department of Marine Environment and Engineering
- Global Studies and Maritime Affairs
- International Maritime Environmental Policy
- Marine Science, Safety, and Environmental Protection
- Natural Environment and Wilderness
- Nautical Science and Maritime Transport
- Scientific Research at the Faculty of Marine Engineering

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

COURSES

- Air-Sea Interaction
- Aquaculture Management
- Coastal and Transitional Ecosystems
- Coastal Ecology
- Coastal Resource MGMT
- Coastal Zone Management
- Conserving nature and landscapes
- Current environmental problems
- Earth, Climate, Life

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

COURSES

- Ecology
- Emergency Management Policy and Governance
- Environmental impact assessment
- Environmental Law
- Environmental Management
- Environmental Risk
- Environmental Science and Technology
- Environmental Science and Technology
- Evolution

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

COURSES

- Fire, Weeds and Ferals: Conserving Nature in Protected Areas
- Geoenvironment and Oceanography
- Geographic Information Science
- Geographies of Economy, Politics and Culture
- Geographies of Island Places
- Geoheritage and geotourism
- Global Climate Change
- Hazardous Material Management
- Human Health and Risk

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

COURSES

- Indigenous Lifeworlds: Story, History, Country
- International Maritime Environmental Policy
- Introduction to Global Environmental Change
- Introduction to Environmental Technology
- Introduction to Marine and Antarctic Science A
- Marine Ecology
- Marine Pollution
- Marine Pollution, Prevention and Sustainability
- Oil Spill Management
- Political Ecologies Development

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

COURSES

- Prep for Research in Marine Science
- Risk Communication
- Social Ecology
- Space, Place and Nature
- Sustainable Resource Management
- The Environmental Dimension (2)
- Theory & Practice on Environm. Impact Assessment Studies
- Understanding Earth Systems
- Waste Management

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

- MASTER DEGREE PROGRAMS

- WORLD MARITIME UNIVERSITY

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

- **SPECIALIZATION STUDIES MARITIME LAW & POLICY**
- The Law of the Sea and the Protection of the Marine Environment
- International Reaction to Environmental Externalities
- Coastal State Obligations

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

- **SPECIALIZATION STUDIES OCEAN SUSTAINABILITY, GOVERNANCE & MANAGEMENT**
- Understanding the Ocean and Human Impacts
- Governing Human Activities that Affect the Ocean
- Cross-disciplinary Tools for Ocean Sustainability, Governance & Management
- Global Ocean Governance, Multilateral Diplomacy & Negotiation
- Area-Based Management of the Ocean and Coasts

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

- **SPECIALIZATION STUDIES OCEAN SUSTAINABILITY, GOVERNANCE & MANAGEMENT**
- Understanding the Ocean and Human Impacts
- Governing Human Activities that Affect the Ocean
- Cross-disciplinary Tools for Ocean Sustainability, Governance & Management
- Global Ocean Governance, Multilateral Diplomacy & Negotiation
- Area-Based Management of the Ocean and Coasts

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

MARITIME SAFETY & ENVIRONMENTAL MANAGEMENT: IN DALIAN

- Marine environment protection standards
- Prevention and combating of marine pollution
- Human factors in maritime safety and environment protection

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

- **LLOYD'S MARITIME ACADEMY (WMU Ortak Program)**
- **Oil and Chemical Pollution**
- **Staying Ahead of the Curve - Maritime Environmental Technology, Sustainability and Challenges**

- **CERTIFICATES (Details are available)**

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

- **LLOYD'S MARITIME ACADEMY**
- **Certificate in Marine Pollution Prevention and Management**
- **MODULES. 1. Pollution in Context: Causes and Effects, Governance, Regulations and Enforcement**
- **2. Air Pollution and Greenhouse Gas Emissions**
- **3. Ballast Water and Other Marine Pollutants**
- **4. Oil Pollution and Off-Shore Activities**
- **5. Measurement and Management Systems**
- **6. Legal Issues, Including Insurance and Compensation**

- **BMC Training (AZTech Training givesthe same module)**
- 1. Marine pollution causes and effects
- 2. Ballast water and other marine pollutants
- 3. Oil pollution and offshore activities
- 4. Surveillance, monitoring, measurement and management systems
- 5. Legal issues, non-compliance with international regulations

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

- **MARINE ENVIRONMENT PROTECTION TRAINING - MARPOL / OPA 90**
- MARPOL Annexes
- Latest amendments to MARPOL
- Annex 1 discharge criteria exercise.
- Bilge and Sludge management.
- Oily water Separator (Theory and practicals)
- Oil Record Book exercise

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

- **MARINE ENVIRONMENT PROTECTION TRAINING - MARPOL / OPA 90**
- Introduction to Energy Efficiency management
- SOPEP, OPA 90 and Vessel Response Plan and VGP
- Waste Management Planning
- Antifouling systems
- Ballast Water Management

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

- **PETROKNOWLEDGE GENERAL AWARENESS WORKSHOP**
- Fundamentals
- Management Systems and Marine Pollution
- Ship-Source Marine Pollution Management
- Proactive Approaches and Post-Event Strategies
- Topical Issues

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

- **MARPOL TRAINING COURSES**
- **STCW Environment Related Training for Seafarers - IMO STCW Courses**
- Marine Environment and Energy Efficient Operations Courses for Seafarers, Management and Other Stakeholders
- **STCW Environment Related Courses**
- Energy Efficient Operation of Ships **(2 day course)**
- Marine Environmental Awareness **(2 day course)**

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

Skills (from the university web sites)

- Adaptation to new situations
- Autonomous or teamwork with a presentation
- Basic introductory knowledge for fieldwork planning
- Decision-making
- Introduction to environmental concepts
- Production of free, creative and inductive thinking
- Project planning and management
- Respect for the natural environment
- Search for, analysis and synthesis of data and information, with the use of the necessary technology

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

Skills (from the university web sites)

- Teamwork.
- Work in an interdisciplinary environment.
- Working independently
-

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

Future skills with respect to environmental regulations *

- A continuous stream of new technologies is being introduced in the shipping industry to ensure that it meets new operational limitations set by environmental regulations. For example, leading shipping companies (Maesk CMA CGM, MSC and Hapag-Lloyd) team up to drive emission reductions faster than regulators. The CO2 reduction targets and new sulphur emission limits are key drivers of these technology developments. As part of regulatory compliance, a number of technologies are likely to be improved - for example, hydrodynamics, new fuel and energy sources, logistics, and methods for effective harbour operations. In addition, systems to reduce emissions and particulate matter in harbours and the proximities to cities will be important.

- *https://www.skillsea.eu/images/Public_deliverables/D1.1.3%20Future%20Skills%20and%20competence%20needs_final%20version(1).pdf

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

Future skills with respect to environmental regulations

As a consequence of the above changes, the following competences and capabilities will then be needed:

- Logistics and optimisation methods to achieve high utilisation of ships
- Advanced routeing, considering wind, current, and waves
- Operation of complex hybrid and zero emission machineries
- Calculation and documentation of emissions
- Control centres supporting ships with optimisation services, remote control and autonomy
- Performance management systems