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Italy – Croatia

MareSkill

INTERREG ITALY-CROATIA
Programme 2021 – 2027

Smart and innovative blue skills for competitive blue economy MareSkill

D.2.1.1. Developed education program and materials

www.italy-croatia.eu/web/mareskill

Project identification

Project id: ITHR0200456

Name of the lead partner organization: Veleučilište u Šibeniku

Name of the lead partner organization in English: Polytechnic of Šibenik

Project title: Smart and Innovative Blue Skills for Competitive Blue Economy

Project acronym: MareSkill

Programme priority: Sustainable growth in the Blue Economy

Specific objective 1.2: Developing skills for smart specialization, industrial transition and entrepreneurship

Project duration in months: 30

Work package: WP2 Implementation of pilot courses

Activity title: A 2.1 Designed program, education materials and methods of pilot courses for upskilling and reskilling according to the analysis in entrepreneurial discovery process

Delivery period: Period 2,3, month 7-18

Activity description: Based on the blue skill gap and round tables regarding methods of education, we will prepare a comprehensive program and educational materials for the pilot courses. We will conduct Workshop on designing effective training programe with 15 participants coming from PPs. The program will include a syllabus, lesson plans, and assessments covering defined blue economy topics and sectors such as aquaculture, Nautical tourism, Maritime technologies and their application in the blue economy sectors, Environmental protection, technology transfer, entrepreneurship initiative, and innovation management and clearly outline the course's learning objectives, topics, and schedule. The lesson plans will provide a detailed outline of each class, including the learning activities, materials needed, and time frame. The new education method should be selected based on the needs of the target audience and the resources available for the program. The target audience will be selected based on act 1.1. and 1.2.- with a focus on companies in defined blue economy sectors and bachelor&graduate students. Min 40 participants.

Partner responsible: VUS and UNITS with the assistance of AO1 and AO2

Dissemination level: Public

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Status: Final

Version: V1

Date: 01/03/2025

Glossary

ARTI - Regional Agency for Technology and Innovation, Bari, Italy

CCE - Croatian Chamber of Economy, Zagreb, Croatia

EDP - Entrepreneurial Discovery Process (*A method used to identify and develop new economic activities through stakeholder engagement and evidence-based research*.)

EU - European Union

FF - Fenice Foundation NGO, Padua, Italy

OGS - National Institute of Oceanography and Applied Geophysics, Trieste, Italy

UN - United Nations

UNIRI - University of Rijeka, Rijeka, Croatia

UNITS - University of Trieste, Trieste, Italy

UNIZD - University of Zadar, Zadar, Croatia

VUS - Polytechnic of Šibenik, Šibenik, Croatia

Content

Introduction

The MareSkill project aims to address the **critical skills** and **competency gaps** within the **Blue Economy** by developing **innovative educational programs and materials**. Focusing on fostering **sustainable practices, advanced technological applications, and entrepreneurial skills**, the project is designed to meet the current and emerging demands of key maritime and coastal sectors.

At the heart of the project is the development of **seven pilot courses**, each tailored to a specific area within the Blue Economy, such **as nautical tourism, aquaculture, and maritime technologies**. These courses are designed to equip learners with the knowledge, skills, and competencies required to thrive in an increasingly dynamic and globalized industry.

The project integrates the **European Qualifications Framework (EQF) methodology** to ensure the highest standards of education and alignment with European policies. This standardized approach ensures that the learning outcomes are clearly defined, measurable, and internationally recognized, promoting both employability and mobility across EU member states.

Additionally, the **Entrepreneurial Discovery Process (EDP) methodology** was applied during the preparatory phase to identify specific sectoral needs and skill gaps. By engaging a diverse range of stakeholders through the **Quadruple Helix model—academia, industry, government, and civil society**—the project aligns its educational programs with **real-world demands**.

Through the incorporation of micro-credentials, the MareSkill project also embraces a flexible and modular approach to learning, catering to a wide range of learners, from students to industry professionals. These efforts position MareSkill as a forward-thinking initiative that contributes to the development of a sustainable, skilled workforce for the Blue Economy.

Overview of Developed Education Programs

The MareSkill project includes the development of **seven carefully designed education programs** (courses), each addressing critical areas of the Blue Economy. These courses aim to provide learners with sector-specific knowledge and skills while fostering innovation, sustainability, and employability. Each course is led by a dedicated project partner, ensuring a focused and expert-driven approach.

The course on Nautical Tourism, led by UNIZD, emphasizes sustainable practices and innovations in marine and coastal tourism, equipping learners to balance economic growth with environmental stewardship. Similarly, the Aquaculture course developed by ARTI delves into techniques and technologies for sustainable fish farming and marine cultivation, preparing participants to address the challenges of this growing industry.

The Sustainable Environmental Protection in Coastal and Marine Areas course, a joint effort by VUŠ and OGS, addresses the challenges of preserving marine ecosystems. It explores practical solutions for mitigating human impact and maintaining biodiversity, which is critical for long-term environmental sustainability.

UNITS leads **the course on Maritime Technologies**, which introduces advanced technological applications in the maritime industry. This includes cutting-edge innovations such as autonomous systems and data analytics, enabling learners to stay at the forefront of industry developments.

The Digital and Circular Transformation in the Blue Economy program, led by the Croatian Chamber of Economy (CCE), is designed for industry professionals, undergraduate and graduate students, business representatives, NGOs, and public authorities. The program aims to equip participants with the knowledge and skills needed to implement digital technologies and circular economy principles within the Blue Economy sectors.

The Quality Aquaculture - Management and Sustainable Practices program, developed by the University of Bari "Aldo Moro" and ARTI – Regional Agency for Technology, Technological Transfer, and Innovation, is designed for aquaculture professionals, students, and entrepreneurs. It provides essential knowledge and practical skills in sustainable aquaculture production, environmental responsibility, and innovative technologies.

The Essentials of Technology Transfer and Commercialization program, led by the University of Rijeka, Faculty of Biotechnology and Drug Development, is designed for professionals, researchers,

and entrepreneurs driving innovation in the Blue Economy. The program equips participants with the skills to identify, assess, and commercialize new technologies in marine and maritime industries.

Finally, FF leads **the course on Blue Horizon Accelerator for Next-Gen Economies** (Entrepreneurship initiative and funding, innovation management), providing participants with the skills needed to foster entrepreneurship and manage innovation effectively in Blue Economy industries.

By assigning clear responsibilities to project partners, the MareSkill project ensures that each course benefits from specialized expertise. This collaborative structure, combined with alignment to the EQF, guarantees the development of high-quality, internationally recognized educational programs that address current and future needs within the Blue Economy.

Application of the EDP

The MareSkill project employs the EDP methodology as a foundational approach for identifying skill gaps and shaping educational programs. By leveraging this participatory framework, the project ensures that its outcomes are deeply aligned with the real-world needs of the Blue Economy sectors, providing targeted and relevant training solutions.

The EDP methodology focuses on engaging a diverse range of stakeholders through the Quadruple Helix model, which includes academia, industry, government, and civil society. This multi-perspective approach facilitates a comprehensive understanding of the sector-specific challenges and opportunities within industries such as aquaculture, nautical tourism, maritime technologies, and environmental protection.

Through structured interviews, roundtables, and data collection activities, the EDP methodology provides a detailed mapping of the competencies required in the Blue Economy. This includes insights into existing skill gaps, emerging technological demands, and areas where current educational offerings fall short. For instance, the process highlighted the growing need for digital transformation expertise and sustainable practices across various sectors.

The findings from the EDP process were instrumental in shaping the design and content of the MareSkill pilot courses. By aligning the course objectives with the specific needs identified through stakeholder engagement, the project ensures that its educational offerings are both practical and future-proof. For example, the need for innovative solutions in resource management directly informed the development of courses such as Circular Economy and Digital Transformation.

A key feature of the EDP methodology is its ongoing collaboration with stakeholders. By continuously engaging partners and industry representatives, the project validates the relevance of its educational programs and ensures alignment with labor market needs. This iterative process not only enhances the quality of the courses but also fosters stronger partnerships and industry support.

The integration of EDP within the MareSkill project provides a robust evidence-based foundation for the development of its educational programs. By addressing both immediate and long-term skill demands, the methodology ensures that the project's outcomes contribute meaningfully to the growth and sustainability of the Blue Economy workforce.

Micro-credentials as a Learning Framework

The MareSkill project incorporates micro-credentials as a core learning framework to address the evolving needs of the Blue Economy workforce. Micro-credentials offer a flexible, modular approach to education, allowing learners to acquire specific, industry-relevant skills in a shorter timeframe compared to traditional degree programs. This framework aligns with the project's goals of fostering lifelong learning, promoting employability, and supporting innovation across sectors.

Designed at EQF Level 5, these micro-credentials target intermediate to advanced vocational skills, providing a bridge between non-formal learning and higher education pathways. Their structure enables participants to focus on particular competencies, such as digital transformation, sustainability practices, or entrepreneurial management, while maintaining the flexibility to pursue further qualifications in the future.

One key advantage of micro-credentials is their modularity, which allows learners to combine various courses and stack their achievements towards broader qualifications. For instance, a learner might complete modules in Circular Economy, Digital Transformation, and Entrepreneurship, which together form a comprehensive foundation for leadership roles in the Blue Economy. This approach not only enhances accessibility for diverse learner groups but also encourages interdisciplinary knowledge and cross-sectoral collaboration.

Micro-credentials developed under the MareSkill project are closely aligned with industry demands. By engaging stakeholders through the EDP methodology, the project ensures that the learning outcomes are directly applicable to real-world challenges. The short, targeted nature of these programs makes them particularly suitable for professionals seeking upskilling opportunities and for individuals outside traditional educational systems.

Furthermore, the adoption of micro-credentials enhances the portability and recognition of qualifications across EU countries. As they adhere to the EQF, these credentials facilitate mobility, enabling learners to leverage their skills in different sectors and regions of the Blue Economy.

The use of micro-credentials within the MareSkill project represents a forward-thinking approach to education. It empowers learners with the tools to adapt to rapidly changing industry demands while fostering a culture of continuous skill development. By bridging gaps in traditional education systems and focusing on industry-relevant competencies, this framework ensures that the Blue Economy workforce is equipped to meet both current and future challenges.

Interdisciplinary and Sector-Specific Alignment

The MareSkill project exemplifies a balanced approach to addressing the specialized and interconnected needs of the Blue Economy. Each of the seven pilot courses is designed with a sector-specific focus while incorporating interdisciplinary elements to ensure broader applicability and impact. This alignment ensures that the project not only addresses current skill gaps within individual sectors but also fosters collaboration and knowledge transfer across industries.

The interdisciplinary approach is particularly evident in courses that tackle shared challenges, such as sustainability and digital transformation. For example, the Circular Economy course integrates principles relevant to aquaculture, nautical tourism, and maritime technologies, creating a common foundation for learners from diverse backgrounds. Similarly, the Digital Transformation course offers tools and strategies that are adaptable across multiple sectors, encouraging learners to apply these competencies in varied contexts.

By addressing sector-specific needs, the project ensures that each course is deeply relevant to its target industry. Courses such as Maritime Technologies and Environmental Protection are tailored to the unique demands of maritime sectors, providing learners with cutting-edge insights and practical skills. At the same time, this specialization is complemented by the broader themes of entrepreneurship and innovation management, which equip learners with transversal skills applicable to any area of the Blue Economy.

This dual focus on sectoral depth and interdisciplinary breadth supports the development of a flexible, adaptive workforce capable of navigating complex challenges. Moreover, by aligning course objectives with the EQF, the project ensures that learning outcomes are not only relevant but also standardized and recognizable across EU member states.

Through this holistic approach, the MareSkill project positions itself as a driver of innovation and sustainability in the Blue Economy. It fosters a workforce that is both specialized and versatile, ready to meet the demands of an evolving global market.

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MareSkill

Program Title:

Sustainable Practices in Nautical Tourism with Emphasis on Skippers and Environmental Protection

General

Program Title:

Sustainable Practices in Nautical Tourism with Emphasis on Skippers and Environmental Protection

Name and type of Organisation:

University of Zadar, Maritime Department

Language

Croatian, English

Delivery method

Hybrid delivery: In-person with online components

Target audience

The program is designed for students, researchers, skippers, professionals, staff in marinas, staff in charter, and individuals interested in Nautical tourism.

Entry qualification

EQF Level 4

Participants should have a qualification equivalent to at least EQF Level 4. No specific formal qualifications are mandatory. Prior basic knowledge or background in Nautical tourism sector is beneficial but not required.

Duration

50 hours

Sector

Nautical tourism

The program focuses primarily on the Nautical Tourism sector within the Blue Economy, emphasizing sustainable development, environmental protection, and the role of skippers in enhancing the Nautical tourism sector. The program aims to provide participants with practical knowledge and skills related to the nautical tourism ports and vessels, environmental aspects of nautical tourism and the importance of education and certifications of skippers.

Qualification Framework Level

EQF Level 5

EQF Level 5 indicates that this micro-credential is suitable for a wide range of participants, including students, professionals, lifelong learners, and individuals without formal higher education backgrounds who wish to acquire specialized knowledge and practical skills relevant to the Blue Economy sectors. The level ensures accessibility and flexibility, supporting professional development, career advancement, or requalification opportunities.

Credit Allocation

4 ECVET / ECTS credits

The micro-qualification corresponds to approximately 100 hours of total workload, including lectures, practical activities, case studies, assessment, and individual study.

Learning Outcomes

At the end of the course, participants will have acquired essential knowledge and practical skills in the blue economy and nautical tourism sector, including the development and environmental impact of nautical tourism. They will understand the classification and characteristics of nautical tourism ports and vessels, as well as the role of skippers in enhancing the sector. Participants will be equipped with the skills needed to address sustainable development challenges, propose environmental protection measures, and assess wild mooring issues. Additionally, they will gain insights into professional skills for skippers, including education and certification, and the role of simulation-based learning in promoting sustainability.

Module 1: Blue Economy and the Nautical Tourism Sector

Credit Value: 1 ECVET / ECTS credit

- Define and explain the basic concepts related to the blue economy and nautical tourism.
- Understand the importance of nautical tourism as an economic activity.
- Understand the basic definitions and classifications of nautical tourism.
- Compare the various categories of nautical tourism.
- Identify the factors influencing the development of nautical tourism.
- Analyze trends and comparative examples of the development of nautical tourism worldwide.
- Understand the specifics of the development of nautical tourism in Croatia.

Module 2: Ports and Vessels in Nautical Tourism

Credit Value: 1 ECVET / ECTS credit

- Identify the different types of ports within the nautical tourism sector.
- Understand the categorization of nautical tourism ports.
- Compare various types of vessels and their characteristics.
- Evaluate the importance of moorings in nautical tourism.
- Understand the basics of motor yachts, sailing boats, and other vessels in nautical tourism.

Module 3: Nautical Tourism in Environmental Protection

Credit Value: 1 ECVET / ECTS credit

- Analyze the current situation and the impact of nautical tourism on the marine environment.
- Understand the importance of environmental protection within the context of nautical tourism.
- Evaluate the environmental impact of nautical tourism and propose measure for protection.
- Understand the basic concepts of sustainable development in nautical tourism.
- Identify the challenges in sustainable development of nautical tourism.
- Evaluate environmental impact of wild moorings.

Module 4: The Role of Skippers in Enhancing the Nautical Tourism Sector

Credit Value: 1 ECVET / ECTS credit

- Understand the key role of skippers in the development and sustainability of nautical tourism.
- Identify the professional and key skills required for skippers.
- Understand current practices related to certification and educational programs for skippers.
- Analyze the educational programs, certifications, and short courses relevant to skippers.
- Evaluate the use of simulators to educate skippers and promote sustainable nautical tourism.

Module 5: On-site visit and group activities

Credit Value: 1 ECVET / ECTS credit

- Apply knowledge gained throughout the course in a practical setting during a simulator exercise.
- Observe and analyze real-world nautical tourism operations during an on-site visit to a marina or cruise port in Zadar County.
- Collaborate effectively in groups to conduct a SWOT analysis of the assigned site or operation, identifying strengths, weaknesses, opportunities, and threats.
- Present findings from the SWOT analysis and group work in a clear and structured presentation.

Teaching and Learning Methods

- **Guided Learning**: [30 %]
  Structured lessons, interactive lectures, case studies, group discussions, expert sessions, and audiovisual materials.
- **Work-Based Learning**: [30 %]
  Practical tasks, examples from industry practices, simulations, and scenario-based activities, and field visit.

- **Independent Activities**: [40 %] Self-directed study, SWOT analysis preparation, and preparation of seminar.

Course Content

Module 1: Exploring the Blue Economy and the Nautical Tourism Sector

- Blue Economy
- Nautical Tourism Sector
- Importance of Nautical Tourism as an Economic Activity
- Nautical Tourism
  Basic Concepts and Definitions
  Classification of Nautical Tourism
- Development of Nautical Tourism
  Factors Influencing the Development of Nautical Tourism,
  Development of Nautical Tourism Worldwide: Analysis of Selected Examples
  Development of Nautical Tourism in Croatia

Module 2: Ports and Vessels in Nautical Tourism

- Ports for Nautical Tourism
  Types and Characteristics of Nautical Tourism Ports
  Types and Characteristics of Nautical Tourism Vessels
  Requirements and Categorization
  Moorings
- Vessels in Nautical Tourism
  Types and Characteristics of Nautical Tourism Vessels
  Motor Yachts, Sailing Boats, Other Vessels
  Excursion Boats

Module 3: Environmental Protection of Nautical Tourism

- Marine Environment Protection
- Analysis of the General Situation
- Impact of Nautical Tourism on the Marine Environment

- Sustainable Development of Nautical Tourism
  Basic Concepts
  Challenges of Sustainable Development
- Wild Moorings
  Situation Analysis
  Environmental Impact
  Recommendations for Improvement

Module 4: Enhancing Nautical Tourism through Skippers' Role

- Professional skill and Key Competencies for Skippers
  Education
  Certification
  Analysis of Current Practices for Skippers education and certification in EU and Croatia
  Role of Short Courses
- Simulation-Based Learning for the Sustainable Nautical Tourism Sector

Module 5: On-site visit and group activities

- Simulator excercise
- On-site visit to one of marinas in Zadar County or to Cruise Port
- Group work on swot analysis
- Seminar presentation

Learning materials

Primary Literature

(All primary sources will be accessible through the LMS.)

- Project-developed materials – Presentations and handouts covering key concepts in Nautical toursim and environmental responsibility.
- Peer-reviewed journal articles – Research papers on nautical tourism, sustainable practices, and environmental impact.

Supplementary Readings and Resources

(Additional materials are available on the LMS in the form of guides, links, and recommended readings.)

- Scientific articles and case studies on nautical toursim sector.
- Relevant EU and Croatian legislation related to nautical tourism and marine environmental protection.Relevant EU legislation.
- Case studies and reports on the development of nautical tourism in different regions and its impact on environment.
- Conference materials and presentations related to best practices in the nautical tourism sector.

Learning Tools and Media

(All primary sources will be accessible through the LMS.)

- Digital collaboration tools - discussion forums, quizzes, and assignments to foster engagement.
- Multimedia materials (photos, short recordings, summaries)
- Simulator exercise – Hands-on learning hrough a simulation-based exercise.

Assessment Methods

Topic-Based Quizzes (60%)

- Short assessments at the end of module. These quizzes reinforce key concepts and maintain continuous engagement.
- The final written report must include all modules.

Practical Fieldwork and Final group presentations (40%)

- Participants will visit a local marina or cruise port and collect real-world data related to the environmental conditions, mooring facilities, and types of vessels. Participants will analyze how the current state of the site aligns with sustainable practices and regulations in the sector. Each group will present their findings, discussing the environmental impact, any identified issues, and proposed sustainable solutions.
- Participants will work in small research teams, each assigned a nautical toursim development example of one Country, County or region. Each group will conduct SWOT analysis.

Grade

***Instruction**: Indicate if the assessment will result in a grade. Choose from below:*

- ***Yes**, the assessment will result in a grade using an evaluation system compliant with European education standards:*
  - *A (90-100%): Exemplary demonstration of entrepreneurial skills with innovative application to blue economy case studies*
  - *B (75-89%): Proficient execution of strategic frameworks with minor operational gaps*
  - *C (60-74%): Basic competency in core methodologies requiring supervision*
  - *D (50-59%): Partial achievement requiring reassessment of specific modules*
  - *F (<50%): Insufficient demonstration of learning outcomes*

Resources Required

- Stable internet connection.
- PDF Reader (e.g., Adobe Acrobat Reader, Foxit) – for accessing course materials.
- Web Browser (e.g., Chrome, Firefox)—ensure full compatibility with the LMS for seamless navigation.
- Simulator Transas NTPRO 5000

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (4 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The effectiveness of the program will be assessed through participant feedback and instructor evaluation. At the end of the course, participants will complete surveys or questionnaires to provide insights into the course content, teaching methods, and overall learning experience. Instructors will engage experts in the field in peer review sessions to reflect on teaching effectiveness and identify areas for improvement.

Quality assurance

This course has been subjected to internal quality assurance processes. The project consortium has reviewed and validated the program structure, learning outcomes, assessment methods, and teaching materials to ensure alignment with educational standards and industry relevance. Continuous monitoring and participant feedback contribute to ongoing improvements.

References

[1.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[2.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[3.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research ReportNo.6.1). Zenodo. DOI:10.5281/zenodo.13850890

[4.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[5.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

Interreg

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Italy – Croatia

MareSkill

Program Title:

Sustainable Environmental Protection in Coastal and Marine Areas

General

Program Title:

Sustainable Environmental Protection in Coastal and Marine Areas

Name and Type of Organisation

Šibenik University of Applied Sciences (Croatia) and OGS – National Institute of Oceanography and Applied Geophysics (Italy)

Language

English – Croatian – Italian

Delivery method:

Hybrid delivery: In-person, on-site fieldwork, and online components

Target audience

Students, professionals, researchers, environmental practitioners, policymakers, and technicians interested or already engaged in marine ecosystems, ecological sciences, conservation, marine resource management, or related fields. Prior knowledge in environmental science, biology, or ecology is beneficial but not mandatory.

Entry qualification

EQF Level 4

Participants should ideally possess foundational knowledge in natural sciences, environmental sciences, biology, ecology, or related disciplines, typically gained through prior formal education or practical experience. No specific formal qualifications are mandatory, although familiarity with basic laboratory practices or fieldwork techniques will enhance the learning experience. The micro qualification is open to students, professionals, and interested individuals motivated to expand their knowledge of marine ecosystems and environmental monitoring methods.

Duration

75 hours

Sector

Transversal Skills

The program strongly emphasizes monitoring, analysis, and protection of marine ecosystems, thus providing transversal knowledge and skills applicable across various Blue Economy sectors. The acquired competencies related to ecosystem health monitoring, physicochemical water analysis, species identification, and legislative framework knowledge (EU Environmental Code, Barcelona Convention, national environmental legislation) are inherently transferable, enabling practical application in multiple professional contexts within the Blue Economy.

Qualification Framework Level

EQF Level 5

EQF Level 5 indicates that this micro-credential is suitable for a wide range of participants, including students, professionals, lifelong learners, and individuals without formal higher education backgrounds who wish to acquire specialized knowledge and practical skills relevant to the Blue Economy sectors. The level ensures accessibility and flexibility, supporting professional development, career advancement, or requalification opportunities.

Credit Allocation

3 ECVET / ECTS credits

The micro-qualification corresponds to 3 ECVET / ECTS credits, reflecting a total learner workload of approximately 75 hours, including instruction, assessment, self-study, and practical activities.

Learning Outcomes

At the end of the course, students will understand and be able to apply key concepts related to marine ecosystems and the primary monitoring methods used to assess their health status. Specifically, they will integrate effective techniques for analyzing the physicochemical composition of water and for identifying and distinguishing marine animal and plant species.

Additionally, students will be able to independently operate the most appropriate tools and sampling protocols for specific scenarios, such as species identification and physicochemical water analysis, using both manual instruments and autonomous devices.

To ensure a sustainable approach to monitoring, students will also acquire expertise in the legislation governing the protection of marine areas at both European and national levels. They will be able to interpret and apply provisions from the European Environmental Code, the Barcelona Convention, and relevant national legislative decrees, aligning them with the environmental objectives of the European Union.

Module 1: Marine Ecosystem Monitoring and Methods

Credit Value: 1 ECVET / ECTS credit

- Formulate fundamental ecological concepts related to marine ecosystems, mainly focusing on energy flow and nutrient circulation
- Classify diverse marine habitats and correlate specific native species with the abiotic ecological factors of those habitats
- Identify and categorize endemic, endangered, and invasive alien species (IAS) in each location.
- Develop a management plan for endangered species and habitat types, considering existing anthropogenic impacts (such as pollution control and management) and climate change mitigation strategies.
- Describe and apply appropriate methods and techniques for water and biological sampling and monitoring.

Module 2: Legislation for Marine Environmental Protection

Credit Value: 1 ECVET / ECTS credit

- Analyse and compare national and international legislation related to marine ecosystems and Marine Protected Areas (MPAs)
- Apply legal frameworks to on-site marine pollution management.
- Interpret and summarize key aspects of the EU Marine Strategy Framework Directive, with a specific focus on the Barcelona Convention regarding the Mediterranean region, particularly the Adriatic Sea.

Module 3: On-Site Visit and Activities

Credit Value: 1 ECVET / ECTS credit

- Set up a fieldwork station with the necessary equipment and tools.
- Prepare and assemble the required sampling documentation.
- Collect seawater samples for on-site rapid analysis and further ex-situ laboratory experiments.

- Collect indicator biota samples for on-site identification and further ex-situ biological analysis.

Teaching and Learning Methods

- **Guided Learning**: [20 %]
  Module 1, Module 2, and partially Module 3 will include 15 hours of lectures. Professors and industry specialists will introduce key concepts using interactive teaching methods, including slides, case studies, and audiovisual materials.
- **Work-Based Learning**: [30 %]
  Module 3 includes practical, hands-on activities conducted in the field, including water sampling, data collection, and fundamental environmental analysis. Students will learn to apply monitoring techniques in real-world conditions.

- **Independent Activities**: [50 %]
  Students will engage in self-directed learning, which includes studying the provided course materials, reading relevant scientific literature, and preparing assignments or reports based on fieldwork observations.

Course Content

Module 1: Marine Ecosystem Monitoring and Methods

- Ecology and Environmental Protection
  - Basic ecological principles
  - Marine habitats: ecological factors and inhabitants of open ocean, high seas, coastal zones, and seabed zones
  - Human impact on the marine environment: contemporary ecological challenges
  - Effects of climate change on marine and coastal ecosystems
  - Marine waste management and pollution control strategies
- Sampling and Monitoring Methods
  - Soft-bottom benthic sampling
  - Hard-bottom benthic sampling
  - Plankton sampling
- Laboratory Techniques for Marine Community Identification
  - Sieve analysis
  - Optical stereo microscope
  - Inverted optical microscope
- Physicochemical Analysis of Water Properties
  - CTD (Conductivity, Temperature, Depth)
  - ADCP (Acoustic Doppler Current Profiler)

Module 2: Legislation for Marine Environmental Protection

- EU Marine Strategy and Sustainable Development Goals (SDGs)
- Barcelona Convention and Legal Framework for the Adriatic Sea
- Marine Protected Areas (MPAs) and Conservation Policies
- National and EU Regulations on Marine Environmental Protection

Module 3: On-Site Visit and Activities

- Fieldwork Preparation and Site Orientation
  - Overview of the Marine Protected Area (MPA) and its ecological significance

    - Review of legal frameworks governing the MPA (national and EU regulations)
    - Organized fieldwork stations and distributed research tasks
- Marine Ecosystem Sampling and Monitoring Techniques
    - Water sampling using Niskin bottles for physicochemical analysis
    - Plankton collection using plankton nets for biodiversity assessment
    - Soft-bottom benthic sampling using Ekman Grab, Van Veen Grab, and Corers
    - Hard-bottom benthic sampling using scraping techniques and suction devices ("Sorbona")
- Data Collection and Processing
    - On-site measurement of temperature, salinity, and other water quality parameters using CTD
    - Profiling of water currents using ADCP (Acoustic Doppler Current Profiler)
    - Sorting and preliminary classification of collected biological samples
- Legal Compliance and Environmental Management in Practice
    - Practical application of EU Marine Strategy Framework Directive principles
    - Assessing compliance with Barcelona Convention requirements
    - Identifying key conservation and management challenges in MPAs
- Final Field Report and Data Interpretation
    - Prepare fieldwork documentation and reporting procedures
    - Discussion of results in the context of sustainable marine resource management
    - Reflection on policy implications and future conservation strategies

Learning materials

Primary Literature:

- Project-developed presentations and handouts covering key concepts in marine ecosystem monitoring, sampling techniques, and environmental legislation.
- Radić Lakoš, T. (2022). Environmental Management in Tourism. Šibenik: Veleučilište u Šibeniku (selected chapters).
- Dudley, N. (ed.) (2008). Guidelines for Applying Protected Area Management Categories. IUCN.

Supplementary Readings and Resources:

- Selected scientific articles on marine environmental protection and conservation strategies.
- Relevant EU and international legislation, including the Marine Strategy Framework Directive and Barcelona Convention.
- Case studies and reports on Marine Protected Areas (MPAs).

Learning Tools and Media:

- Lecture slides and educational videos covering key concepts.
- Sampling instrumentation for hands-on fieldwork (e.g., Niskin bottles, CTD, plankton nets, sediment cores).
- Online resources and databases for marine ecosystem analysis.

Assessment Methods

The assessment will follow an Inquiry-Based Learning (EBL) approach, encouraging students to collaboratively explore, analyze, and propose solutions to real-world marine conservation challenges. Evaluations will be based on group research projects, practical fieldwork performance, and final team presentations, all conducted under the supervision of a mentor.

Group Research Project – Marine Protected Area (MPA) Proposal (50%)

- Students will work in small research teams, each assigned a coastal or marine area in the Adriatic Sea.
- Teams will conduct an evidence-based feasibility study under the guidance of a mentor to establish a marine protected area (MPA).
- The final written report must include:
  - Legal framework analysis (EU directives, national laws, Barcelona Convention).
  - Ecological assessment (species diversity, habitat vulnerability, and pollution risks).
  - Monitoring and management strategies (sampling protocols, conservation actions).
  - Teams will submit the proposal for peer review, simulating a real-world policymaking process.

Practical Fieldwork and Data Analysis (30%)

- During the on-site visit, students will work in groups to collect and analyze marine environmental data.
- Mentors will evaluate teamwork, data accuracy, and correct use of sampling tools (e.g., Niskin bottles, CTD, plankton nets).
- Groups will compare field observations with existing regulations and conservation practices to develop real-world solutions.

Final Group Presentation and Discussion (20%)

- Each team will present their findings and MPA proposal in a short oral presentation, addressing potential policy implications.
- The evaluation will focus on:
  - Scientific reasoning and clarity of argumentation
  - Effective teamwork and division of responsibilities
  - Engagement in discussion and response to feedback

Resources Required

- Access to computers with an internet connection is recommended for research and report preparation.
- Learning materials and resources, including lecture slides, scientific articles, legislation documents, and video tutorials, will be provided through the learning management system (LMS).
- The sampling and monitoring equipment (e.g., Niskin bottles, plankton nets, sediment cores, and CTD sensors) will be available during the on-site visits.
- Consumable materials (e.g., reagents for water analysis, sample containers, protective gear) will be provided at field locations as part of practical activities.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (3 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The program's effectiveness will be assessed through **participant feedback** and **instructor evaluation**. At the end of the course, participants will complete a survey to provide insights into the content, teaching methods, and overall experience. Instructors will also engage in peer review sessions to reflect on teaching effectiveness and identify areas for improvement. This approach ensures continuous enhancement of the program based on honest feedback.

Quality assurance

This program **has been subjected to internal quality assurance processes**. The project consortium has reviewed and validated the program structure, learning outcomes, assessment methods, and teaching materials to ensure alignment with educational standards and industry relevance. Continuous monitoring and participant feedback contribute to ongoing improvements.

References

[6.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[7.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[8.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research Report No. 6.1). Zenodo. DOI:10.5281/zenodo.13850890

[9.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[10.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

Interreg

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Italy – Croatia

MareSkill

Program Title:

Sustainability and Digitalization in the Blue Economy

General

Program Title:

Sustainability and Digitalization in the Blue Economy

Name and Type of Organisation

University of Trieste (Italy)

Language

English (with support in Italian terminology if needed)

Delivery method

Hybrid (combination of in-person sessions, on-site fieldwork, and online learning)

Target audience

A broad range of learners interested in blue economy innovation, including undergraduate students, recent graduates, industry professionals, maritime sector employees, entrepreneurs, unemployed individuals seeking upskilling, and those in career transition.

Entry qualification

EQF Level 4

Prior experience or background in marine or maritime fields is not mandatory, but basic digital literacy and an interest in sustainability are recommended.

Duration

60–75 hours total learner engagement

Sector

Blue Economy (transversal skills in maritime sustainability and digital innovation)

This program offers a multidisciplinary learning experience focused on digital technologies and sustainable practices in marine and maritime contexts. Through three modules, participants explore

cutting-edge tools for environmental monitoring, strategies for decarbonizing naval transport, and real-world applications via field visits. The curriculum is designed to provide practical knowledge and skills that can be applied in various sectors of the blue economy, including ports, shipping, coastal management, and marine research. By the end of the program, learners will be equipped to contribute to innovation and sustainability initiatives in the blue economy, bridging theoretical concepts with hands-on practical experience.

Qualification Framework Level

EQF Level 5 (Short-cycle tertiary education level, emphasizing applied knowledge and skills)

Credit Allocation

3 ECVET / ECTS credits

The micro-qualification corresponds to 3 ECVET / ECTS credits, reflecting a total learner workload of approximately 60-75 hours, including instruction, assessment, self-study, and practical activities.

Learning Outcomes

Upon successful completion, learners will have a clear understanding of the key environmental monitoring technologies applicable to the blue economy, practical insights into sustainable maritime transport strategies, and direct experience with real-world examples from relevant naval facilities. Detailed outcomes per module are provided below.

Module 1: Digital Technologies and Environmental Monitoring in the Blue Economy

Credit Value: 1 ECVET / ECTS credit

- **Identify key environmental parameters** (e.g., water quality indicators, biodiversity metrics) that are crucial for monitoring marine and coastal ecosystems in the blue economy.
- **Describe and demonstrate the use of digital monitoring tools**, including remote sensing (utilizing satellites and drones), IoT sensor networks (such as buoys and underwater sensors), and GIS mapping platforms, for tracking environmental conditions.

- **Interpret and analyze basic environmental data collected through digital means**, such as reading sensor data outputs or satellite images, to assess the health of a marine ecosystem or the impact of a maritime activity.
- **Explain how digital technologies improve environmental monitoring and decision-making**, including the benefits of real-time data, big data analytics, and machine learning applications for predicting environmental trends (e.g., detecting pollution events or changes in water parameters).
- **Discuss best practices and challenges in implementing environmental monitoring systems**, including data reliability, equipment maintenance, and integrating different data sources, and understand how effective monitoring contributes to sustainable development in sectors such as aquaculture, coastal tourism, and marine protected area management.

Module 2: Decarbonization Strategies and Sustainable Maritime Transport

Credit Value: 1 ECVET / ECTS credit

- **Understand the environmental impact of maritime transport**, including how ships contribute to air pollution (CO_2, NOx, SOx emissions) and other sustainability concerns (e.g., oil spills, ballast water, noise pollution).
- **Outline and compare key decarbonization strategies for shipping and port operations**. This includes energy-efficiency measures (such as hull design optimization and slower steaming), the adoption of alternative fuels and energy sources (like LNG, biofuels, hydrogen, ammonia, electrification, and battery power for ships), and the integration of renewable energy (e.g., wind-assisted propulsion or solar panels on ships).
- **Recognize key international and regional regulations and initiatives promoting sustainable maritime transport**. Participants should be able to briefly explain frameworks such as the IMO's MARPOL regulations (e.g. IMO MARPOL Annex VI rules on emissions), the Energy Efficiency Design Index (EEDI) and Carbon Intensity Indicator (CII) for ships, as well as EU initiatives like the EU Emissions Trading System (ETS) extension to shipping and the FuelEU Maritime directive.
- **Evaluate the benefits and drawbacks of incorporating sustainable technologies and practices into maritime transportation**. For example, learners will discuss the feasibility, benefits, and limitations of new fuel technologies, including their cost,

availability, and safety, as well as infrastructure needs such as port charging stations for electric vessels or bunkering facilities for alternative fuels.

- **Examine case studies of sustainability in maritime operations to identify the initiatives leading ports and shipping companies are implementing to reduce their carbon footprint**. Learners will analyze one or two real-world examples (e.g., a green port initiative or a zero-emission vessel pilot project) to connect theory with practical applications.

Module 3: On-Site Visit and Activities

Credit Value: 1 ECVET / ECTS credit

- **Participate in and reflect on organized site visits to one or more maritime or marine facilities**, such as a major port, an oceanographic institute, a sustainable aquaculture farm, or a shipbuilding yard. Learners will gain first-hand insight into how these organizations implement digital technologies and sustainable practices.
- **Observe and describe real-world practices related to digitalization and sustainability**. For instance, during a port visit, participants may observe digital port management systems or emissions-reduction measures, such as automated cargo handling or electric port vehicles. During a shipyard visit, they may observe modern ship design and production processes that prioritize efficiency and adhere to stringent environmental standards.
- **Connect theoretical knowledge with practical applications** by identifying examples from the field that illustrate the concepts discussed in class. After the visits, participants should be able to give concrete examples – e.g., "At the Port, we saw how a smart grid supplies shore-to-ship power, reducing docked ships' emissions, which is an example of decarbonization in practice," or "We observed water quality monitoring sensors deployed in the bay, which directly relates to our learning about digital environmental monitoring."
- **Demonstrate practical understanding through a field report or presentation**. Learners will document their observations and learning from the study visits, highlighting best practices and any challenges noted. This could take the form of a short report, a group presentation, or a discussion, thereby reinforcing their ability to analyze and communicate real-world applications of course concepts.

Teaching and Learning Methods

- **Interactive Lectures & Discussions (30%):** Each module includes instructor-led sessions (either in a classroom or via live webinar) introducing core concepts and technologies. Short lectures are combined with group discussions and Q&A sessions to encourage active participation and foster a deeper understanding of the material, rather than relying solely on rote learning. Slides, videos, and real-world examples are used to make sessions engaging and informative. (For Modules 1 and 2, approximately 5-6 hours of interactive lessons are planned per module, often divided into short sessions.)
- **Case Studies & Problem-Based Learning (30%)**: Throughout Modules 1 and 2, learners analyze case studies drawn from actual events or projects in the blue economy, such as a specific coastal monitoring project or a shipping company's decarbonization strategy. Working in small groups, participants solve problems or answer guided questions about these cases, which helps develop critical thinking and application of concepts to practical scenarios.
- **Practical Exercises (20%):** Module 1 may include hands-on tasks such as interpreting sample datasets from marine sensors or exploring an online environmental data portal. Module 2 may involve exercises such as calculating emission reductions from different fuel types or simulating decision-making processes for implementing green technologies in a shipping company. These exercises can be conducted in workshops or as take-home assignments, aiming to reinforce technical skills and understanding.
- **Field Visit & Experiential Learning (10%):** Module 3 is inherently a field-based learning method. Participants will engage in on-site learning, observing operations, and asking questions. Pre-visit briefing sessions prepare learners with background information about the site and set learning objectives for the visit. Post-visit debriefings enable learners to share their observations and relate them to the course content. This method provides invaluable experiential learning, making the subject matter tangible.
- **Self-Study and Resource Exploration (10%):** Learners are expected to devote some time to self-paced learning, which may include reading provided materials, watching recommended videos, or researching a topic of interest in more depth. This could be facilitated through an online learning platform where resources are shared and accessed. Self-study enables classroom time to focus on in-depth discussion and clarification of more complex topics, allowing learners to build foundational knowledge at their own pace.

Course Content

Module 1: Digital Technologies and Environmental Monitoring in the Blue Economy

- The Copernicus Marine Service
- Marine Environmental Indicators
- Remote Sensing and Satellite Monitoring
- Sensor Technologies (water quality sensors, weather stations)
- Data Management and Visualization Tools
- Case Studies of Digital Monitoring in Practice (monitoring a marine protected area or port water quality).

Module 2: Decarbonization Strategies and Sustainable Maritime Transport

- Port sustainability and digitalization
    - Sustainability of maritime transport and ports
    - Digitalization of ports and logistics
- Sea-Land Intermodality in Ports
- Ports and Decarbonization from an Economic Perspective: Challenges and Opportunities
    - Ports as gateways and hubs in the global supply chain
    - Environmental impact of transport means & infrastructure
    - Decarbonization in the circular economy
    - Port-City relationships: challenges and opportunities
    - Ports & industry
    - Ports & energy
- Strategies for Increasing Sustainability in Maritime Transport Towards Decarbonization of Naval Vessels
    - Introduction to sustainability in the Blue Economy

  - Pollutant emissions and their regulation
  - Strategies for emission reduction
  - Economic analysis and optimization scenarios
  - Optimization of onboard energy management
  - Environmental impacts and itinerary optimization
  - Future developments and technological innovations
- Digital Evolution of Naval Design and Production Processes
  - Introduction to digitalization in the shipbuilding industry
  - Digital tools for ship design
  - Automation and advanced manufacturing
  - Optimization of production processes
  - Sustainability and digitalization
  - Challenges and future perspectives
- Digital Transformation of Energy and Marine Systems
  - Electrical power system operation
  - New sources/new generators electrical energy management: sustainability and issues
  - Distribution and transmission networks (Italy/EU)
  - Smart grids
  - Case study: the Port of Trieste

Module 3: On-Site Visit and Activities

- Study of port infrastructures, digitalization and sustainability strategies
- Observation of production processes in the nautical industry
- Analysis of water resource management

- Study of wastewater treatment technologies
- Insights into shipbuilding and sustainability strategies

Learning materials

- **Presentation Slides and Lecture Notes**: Comprehensive slides for each module covering key concepts, diagrams (e.g., how a particular sensor network operates or how a new ship fuel system works), and summary points. These will be made available to learners for review and reference.
- **Case Study Documents**: Write-ups and data sets for the case studies used in Modules 1 and 2. For example, a case study packet might include a scenario description and accurate data from a marine monitoring project or a summary of a port's green initiatives, which learners can analyze as part of class exercises or assessments.
- **Field Visit Guides**: Before Module 3's site visits, brief guides or background readings about the sites will be provided (e.g., an overview of the Port of Trieste's operations and its sustainability programs, or a short article on the research activities of a marine institute to be visited). These guides help learners prepare questions and contextualize their observations.
- **Digital Tools and Online Platforms**: Where possible, the program will utilize freely available digital tools and online platforms. For instance, learners might be pointed to an online environmental data portal (such as EMODnet or Copernicus Marine Service) to retrieve accurate ocean data, or use a simple carbon calculator tool for ships to experiment with emission scenarios. Links and instructions for these tools will be part of the materials.
- **Recommended Reading and Resources**: A curated list of articles, reports, and videos is provided for those who wish to delve deeper. This includes both official publications and industry and academic references that reinforce the course topics. For example:
    - International Guidelines: Summaries or excerpts from IMO guidelines (such as MARPOL Annex VI on the prevention of air pollution from ships) and relevant EU Strategy documents (such as the European Green Deal initiatives for maritime transport). These help participants see the regulatory context of what they learn in Module 2.
    - Industry Reports: Select recent industry whitepapers or NGO reports on digital innovation in ocean monitoring, as well as annual sustainability reports from leading ports and shipping companies. These provide real-world insight and data that can be discussed in class.
    - Academic Articles: One or two accessible research papers or review articles for each major topic. For instance, an overview article on port sustainability and performance,

or a study on barriers to port digitalization, can provide learners with evidence-based perspectives. (E.g., Lim et al. (2019) on port sustainability, or Brunila et al. (2021) on challenges in port digitalization – these exemplify the type of readings that may be offered, although instructors can choose the most relevant ones at the time of delivery.)

- Web Resources: Links to educational videos or web platforms, such as a short documentary on sustainable shipping, a TED talk on ocean technology, or the PortEconomics website for up-to-date information on port management and policy.

Assessment Methods

Assessment is continuous and designed to be practical and supportive of learning outcomes. There is no high-stakes final exam; instead, each module has its evaluation components:

- Module 1: May be assessed via a short quiz on key concepts (e.g., terminology of digital tools, understanding of monitoring methods) and a practical assignment such as a brief report interpreting a set of environmental data or a presentation on a digital monitoring case study.
- Module 2: May be evaluated through a combination of a written test or quiz on decarbonization strategies and policies and a small project (for example, a case analysis where learners propose a sustainability improvement for a hypothetical shipping company or port, using the strategies learned).
- Module 3: Assessment typically focuses on participation and reflection. Learners might be asked to maintain a field visit logbook or reflection diary during the site visits and then submit a short reflective report or give a presentation summarizing their observations and lessons learned. Active participation during visits, including engagement with questions and teamwork, can also be a criterion for assessment in this module.

Each assessment component is directly tied to the module's learning outcomes, ensuring learners demonstrate the knowledge and skills intended for that unit. Feedback will be provided by instructors on all assignments, highlighting strengths and areas for improvement to support learners' development.

Resources Required

- Access to computers with an internet connection is recommended for conducting research and preparing reports.
- Learning materials and resources, including lecture slides, scientific articles, legislation documents, and video tutorials, will be provided through the learning management system (LMS).
- Stationery supplies.
- Coach transportation for guided visits.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title
- ECVET / ECTS credit allocation (3 ECVET / ECTS credits)

Evaluation Methods

The program's success will be measured through both participant feedback and instructor assessment. Upon completing the course, participants will be asked to fill out a survey to share their perspectives on the content, instructional methods, and overall learning experience. This process enables ongoing improvements by incorporating genuine input.

Quality assurance

This program has undergone internal quality assurance procedures. The project consortium has evaluated and approved its structure, learning objectives, assessment strategies, and instructional materials to ensure compliance with educational standards and industry needs. Ongoing monitoring and participant feedback support continuous enhancement.

References

[11.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[12.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[13.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research Report No. 6.1). Zenodo. DOI:10.5281/zenodo.13850890

[14.] European Commission. The European Qualifications Framework: Supporting Learning, Work, and Cross-Border Mobility. European Commission (2018).

[15.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

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Italy – Croatia

MareSkill

Program Title:

Digital and Circular Transformation in the Blue Economy

General

Program Title:

Digital and Circular Transformation in the Blue Economy

Name and type of Organisation:

Croatian Chamber of Economy (CCE)

Language

English

Delivery method

Hybrid delivery: In-person and online components

Target audience:

The program is designed for industry professionals, bachelor and graduate students, business representatives, NGOs, and public authorities interested in digital and circular transformation within the Blue Economy sectors. No formal prerequisites are required, but foundational knowledge in sustainability, marine industries, or digital technologies is beneficial.

Entry qualification:

EQF Level 4

Participants should have completed secondary education (EQF Level 4) or possess equivalent professional experience. While no formal prerequisites are required, basic knowledge or experience related to the Blue Economy, Circular Economy, or relevant sectors is strongly recommended.

Duration

100 hours

Sector

Transversal Skills

The program aims to equip participants with general and specialized transversal competencies required to successfully implement digital and circular transformation strategies across various sectors of the Blue Economy. Participants will develop skills applicable across different marine-related industries, enhancing their ability to address sector-specific challenges effectively.

Qualification Framework Level

EQF Level 5

This program corresponds to EQF Level 5, making it suitable for participants such as students, professionals, and individuals without formal higher education who aim to acquire specialized knowledge and practical skills in digital and circular transformation within the Blue Economy sectors. This qualification level provides flexibility and accessibility, effectively supporting career development, lifelong learning, and opportunities for professional requalification or advancement.

Credit Allocation

4 ECVET / ECTS credits

The total learner workload is approximately 100 hours, including instruction, assessment, self-study, and practical activities. This ensures alignment with credit allocation standards based on workload and learning outcomes.

Learning Outcomes

Participants will learn how to integrate digital technologies and circular economy principles effectively within the Blue Economy sectors. Specifically, they will gain the following knowledge, skills, and competencies structured across four key modules.

Module 1: Integrating Digital Transformation into the Blue Economy

Credit Value: 1 ECVET / ECTS credit

- Understand the fundamental concepts and importance of digital transformation in Blue Economy sectors.
- Identify and describe key digital technologies (IoT, AI, cloud computing, blockchain) relevant to maritime and coastal industries.
- Explain how digital transformation can enhance efficiency, sustainability, and innovation across various Blue Economy sectors.
- Recognize common challenges and success factors influencing digital transformation in marine industries.

Module 2: Evaluating the Impact of Digital Tools Implementation in the Blue Economy

Credit Value: 1 ECVET / ECTS credit

- Identify and critically assess various digital tools currently applied within the Blue Economy sectors.
- Evaluate technological, regulatory, economic, and societal barriers to adopting digital tools in marine contexts.
- Propose effective strategies to overcome resistance, manage risks, and facilitate successful implementation of digital solutions.
- Analyze real-world case studies to measure the economic, environmental, and social impacts of digital transformation in marine industries.

Module 3: Understanding Circular Transformation in the Context of Blue Economy

Credit Value: 1 ECVET / ECTS credit

- Clearly define the principles, goals, and key concepts of the Circular Economy as applied to marine and coastal environments.
- Understand the structure, sectors, and dynamics of the Blue Economy, including identifying regional challenges in the Adriatic-Ionian region.

- Recognize and describe various circular business models (e.g., sustainable fisheries, marine recycling, eco-friendly shipbuilding) within Blue Economy sectors.
- Apply theoretical insights to practical examples through direct observation of successful circular economy cases during fieldwork activities.

Module 4: Technology and Innovation as Circular Transformation Drivers in the Blue Economy

Credit Value: 1 ECVET / ECTS credit

- Understand and articulate the critical role of technological innovation in enabling circularity in the Blue Economy.
- Identify and assess how innovative technologies (IoT, AI, blockchain, robotics) can support the implementation of circular economy principles.
- Analyze the benefits and limitations of advanced marine technologies (e.g., autonomous monitoring vessels, underwater robotics, sensor systems) in driving sustainability and circular transformation.
- Experience first-hand, through practical field visits, how technological solutions effectively contribute to circular practices and environmental sustainability within Blue Economy sectors.

Teaching and Learning Methods

- **Guided Learning: 30 Hours (30%)**
  - interactive lectures
  - workshops
  - guest expert sessions

- **Work-Based Learning: 30 Hours (30%)**
  - field visits
  - practical case studies
  - project-based learning activities

- **Independent Activities: 40 Hours (40%)**
  - self-directed study
  - literature review
  - preparation of research papers
  - assignments

Course Content

Module 1: Integrating Digital Transformation into the Blue Economy

- Introduction to Digital Transformation in the Blue Economy
- Key Digital Technologies enabling transformation (IoT, AI, cloud computing, blockchain)
- Digital Transformation Applications in Blue Economy Sectors:
- Sustainable Fisheries & Aquaculture: Digital tools for monitoring fish stocks, optimizing feeding processes, supply chain management, and waste reduction.
- Maritime Transport & Shipping: Improving logistics, fuel efficiency, and shipping safety through digital innovations.
- Marine Conservation & Biodiversity: Digital ecosystem monitoring, preventing overfishing, and management of marine protected areas.
- Coastal Tourism & Community Engagement: Enhancing visitor experiences and sustainability through digital platforms.
- Challenges and Barriers to Implementing Digital Transformation
- Lessons Learned: Success and failure examples from marine industries
- Future Trends and Innovations in Digital Blue Economy

Module 2: Evaluating the Impact of Digital Tools Implementation in the Blue Economy

- Overview of Key Digital Tools Used in Blue Economy
- Identifying Challenges and Barriers:
- Technological & Infrastructure Barriers: Limited digital infrastructure, implementation costs, and expertise availability.
- Data Privacy & Cybersecurity: Managing data security and privacy risks.
- Regulatory & Policy Barriers: Navigating regulatory frameworks in international contexts and global supply chains.
- Resistance to Change: Overcoming resistance in traditional marine industries and local communities.
- Strategies to Overcome Implementation Challenges:
- Capacity Building and Education Initiatives
- Public-Private Partnerships for Digital Transformation
- Policy and Regulatory Support Mechanisms
- Future Trends and Emerging Technologies

- Practical Case Studies:
  - Fisheries Management (IoT, AI applications)
  - Sustainable Aquaculture (sensor technologies, automation)
  - Maritime Transport (digital solutions for route optimization)
  - Marine Conservation (satellite imaging, analytics)
  - Coastal Tourism (innovative technologies for visitor engagement)

Module 3: Understanding Circular Transformation in the Context of Blue Economy

- Definition and Key Principles of Circular Economy
- Blue Economy: Definition, Principles, and Main Sectors
- Major Challenges Facing the Circular Blue Economy in the Adriatic-Ionian Region
- Integration of Circular Economy Principles into the Blue Economy
- Circular Business Models and Strategies:
- Sustainable fishing practices
- Marine recycling and waste reduction
- Eco-friendly shipbuilding technologies
- Fieldwork Activities: Visits to successful business cases (aquaculture farms, shipyards, etc.)

Module 4: Technology and Innovation as Circular Transformation Drivers in the Blue Economy

- The Role of Technology and Innovation in Achieving Circularity
- Smart Technologies (IoT, AI, Blockchain) Supporting Circular Principles in Blue Economy Sectors
- Technological Solutions and Innovations in Marine Industries:
- Autonomous surface and underwater monitoring vessels
- Marine robotics and remotely operated vehicles (ROVs)
- Advanced sensor and tracking systems for fisheries and conservation
- Fieldwork Activities: Site visits showcasing practical technology applications driving sustainability and circularity in marine and coastal industries

Learning materials

Primary Literature

(All primary sources will be accessible through the LMS.)

- Project-developed materials: Presentations and handouts covering key concepts in digital transformation, circular economy principles, smart technologies, and innovative business models in the Blue Economy.
- Selected textbooks and industry reports: Relevant chapters on digital innovation, circular business strategies, marine sustainability, and case studies within marine and coastal industries.
- Peer-reviewed journal articles: Focused on digital technologies (IoT, AI, blockchain), circular economy applications, marine resource management, sustainability practices, and their impact within Blue Economy sectors.

Supplementary Readings and Resources

(Additional materials are available on the LMS in the form of guides, links, and recommended readings.)

- Relevant research papers and academic articles from journals
- Reports and policy documents from institutions such as the European Commission, World Bank, UNEP
- Webinars, conference materials, and presentations related to Circular Economy, Digital Transformation, and Blue Economy

Learning Tools and Media

(All interactive tools and multimedia content will be available through the LMS.)

- Video lectures covering key topics in digital and circular transformation within Blue Economy sectors
- Recorded presentations by professors and industry experts
- Digital collaboration tools (discussion forums, quizzes, assignments)
- Multimedia materials from selected practical field visits (photos, short recordings, summaries)

Assessment Methods

The assessment will follow a practical, application-driven approach, evaluating both theoretical knowledge and real-world problem-solving skills.

Module-Based MCQs (60%)

- Each module includes 20 multiple-choice questions (MCQs), totaling 80 questions across 4 modules.
- The questions test understanding of key concepts, strategic frameworks, and financial principles relevant to entrepreneurship and business development.

Group Case Study and Presentation (30%)

- Participants will collaboratively analyze and present a practical case related to digital or circular solutions within marine industries.

Individual Fieldwork Report (10%)

- Participants will individually submit a brief report reflecting their findings from field visits focused on digital and circular economy practices in real-world contexts.

Grade

- ***Yes**, the assessment will result in a grade using an evaluation system compliant with European education standards:*
  - *A (90-100%): Exemplary demonstration of entrepreneurial skills with innovative application to blue economy case studies*
  - *B (75-89%): Proficient execution of strategic frameworks with minor operational gaps*
  - *C (60-74%): Basic competency in core methodologies requiring supervision*
  - *D (50-59%): Partial achievement requiring reassessment of specific modules*
  - *F (<50%): Insufficient demonstration of learning outcomes*

Resources Required

- Stable internet connection.
- PDF Reader (e.g., Adobe Acrobat Reader, Foxit) – for accessing course materials.
- Web Browser (e.g., Chrome, Firefox)—ensure full compatibility with the LMS for seamless navigation.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (4 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The effectiveness of the micro-qualification will be assessed through participant feedback and post-course surveys, ensuring continuous improvement and compliance with European quality benchmarks. At the end of the course, participants will complete surveys or questionnaires to provide insights into the course content, teaching methods, and overall learning experience.

Quality assurance

This course **has been subjected to internal quality assurance processes**. The project consortium has reviewed and validated the program structure, learning outcomes, assessment methods, and teaching materials to ensure alignment with educational standards and industry relevance. Continuous monitoring and participant feedback contribute to ongoing improvements.

References

[16.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[17.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[18.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research ReportNo.6.1). Zenodo. DOI:10.5281/zenodo.13850890

[19.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[20.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

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Italy – Croatia

MareSkill

Program Title:

Quality Aquaculture - Management and Sustainable Practices

General

Program Title:

Quality Aquaculture - Management and Sustainable Practices

Name and type of Organisation:

University of Bari "Aldo Moro" Department of Veterinary Medicine, ARTI – Regional Agency for Technology, Technological Transfer and Innovation

Language

Italian, English

Delivery method

Hybrid delivery: In-person with online components

Target audience

This program is intended for aquaculture professionals, technical staff, entrepreneurs, students, and individuals interested in sustainable aquaculture. Participants typically come from backgrounds in fisheries, marine biology, environmental management, agriculture, or business. Prior basic familiarity with aquaculture is beneficial but not required.

Entry qualification

EQF Level 4

Participants should have a qualification equivalent to at least EQF Level 4. Prior basic knowledge or experience in aquaculture, fisheries, marine biology, environmental management, or business is recommended but not mandatory.

Duration

50 hours

Sector

Aquaculture

The program focuses primarily on the Aquaculture sector within the Blue Economy, emphasizing innovative, sustainable practices and environmental protection techniques. It equips participants with transversal skills applicable broadly to sustainability and environmental management across other Blue Economy sectors.

Qualification Framework Level

EQF Level 5

This micro-credential is aligned with EQF Level 5, reflecting its suitability not only for students in formal education but also for professionals, lifelong learners, or individuals seeking specialized knowledge and skills in sustainable aquaculture. EQF Level 5 ensures flexibility, practical orientation, and accessibility for participants with diverse backgrounds and professional experiences.

Credit Allocation

2 ECVET / ECTS credits

The micro-qualification corresponds to approximately 50 to 60 hours of total workload, including lectures, practical activities, case studies, assessment, and individual study.

Learning Outcomes

By the end of this program, participants will have acquired essential knowledge and practical skills in sustainable aquaculture practices, technological innovation, industry collaboration, professional communication, and project management.

Module 1: Sustainable Aquaculture Production

Credit Value: 1 ECVET / ECTS credit

- Explain fundamental concepts and practices in sustainable aquaculture production.
- Identify and implement environmentally responsible and plastic-free aquaculture techniques.
- Apply innovative methods for the development and preservation of aquatic products.
- Demonstrate knowledge of economic strategies, effective marketing, management, and communication in aquaculture businesses.
- Evaluate and utilize advanced environmental sustainability techniques, such as bioremediation.
- Understand and adopt technological innovations, including IoT, sensor technologies, and AI, in aquaculture practices.

Module 2: Certification, Collaboration, and Professional Growth

Credit Value: 1 ECVET / ECTS credit

- Recognize, select, and apply relevant quality certification frameworks and standards within the aquaculture industry.
- Establish and maintain effective partnerships and collaborations between aquaculture producers and distributors.
- Demonstrate improved interpersonal communication skills, active listening, empathy, and emotional intelligence within professional contexts.
- Effectively recognize, manage, and mitigate professional stress, enhancing personal resilience and productivity.
- Identify funding opportunities and successfully develop and manage project proposals in sustainable aquaculture.

Teaching and Learning Methods

- **Guided Learning**: [40 %]
  Structured lessons, interactive lectures, expert panel discussions (round tables), case study analyses, group discussions, and direct interaction with experts to facilitate theoretical understanding and practical knowledge.
- **Work-Based Learning**: [30 %]
  Practical tasks, real-world case studies, examples from industry practices, simulations, and scenario-based activities designed to connect theoretical knowledge with practical applications in sustainable aquaculture.
- **Independent Activities**: [30 %]
  Individual assignments, self-directed study, literature review, project proposal preparation, and reflection tasks encourage critical thinking, deeper learning, and independent problem-solving.

Course Content

Module 1: Sustainable Aquaculture Production

- Fundamentals and practices of sustainable aquaculture production
- Plastic-free and environmentally responsible aquaculture practices
- Innovative product development and preservation methods
- Business economics, marketing, management, and communication strategies
- Advanced techniques for environmental sustainability
- Technological innovations in aquaculture

Module 2: Certification, Collaboration, and Professional Growth

- Certification frameworks and quality standards
- Collaboration and effective partnerships in sustainable aquaculture
- Professional development, communication, and interpersonal skills
- Emotional intelligence and stress management in business contexts
- Funding opportunities and successful project management

Learning materials

Primary Literature

(All primary sources will be accessible through the LMS.)

- Project-developed materials – Presentations and handouts covering key concepts in sustainable aquaculture, environmental responsibility, and innovative technologies.

- Selected textbooks and industry reports – Relevant chapters on aquaculture production, environmental management, and sustainability frameworks.
- Peer-reviewed journal articles – Research papers on bioremediation techniques, sustainable certification processes, and technological advancements in aquaculture.

Supplementary Readings and Resources

(Additional materials are available on the LMS in the form of guides, links, and recommended readings.)

- Scientific articles and case studies – Covering sustainable aquaculture practices, digital transformation in the industry, and economic impact analyses.
- Regulatory and certification guidelines – Documentation on sustainability standards such as CSQA, MSC, and Friend of the Sea.
- Industry reports and best practices – Insights into successful aquaculture enterprises and sustainability-driven business models.

Assessment Methods

Topic-Based Quizzes (60%)

- Short assessments at the end of each key topic to evaluate the understanding of sustainable aquaculture principles, environmental responsibility, certification frameworks, and technological innovations. These quizzes reinforce key concepts and maintain continuous engagement with the material.

Case Study Analysis (40%)

- Participants will analyze a real-world example of an aquaculture operation, applying sustainability strategies, business insights, and technological solutions. The assessment focuses on problem-solving, critical thinking, and decision-making in real-world scenarios.

Grade

***Instruction**: Indicate if the assessment will result in a grade. Choose from below:*

- ***Yes**, the assessment will result in a grade using an evaluation system compliant with European education standards:*
  - *A (90-100%): Exemplary demonstration of entrepreneurial skills with innovative application to blue economy case studies*
  - *B (75-89%): Proficient execution of strategic frameworks with minor operational gaps*
  - *C (60-74%): Basic competency in core methodologies requiring supervision*
  - *D (50-59%): Partial achievement requiring reassessment of specific modules*
  - *F (<50%): Insufficient demonstration of learning outcomes*

Resources Required

- Stable internet connection.
- PDF Reader (e.g., Adobe Acrobat Reader, Foxit) – for accessing course materials.
- Web Browser (e.g., Chrome, Firefox)—ensure full compatibility with the LMS for seamless navigation.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (2 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The effectiveness of the program will be assessed through participant feedback and post-course surveys, ensuring continuous improvement and compliance with European quality benchmarks. At the end of the course, participants will complete surveys or questionnaires to provide insights into the course content, teaching methods, and overall learning experience.

Quality assurance

Participant feedback will assess the program's effectiveness. At the end of the course, participants will complete a survey to provide insights into the content, teaching methods, and overall experience. Instructors will also engage in peer review sessions to reflect on teaching effectiveness and identify areas for improvement. This approach ensures continuous enhancement of the program based on honest feedback.

References

[21.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[22.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[23.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research ReportNo.6.1). Zenodo. DOI:10.5281/zenodo.13850890

[24.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[25.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

Interreg

Co-funded by the European Union

Italy – Croatia

MareSkill

Program Title:

Essentials of Technology Transfer and Commercialization

General

Program Title:

Essentials of Technology Transfer and Commercialization

Name and type of Organisation:

University of Rijeka, Faculty of Biotechnology and Drug Development

Language

English

Delivery method

Online/Hybrid delivery: In-person with online components

Target audience:

The program is designed for students, professionals, researchers, lifelong learners, and SME representatives interested in or already engaged in knowledge and technology transfer activities who wish to develop these skills and knowledge relevant and applicable to all industry sectors, including blue economy sectors.

Entry qualification:

EQF Level 4

The entry qualification for this program is EQF Level 4. No specific formal qualifications are mandatory, but a high level of English language proficiency and basic digital literacy are needed.

Duration

60 hours

Sector

Transversal Skills

This program strongly emphasizes the broad applicability of knowledge and skills related to technology transfer and commercialization, thus providing transversal knowledge, skills, and competencies applicable across all industry sectors, including various blue economy sectors. The skills covered within this program, such as technology assessment, intellectual property protection, commercialization strategies and mechanisms, etc., are inherently transferable, enabling practical application across multiple professional contexts and sectors, including business, research, and innovation-driven sectors. These transversal skills will allow participants to manage the technology transfer and commercialization process and drive sustainable economic growth.

Qualification Framework Level

EQF Level 5

Aligned with EQF Level 5, this micro-credential is appropriate for various participants, including students, professionals, and individuals without formal higher education who wish to acquire specialized knowledge and skills in technology transfer and commercialization relevant and applicable to all industry sectors, including blue economy sectors. The selected EQF Level 5 ensures accessibility and flexibility to participants with different backgrounds in their professional development and upskilling and reskilling opportunities.

Credit Allocation

2 ECVET / ECTS credit

This micro-qualification corresponds to 2 ECVET/ECTS credits, which corresponds to and reflects the total learner workload of approximately 60 hours, including lessons, instruction, self-study, assessment, and practical work. This ensures alignment with credit allocation standards based on workload and learning outcomes.

Learning Outcomes

Participants will be able to identify the key stages of the technology transfer process, explain the importance of technology transfer in innovation and economic growth, and describe the roles of different stakeholders in the technology transfer and commercialization process.

Through this program, participants will be able to summarize the basic principles and means of intellectual property rights (IPRs) and differentiate between various IPR protection strategies and their implications. In addition, participants will learn to apply basic valuation and assessment methods to determine the technology's commercial potential, compare different commercialization pathways, and evaluate the technology's commercial viability applicable to the various industry sectors, including the blue economy sector.

At the end of the program, participants will be able to demonstrate the acquired knowledge by developing a technology commercialization plan for a particular technology, including IP strategy, market entry, and funding sources.

Module 1: Essentials of Technology Transfer and Commercialization

Credit Value: 2 ECVET / ECTS credit

- **Introduction to Technology Transfer**: Understand the key concepts and stages of the technology transfer process, from research and development (R&D) to market adoption.
- **Technology Assessment and Valuation**: Identify and evaluate technologies, understand and apply the technology valuation and assessment methods, analyze technology market potential, and identify the commercially viable opportunities.
- **Technology Protection**: Understand and apply appropriate means of intellectual property rights (IPRs) protection and management, including patents, trademarks, and copyrights, and understand regulatory conditions for the IPR protection.
- **Technology Commercialization**: Understand the overall technology commercialization process and apply technology commercialization strategies and mechanisms, assess funding opportunities, and create sustainable commercialization business models.
- **Technology Commercialization Plan**: Develop and prepare a concrete commercialization plan on the specific technology based on the appropriate methodology that integrates concepts and mechanisms covered by the program topics in a structured way, and reflecting the overall commercialization process.

Teaching and Learning Methods

- **Guided Learning**: 15 Hours (25%)
  - 15 hours of structured lessons, including interactive discussions on the program-defined topics.
- **Work-Based Learning**: 10 Hours (17%)

- Guided exercise on the preparation of the technology commercialization plan for the specific technology. Participants will learn how to apply the key concepts covered by the lessons to the preparation of the concrete technology commercialization action plan.

- **Independent Activities**: 35 Hours (58%)
  - Self-Directed Study (15 hours): reading and studying the provided program materials.
  - Individual Assignments (20 hours): Participants will prepare a technology commercialization plan for a defined technology based on the clear instructions and methodology provided by the lecturer.

Course Content

Module 1: Essentials of Technology Transfer and Commercialization

- **Introduction to Technology Transfer.** An overview and concept of the technology transfer process, technology transfer phases, and mechanisms from technology research and development (R&D) to market application.
- **Technology Assessment and Valuation**. An overview of the practical methods used for technology assessment and valuation for determining commercialization feasibility.
- **Technology Protection.** Overview of the means of intellectual property rights (IPRs) protection and regulatory frameworks for IPRs protection.
- **Technology Commercialization.** Exploration of different commercialization steps and pathways, such as licensing, spin-offs, joint ventures, and strategic partnerships.
- **Development of a Technology Commercialization Plan**. Practical application of learned concepts in preparation of a structured technology commercialization plan for a specific technology, based on the clear instructions and methodology provided by the lecturer

Learning materials

All learning materials will be accessible through the LSM.

Primary Literature

- Project-developed materials: Presentations and handouts covering program topics.
- Selected articles, book chapters, and textbooks related to the program topics.

Supplementary Readings and Resources

- Selected publications such as guides, bulletins, fact sheets, or case studies related to the program topics.

Learning Tools and Media

- Lecture slides covering key program topics.
- Online resources relevant to the program topics.

Assessment Methods

Participants will be assessed through a combination of quizzes and creation of the technology commercialization plan, ensuring both knowledge retention and practical application of key concepts.

Quizzes (60%)

- Short assessments at the end of each topic to evaluate the understanding of the program topics. These quizzes reinforce key concepts and ensure continuous engagement with the program learning material.

Technology Commercialization Plan (40%)

- Assessment of a technology commercialization plan will be conducted following a structured evaluation methodology that follows a logical framework based on key commercialization components. The assessment will follow a systematic methodology that evaluates the feasibility, strategy, and execution potential of a commercialization plan. To ensure consistency in assessment, a grading rubric aligned with the methodology will be used.

Grade

- ***Yes**, the assessment will result in a grade using an evaluation system compliant with European education standards:*
  - *A (90-100%) Exemplary demonstration of entrepreneurial skills with innovative application to blue economy case studies*
  - *B (75-89%) Proficient execution of strategic frameworks with minor operational gaps*
  - *C (60-74%) Basic competency in core methodologies requiring supervision*
  - *D (50-59%) Partial achievement requiring reassessment of specific modules*
  - *F (<50%) Insufficient demonstration of learning outcomes*

Resources Required

- Stable internet connection.
- PDF Reader (e.g., Adobe Acrobat Reader, Foxit) – for accessing course materials.
- Web Browser (e.g., Chrome, Firefox)—ensure full compatibility with the LMS for seamless navigation.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (2 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The effectiveness of the micro-qualification will be assessed through participant feedback and post-course surveys, ensuring continuous improvement and compliance with European quality benchmarks. At the end of the course, participants will complete surveys or questionnaires to provide insights into the course content, teaching methods, and overall learning experience.

Quality assurance

This course **has been subjected to internal quality assurance processes**. The project consortium has reviewed and validated the program structure, learning outcomes, assessment methods, and teaching materials to ensure alignment with educational standards and industry relevance. Continuous monitoring and participant feedback contribute to ongoing improvements.

References

[26.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[27.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[28.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research ReportNo.6.1). Zenodo. DOI:10.5281/zenodo.13850890

[29.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[30.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

Interreg

Co-funded by the European Union

Italy – Croatia

MareSkill

Program Title:

Blue Horizon Accelerator for Next-Gen Economies (Entrepreneurship initiative and funding, innovation management)

General

Program Title:

Blue Horizon Accelerator for Next-Gen Economies (Entrepreneurship initiative and funding, innovation management)

Name and type of Organisation:

Fondazione Fenice NGO & VET

Language

English

Delivery method

Hybrid delivery: In-person and online components

Target audience:

The micro-qualification is designed for professionals and academics driving innovation in the Adriatic-Ionian maritime region, focusing on four key cohorts. It targets Blue Economy practitioners, including operations managers in aquaculture and nautical tourism, as well as R&D engineers in marine renewable energy start-ups. Academic stakeholders, such as university students and researchers, are also a key audience. Additionally, the program supports transnational entrepreneurs, including start-ups operating within INTERREG innovation corridors and scale-ups, preparing for accelerator submissions. Finally, it caters to career transition professionals seeking to enter or pivot within the maritime and blue economy sectors.

Entry qualification:

EQF Level 4

The entry qualification requires a minimum EQF Level 4 (high school diploma) or 3+ years of blue sector experience, B2 CEFR English proficiency, and basic digital literacy, including remote collaboration tools.

Duration:

50 hours

Sector:

Transversal Skills

This program emphasizes transversal skills by integrating entrepreneurship, innovation management, sustainability, and technology transfer, equipping participants with adaptable competencies for the evolving blue economy.

Qualification Framework Level:

EQF Level 5

This micro-qualification is set at EQF Level 5 because it bridges theoretical knowledge and practical application, equipping participants with specialized, work-related skills that enhance autonomy and problem-solving in the blue economy sector.

Credit Allocation

2 ECVET / ECTS credits

The total learner workload is approximately 50 hours, including instruction, assessment, self-study, and practical activities. This ensures alignment with credit allocation standards based on workload and learning outcomes.

Learning Outcomes:

Through this micro-qualification, participants will develop essential skills in management, strategy, business development, and access to finance, equipping them to navigate the challenges of entrepreneurship and innovation in the blue economy. They will learn to analyze start-up growth stages, assess risks, and implement strategic frameworks to optimize operations and resource allocation. The program will enhance their ability to validate product-market fit, scale adaptive cultures, and design sustainable business models, integrating key methodologies like Lean Startup and SWOT analysis.

Additionally, participants will gain expertise in market entry strategies, EU funding mechanisms, and grant proposal writing, enabling them to secure financial support and drive sustainable growth. By mastering B2B sales, investor readiness, and crisis management, they will be prepared to develop scalable business solutions, negotiate enterprise deals, and build strong partnerships, ensuring their success in the evolving maritime and blue economy sectors.

Module 1: Management & Strategy

Credit Value: 1 ECVET / ECTS credit

- **Management:** Analyze startup growth stages, identify stage-specific risks, and apply frameworks like stage-gate processes to optimize resource allocation and resilience strategies.
- **Management:** Validate product-market alignment using Lean Startup methodologies, prioritize features with customer-centric tools, and measure PMF through retention metrics and case studies.
- **Management:** Design and scale adaptive cultures, resolve remote/hybrid work challenges and evaluate cultural health.
- **Strategy:** Craft market entry/expansion strategies using PESTEL/SWOT, optimize customer journeys, and prioritize resource allocation.
- **Strategy:** Distinguish between sustainability and impact, design measurable initiatives, and integrate hybrid models while avoiding greenwashing.
- **Strategy:** Navigate EU funding mechanisms, draft grant proposals (SMART criteria), and learn from success/failure cases.

Module 2: Business Development & Access to Finance

Credit Value: 1 ECVET / ECTS credit

- **Business development:** Balance product lifecycle stages (MVP to scaling), align cross-functional teams with RACI matrices, and avoid pitfalls through agile iterations.
- **Business development:** Develop B2B narratives, manage crises proactively, and measure PR impact via Share of Voice and sentiment analysis tools.
- **Business development:** Implement B2B sales processes, negotiate terms and scale enterprise deals using multi-threaded strategies
- **Access to Finance:** Develop strategies for structuring financial plans, improving investor readiness, and securing funding through tailored proposals.
- **Access to Finance:** Navigate EU and international funding mechanisms, building effective partnerships and consortia to access competitive funding streams.

Teaching and Learning Methods

- **Guided Learning**: 32 Hours (64%)
  - Live Structured lessons (28 hours): Instructor-led, covering foundational theories, case analyses, and structured lessons. Includes multimedia presentations and step-by-step explanations of key concepts.
  - Interactive Discussions (4 hours): Collaborative debates, Q&A sessions, and polls to reinforce understanding of complex topics.
- **Work-Based Learning**: 8 Hours (16%)
  - Simulations exercises (4 hours)
  - Case Study Analysis (4 hours): Guided analysis of industry-specific cases with structured templates and peer reviews.
- **Independent Activities**: 10 Hours (20%)
  - **Self-Directed Study** (4 hours): Video lectures, curated readings, and research tasks (e.g., exploring articles or e-books).
  - **Individual Assignments** (6 hours): Reflective journals, written reports, or portfolio-building tasks to apply concepts independently.

Course Content

Module 1: Management & Strategy

- The management section of the present module equips participants with practical tools to manage resources, solve operational problems, and lead teams through startup challenges while fostering a resilient organizational culture. The strategy section of the module prepares managers to formulate and implement long-term strategies in complex global markets, integrating sustainability, impact, and access to European funding opportunities.

MODULE 1. SECTION 1: Management

- **SECTION 1.1.1: Lifecycle of a Startup**

  Objective: Understand the stages of startup growth, anticipate challenges, and implement proactive strategies.

- **Stages of Development**:
  - *Ideation*: Validating market needs, assembling founding teams, defining vision.
  - *Validation*: Prototyping, securing early adopters, seed funding challenges.
  - *Scaling*: Managing rapid growth, hiring bottlenecks, and process standardization.
  - *Maturity*: Sustaining innovation, avoiding complacency, diversifying revenue.
  - *Exit/Expansion*: IPO planning, acquisitions, or global scaling pitfalls.

- **Stage-Specific Challenges**:
  - Early stage: Cash flow management, talent acquisition, MVP failures.
  - Growth stage: Culture dilution, operational inefficiencies, investor expectations.
  - Case Study: How “Organization” navigated the 2008 crisis by pivoting to “experiences.”

- **Preparation Strategies**:
  - Implement stage-gate processes for milestone reviews.
  - Build adaptable teams with cross-functional skills.
  - Leverage metrics (e.g., burn rate, CAC) to anticipate resource gaps.

- **SECTION 1.1.2: A path to PMF (Product-Market Fit)**

  Objective: Master iterative strategies to align products with customer needs.

  - **PMF Fundamentals**:
    - Defining PMF using Marc Andreessen's "hair-on-fire demand" principle.
    - Quantitative metrics: Net Promoter Score (NPS), retention curves, and the *40% Rule* (Sean Ellis Test).
  - **Methodologies**:
    - **Lean Startup**: Build-Measure-Learn loops, pivot/persevere decisions.
    - **Jobs to Be Done (JTBD)**: Uncovering latent customer needs.
    - **Pre-PMF Experiments**: Wizard of Oz tests, concierge MVPs.
  - **Alignment Tactics**:
    - Customer discovery interviews: Asking, "What's the hardest part about [problem]?"
    - Prioritizing features with the *Kano Model* (basic vs. delighters).
    - Case Study: How "Organization" achieved PMF by focusing on collaborative design.

- **SECTION 1.1.3: Organizational Culture**

  Objective: Build and sustain a culture that drives employee engagement and adaptability.

  - **Culture Design**:
    - Artifacts, espoused values, and underlying assumptions.
    - Aligning culture with a mission (e.g., Organization's "Freedom and Responsibility").
  - **Scaling Challenges**:
    - Remote/hybrid work: Maintaining cohesion via async rituals.
    - Conflict resolution: Mediation frameworks for cross-functional disputes.
  - **Cultural Health Metrics**:
    - eNPS (Employee Net Promoter Score), turnover rates, and engagement surveys.
    - Tools: Culture Amp, anonymous feedback loops.
  - **Case Studies**:
    - "Organization": Hiring for cultural fit and the "offer $2k to quit" strategy.

- **MODULE 1. SECTION 2: Strategy**

- **SECTION 1.2.1: A Guide to Getting Your Business Noticed**
  Objective: Develop strategies to capture market share while balancing vision, flexibility, and resource constraints.

  - **Competitive Strategy**:
    - *Market Analysis*: Frameworks like **PESTEL** (Political, Economic, Social, Technological, Environmental, Legal) and **SWOT** to identify opportunities.
    - *Blue Ocean Strategy*: Creating uncontested markets.
  - **Customer-Centric Development**:
    - *Customer Journey Mapping*: Tools like **Customer Journey Canvas** to identify critical touchpoints.

        - *Data-driven Iterations*: Metrics (DAU/MAU, session duration) and A/B testing.
    - **Resource Management**:
        - Prioritization via the **Eisenhower Matrix** (urgent vs. essential).
        - *Strategic Pivots*: Case studies

- **SECTION 1.2.2: Impact Simplified: From Concept to Action**

  Objective: Integrate social/environmental impact without overcomplicating core operations.

    - **Foundational Concepts**:
        - Difference between *sustainability* (reducing harm) and *impact* (creating net-positive value).
    - **Theory of Change**: Linking inputs to measurable outcomes.
    - **Operational Tools**:
        - *B Corp Certification*: Requirements and success stories.
        - *Impact ROI*: Quantifying social returns (e.g., CO_2 reduction per euro invested).
    - **Strategic Integration**:
        - *Hybrid Models*: Social enterprises like Too Good To Go (food waste reduction with a profit model).
        - Avoiding greenwashing using **GRI Standards** (Global Reporting Initiative).

- **SECTION 1.2.3: Funding Opportunities in Europe**

  Objective: Maximize access to EU funding for startups and innovative SMEs.

  - **Funding Landscape**:
    - *Grants*: Horizon Europe (Green Deal, digital focus), Erasmus for Young Entrepreneurs.
    - *Debt/Equity*: European Investment Bank (EIB) for infrastructure, EIC Accelerator for deep-tech scale-ups.
  - **Application Strategies**:
    - *Grant Writing*: Structuring proposals using **SMART criteria** (Specific, Measurable, Achievable, Relevant, Time-bound).
    - *Transnational Partnerships*: Building consortia for EUREKA or Eurostars projects.
  - **Case Studies**:
    - Success AND Lessons from failures.

Module 2: Business Development & Access to Finance

- The Business Development section of the module equips founders and managers to drive growth through targeted lead generation, strategic sales processes, and impactful media/PR strategies in B2B environments. In contrast, the Access to Finance section focuses on equipping participants with the financial acumen and strategic knowledge necessary to secure funding and sustain growth.

- **MODULE 2. SECTION 1: Business Development**

- **SECTION 2.1.1: Product Management Survival Guide**
  Objective: Navigate the sales growth stage by avoiding common pitfalls and aligning product strategy with market demands.
  - **Product Lifecycle Management:**
    - Pre-launch to Scale: Balancing MVP development, feature prioritization (using RICE scoring), and lifecycle stage KPIs (e.g., activation rate).

        - Post-Launch Traps: Feature bloat, poor roadmap communication, and customer feedback overload.
    - **Operational Best Practices:**
        - Cross-functional alignment: Using RACI matrices to clarify roles between product, sales, and engineering teams.
        - Agile Iterations: Sprints for rapid hypothesis testing.
    - **Case Studies:**
        - Success AND Failure

- **SECTION 2.1.2: Media and PR Strategy for Startups**

  Objective: Master B2B stakeholder communication and brand positioning in competitive markets.

    - **Strategic Storytelling:**
        - Crafting narratives using the Message House framework (core message + pillars + proof points).
        - B2B Differentiation: Leveraging case studies, whitepapers, and ROI calculators.
    - **Channel Strategy:**
        - PESO Model (Paid, Earned, Shared, Owned): Optimizing LinkedIn for thought leadership vs. trade media for industry credibility.
        - Crisis PR: Preemptive strategies and rapid response playbooks.
    - **Measurement & Tools:**
        - Metrics: Share of Voice (SOV), sentiment analysis, and lead attribution.
        - Case Study.

- **SECTION 2.1.3: The Art of Sales and Negotiation**

  Objective: Excel in B2B sales by building relationships and navigating organizational decision-making.

    - **Sales Process Design:**

- MEDDIC Framework (Metrics, Economic Buyer, Decision Criteria, Decision Process, Identify Pain, Champion).
- Pipeline Management: Forecasting accuracy and reducing leakage with CRM automation (e.g., Salesforce/HubSpot).

- **Advanced Negotiation Tactics:**
  - BATNA/WATNA (Best/Worst Alternative to a Negotiated Agreement): Setting walk-away thresholds.
  - Handling objections using the Feel-Felt-Found technique (e.g., "I understand you feel X; others felt Y but found Z").
- **Enterprise Sales Strategies:**
  - Multi-threaded selling: Engaging champions, users, and economic buyers simultaneously.
  - Case Study.

- **MODULE 2. SECTION 2: Access to Finance**

- **SECTION 2.2.1: Understanding Funding Sources**

Objective: Equip participants with a comprehensive understanding of funding options available to blue economy businesses.

- Overview of EU funding programs (e.g., Horizon Europe, EIC Accelerator)
- Private funding options: angel investors, venture capital, strategic partners
- Debt vs equity financing: pros, cons, and strategic use cases
- Crowdfunding and alternative financing methods

- **SECTION 2.2.2: Investor Readiness and Proposal Development**

Objective: Guide participants in preparing for investor engagement and creating persuasive proposals.

- Structuring financial plans and cash flow forecasts
- Defining KPIs and financial metrics to align with investor expectations

- Pitch deck development and storytelling techniques
- Managing investor relationships and negotiating terms

Learning materials

Primary Literature

(All primary sources will be accessible through the LMS.)

- Project-developed materials: Presentations and handouts covering key concepts in entrepreneurship, innovation management, and business strategy within the blue economy.
- Selected textbooks and industry reports: Relevant chapters on business development and financial management.
- Peer-reviewed journal articles: Focused on startup growth strategies, financial planning, and EU funding mechanisms.

Supplementary Readings and Resources

(Additional materials are available on the LMS in the form of guides, links, and recommended readings.)

- Selected academic papers Covering topics such as startup ecosystem development, investment strategies, and sustainable business models.
- Relevant EU policies and funding programs: Information on Horizon Europe, EIC Accelerator, and INTERREG initiatives.
- Case studies and market reports: Analysis of business models and successful financing strategies in the blue economy.

Learning Tools and Media

(All interactive tools and multimedia content will be available through the LMS.)

- Lecture slides and educational videos: Covering key concepts in business development and financial planning.

- Business simulation tools: Hands-on activities related to financial forecasting, investment analysis, and market expansion strategies.
- Online databases and resources: Access to entrepreneurship research, funding opportunities, and industry benchmarks.

Assessment Methods

The assessment will follow a practical, application-driven approach, evaluating both theoretical knowledge and real-world problem-solving skills.

Module-Based MCQs (60%)

- Each module includes 20 multiple-choice questions (MCQs), totaling 80 questions across 4 modules.
- The questions test understanding of key concepts, strategic frameworks, and financial principles relevant to entrepreneurship and business development.

Business Case Analysis & Final Presentation (40%)

- Participants will work in teams to analyze a real-world business challenge and propose a strategic solution.
- The final output includes a written strategic proposal and a group presentation, simulating a business pitch.
- The evaluation will focus on market analysis, business model validation, financial feasibility, and pitch clarity.
- This structure ensures a balanced assessment of theoretical knowledge, strategic thinking, and practical business application.

Grade

- ***Yes**, the assessment will result in a grade using an evaluation system compliant with European education standards:*
  - *A (90-100%): Exemplary demonstration of entrepreneurial skills with innovative application to blue economy case studies*
  - *B (75-89%): Proficient execution of strategic frameworks with minor operational gaps*
  - *C (60-74%): Basic competency in core methodologies requiring supervision*
  - *D (50-59%): Partial achievement requiring reassessment of specific modules*
  - *F (<50%): Insufficient demonstration of learning outcomes*

Resources Required

- Stable internet connection.
- PDF Reader (e.g., Adobe Acrobat Reader, Foxit) – for accessing course materials.
- Web Browser (e.g., Chrome, Firefox)—ensure full compatibility with the LMS for seamless navigation.

Certification

Upon successful completion of the program, participants will receive an official certificate issued by the project consortium.

The certificate will include:

- Participant's name and details
- Course title and description of learning outcomes
- ECVET / ECTS credit allocation (2 ECVET / ECTS credits)
- Details on assessment methods and achieved competencies

Evaluation Methods

The effectiveness of the micro-qualification will be assessed through participant feedback and post-course surveys, ensuring continuous improvement and compliance with European quality benchmarks. At the end of the course, participants will complete surveys or questionnaires to provide insights into the course content, teaching methods, and overall learning experience.

Quality assurance

This course **has been subjected to internal quality assurance processes**. The project consortium has reviewed and validated the program structure, learning outcomes, assessment methods, and teaching materials to ensure alignment with educational standards and industry relevance. Continuous monitoring and participant feedback contribute to ongoing improvements.

References

[31.] RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training (ECVET) (Text with EEA relevance) 2009/C 155/02

[32.] European Commission: Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office of the European Union, 2015, https://data.europa.eu/doi/10.2766/87192

[33.] Casanova, D., Bastos, G. & Antonaci, A. (2024). Follow-up and analysis of national and EU policy developments on micro-credentials (Research ReportNo.6.1). Zenodo. DOI:10.5281/zenodo.13850890

[34.] European Commission. "The European qualifications framework: Supporting learning, work and cross-border mobility." European Commission (2018).

[35.] Cedefop (2022). Defining, writing and applying learning outcomes: a European handbook - second edition. Luxembourg: Publications Office of the European Union. http://data.europa.eu/doi/10.2801/703079

Interreg

Co-funded by the European Union

Italy – Croatia

MareSkill

Developed education program and materials - LMS manual -

Glossary

AAI@EduHr - An authentication and authorization infrastructure for Croatian academic and research institutions, enabling secure access to digital resources.

eduGAIN - A global framework that provides secure, seamless authentication across educational and research institutions.

H5P - An open-source framework for creating, sharing, and reusing interactive HTML5 content in educational environments.

LMS (Learning Management System) - A software application used for the administration, documentation, tracking, reporting, and delivery of educational courses and training programs.

LTI (Learning Tools Interoperability) - A standard for integrating third-party learning applications and tools into LMS platforms.

Safe Exam Browser - A secure environment for conducting online exams, preventing unauthorized access or cheating during assessments.

LMS Manual

Introduction

The MareSkill Project, funded under the Interreg Italy-Croatia 2021-2027 Programme, addresses critical skill and competency gaps in the Blue Economy. By focusing on areas such as nautical tourism, aquaculture, maritime technologies, environmental protection, and innovation management, MareSkill aims to empower learners with the knowledge and expertise required to meet the demands of a competitive and sustainable maritime industry.

Central to this initiative is the development of a comprehensive Learning Management System (LMS). This platform is designed to support interactive learning through customized educational materials, activities, and assessments tailored to various Blue Economy sectors. The manual provides detailed guidance for utilizing the LMS effectively, ensuring users—from students to instructors—can fully leverage its features for learning and teaching.

The document outlines the platform's functionality, from basic navigation and user authentication to advanced course management tools. Key sections detail how to access the system, participate in courses, manage content, and monitor learner progress. Additionally, the manual incorporates instructions for creating and editing course materials, engaging participants, and utilizing reporting tools to track success.

This manual focuses on accessibility and practical application, ensuring that both educators and learners can confidently engage with the LMS to achieve their goals. By bridging education with technological innovation, MareSkill contributes to the development of a skilled workforce equipped to drive sustainability and growth in the Blue Economy.

1. Accessing the Platform

Welcome to the MareSkill e-learning platform! This system is hosted on the mod. srce.hr platform, specifically designed to support interactive learning and collaboration within educational projects. Access to the platform is available in two ways. If you are affiliated with a European university that supports eduGAIN, you can log in directly using your university credentials without any additional registration. For all other users, access is provided through email registration—complete the form, verify your email address, and log in with your newly created credentials. Both methods grant full access to course materials and features.

1.1. Access via AAI@EduHr/eduGAIN Authentication

If you are affiliated with a European university that is part of the eduGAIN federation, accessing the platform is quick and effortless. No additional registration is required, as eduGAIN enables secure and seamless authentication for its users. This method ensures you can immediately access all course materials and features without any extra steps.

1. Visit the Platform: Open your web browser and go to https://mod.srce.hr/?lang=en.
2. Select Log in using AAI@EduHr/eduGAIN e-identity

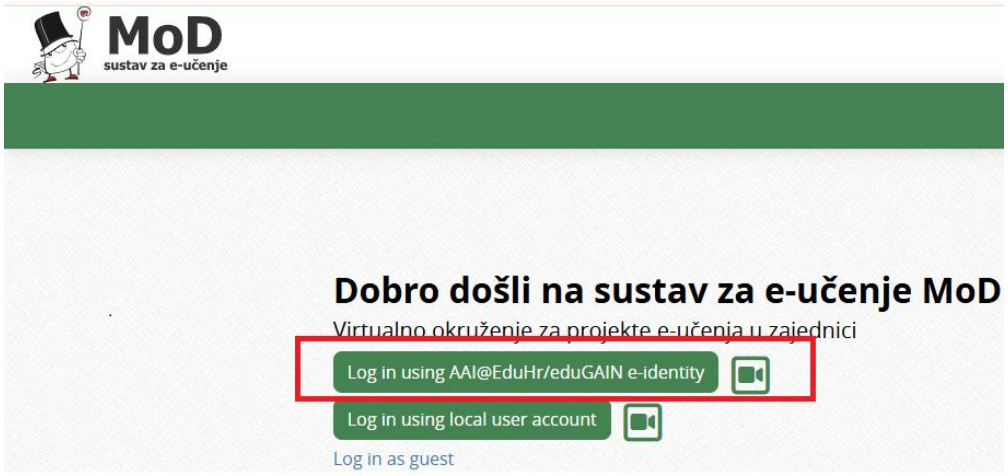

Fig 1. Log in using AAI@EduHr/eduGAIN e-identity

3. Choose Your Institution:
   - If you are an AAI@EduHr user, proceed directly to the AAI@EduHr login screen and enter your credentials.

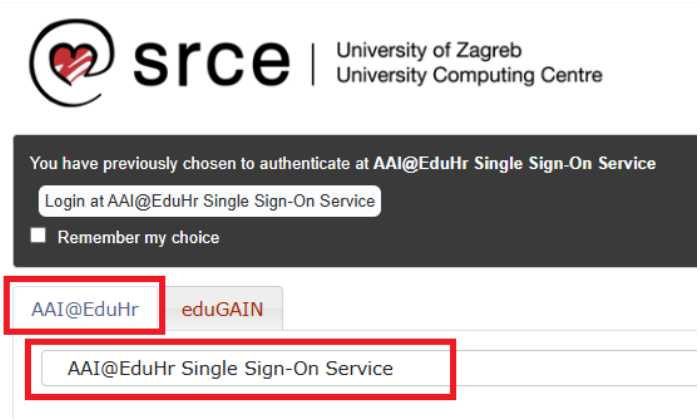

Fig 2. Log in using AAI@EduHr e-identity

- If you are an eduGAIN user from another institution, you will be redirected to a list of federated institutions. From there, select your university or organization.

Fig 3. Log in using AAI@eduGAIN e-identity

4. Authenticate: Enter your university credentials (username and password) to complete the login process.

1.2. Access via a local user account

For other users who do not have access to eduGAIN:

1. Visit the Platform: Open your web browser and go to https://mod.srce.hr/?lang=en.

2. Select **Log in using a local user account**

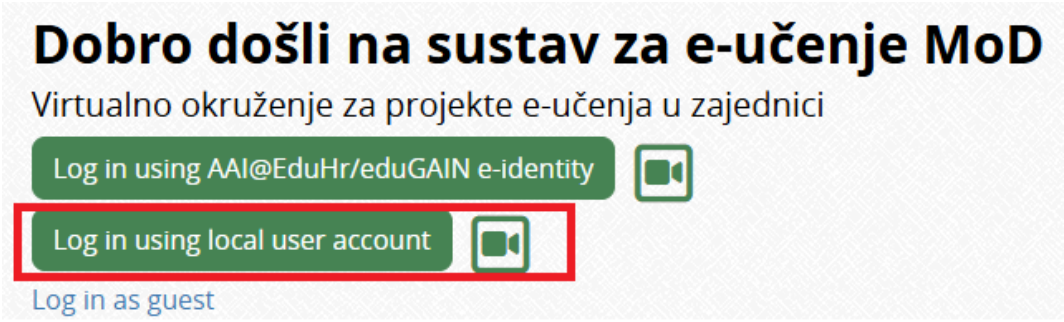

Fig 4. Log in using a local user account

- If you already have an account, proceed to Step 5 to log in

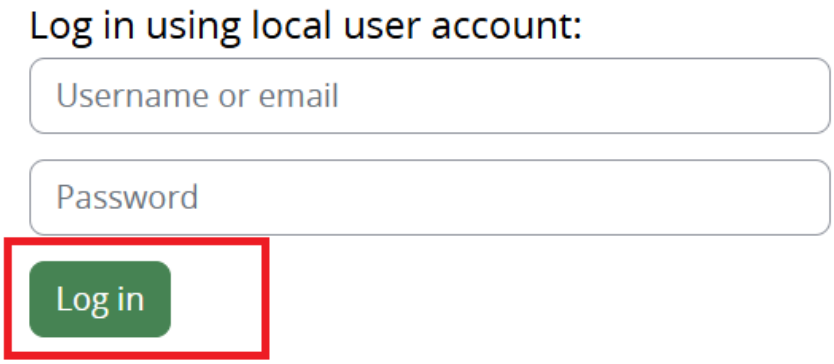

Fig 5. Log in using a local user account

- If you do not have an account, select the option to **Create a new account** and proceed to Step 3.

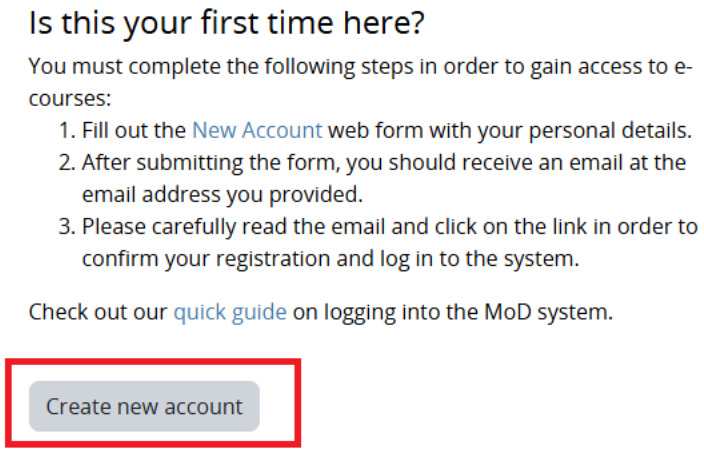

Fig 6. Create a new account

3. Select the Option to Register with Your Email Address
   - Fill out the registration form by entering the required personal details (name, email address, password, etc.).

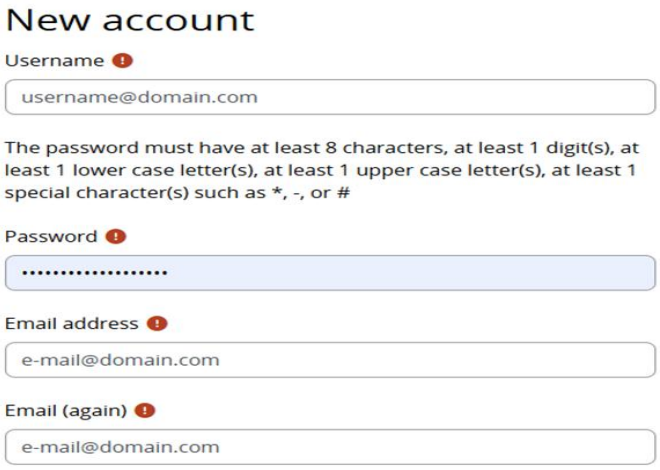

Fig 7. Create a new account

   - Click **Create my new account** to complete the registration.

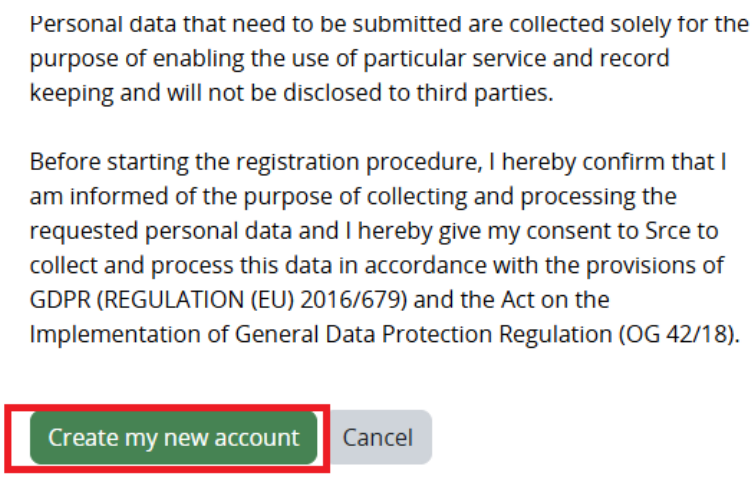

Fig 8. Create a new account

4. Verify Your Email Address
   - After submitting the form, you will receive an email with a confirmation link.
   -

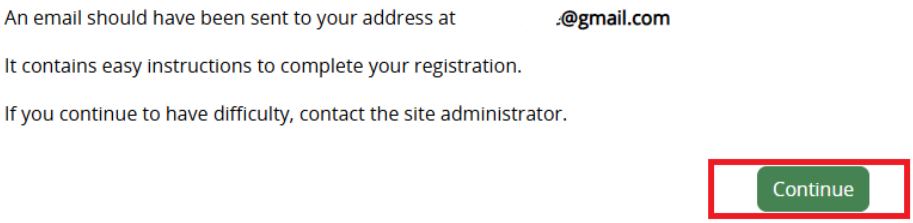

Fig 9. Check an email with a confirmation link.

   - Click on the link in the email to verify and activate your account.

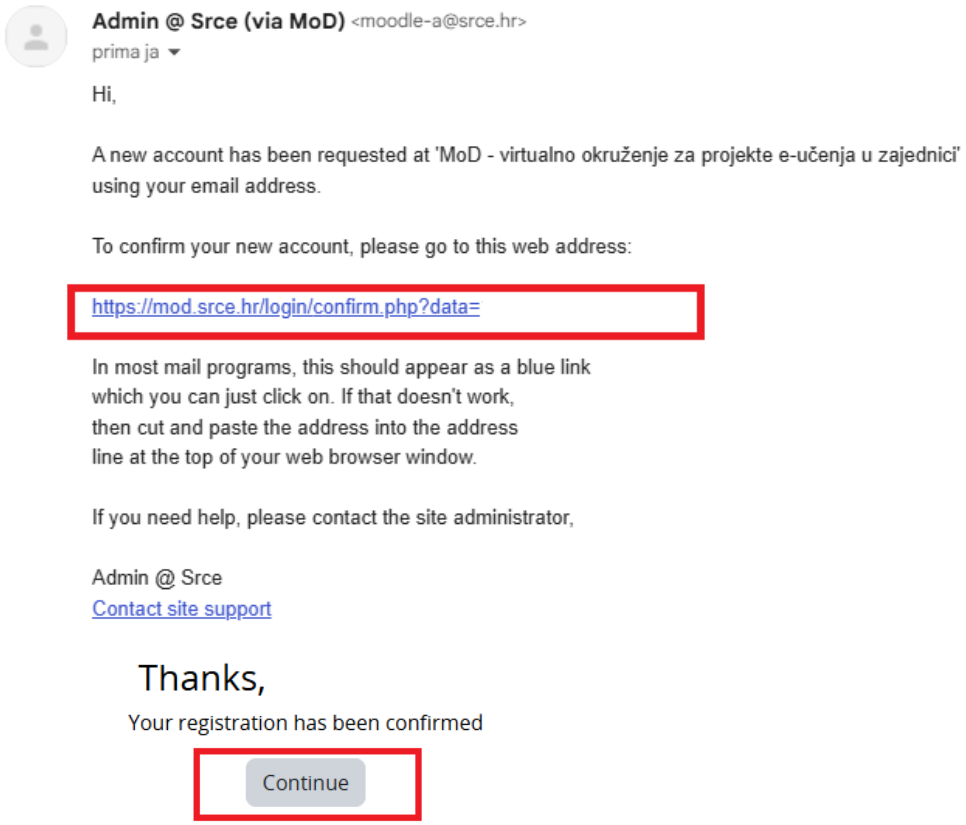

Fig 10. Confirm the email link to verify and activate your account

5. Login with Your Email and Password
   - Once your account has been verified, return to the platform and log in using your email and password.
   - If you are already registered, enter your login details and click Log in.

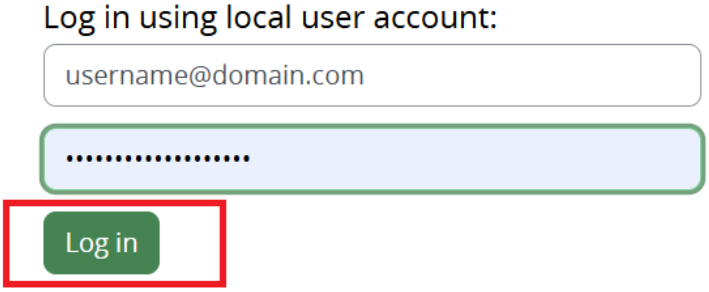

Fig 11. Login with Your Email and Password

2. Course Overview

This section provides a comprehensive guide on how to access and navigate your courses effectively. From finding your enrolled courses to exploring individual topics and completing assignments, you will gain an understanding of the platform's layout and functionalities.

2.1. Access Course List

Once you log in, you will find a navigation menu in the top left corner with the following options: **Home, Dashboard** and **My courses**. Click on **My courses** to view the list of courses you are enrolled in.

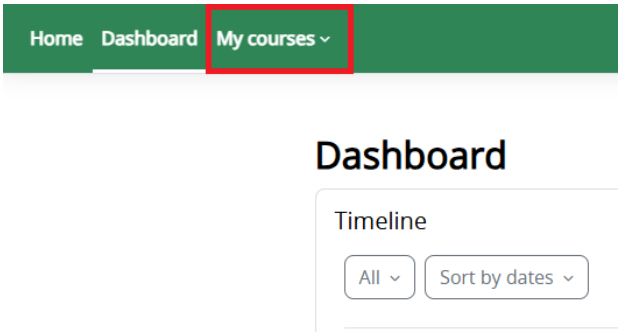

Fig 12. Access Course List

Click on the course name to access its content.

Fig 13. Access Course List

2.2. How to Enrol Yourself in MareSkill Courses

MareSkill courses on Moodle are available to students after successfully logging into the platform. To enroll in a course, follow these steps:

In the top right corner, click on **Open block drawer** to activate the additional menu.

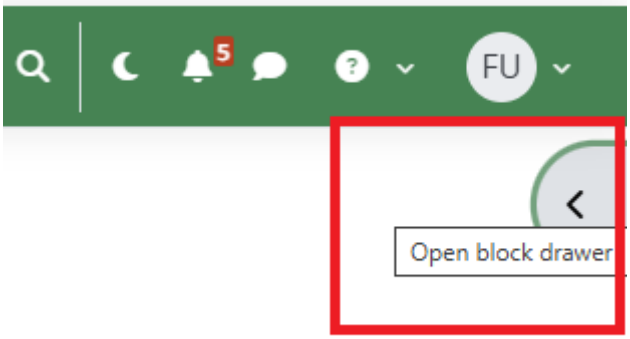

Fig 14. Open block drawer

In the **Course categories** section, select **All courses**.

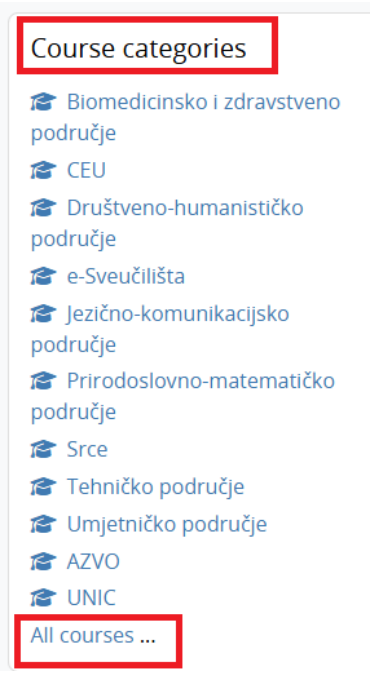

Fig 15. Search all available courses

In the **Search courses** field, enter part of the course name or type "MareSkill" to display all available courses.

Fig 16. Search all available courses

From the search results, select the course you want to enroll in.

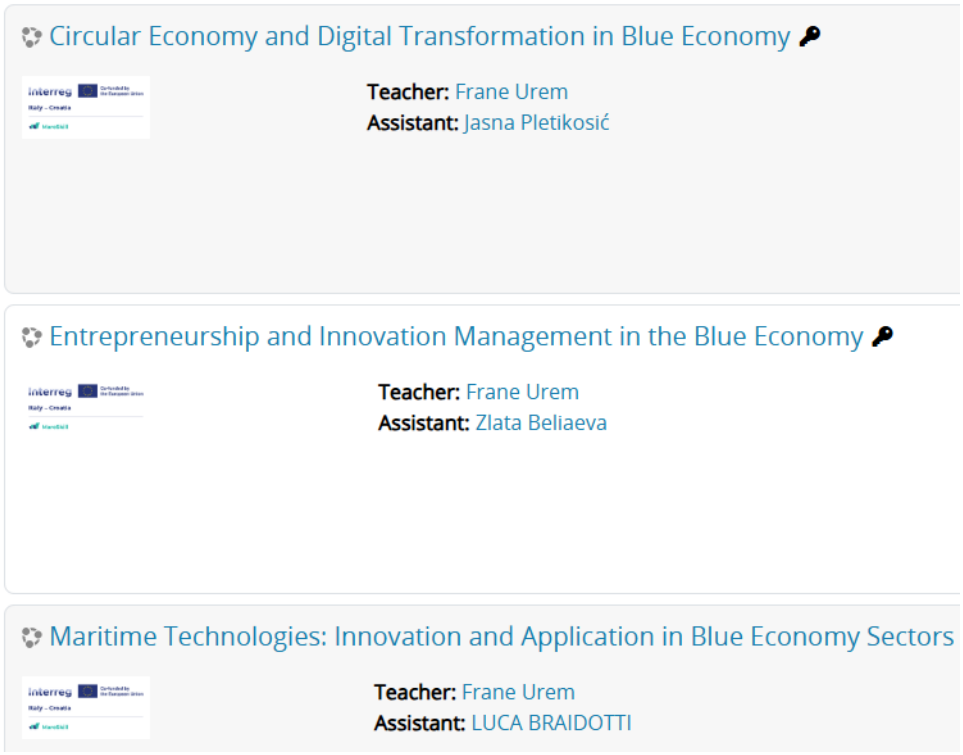

Fig 17. Select the course you want to enroll in

In the **Enrolment key** field, enter the password provided by your instructor.

Confirm your access by clicking **Enrol me**.

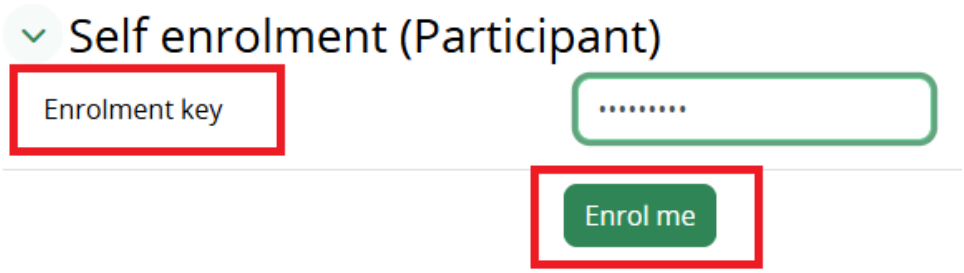

Fig 18. Enrolment key entry

2.3. Navigating the Course

The **General** topic serves as the central hub for the course. It provides key information, such as a brief overview of the course objectives and structure and important announcements or updates related to the course (**Notifications**).

Fig 19. General topic

The course content is organized into topics on the left side. Click on each topic to explore its contents, which may include lessons, presentations, videos, quizzes, exams and more.

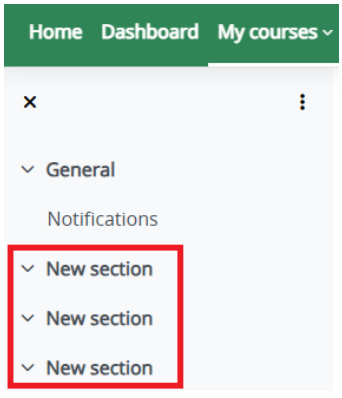

Fig 20. Course content

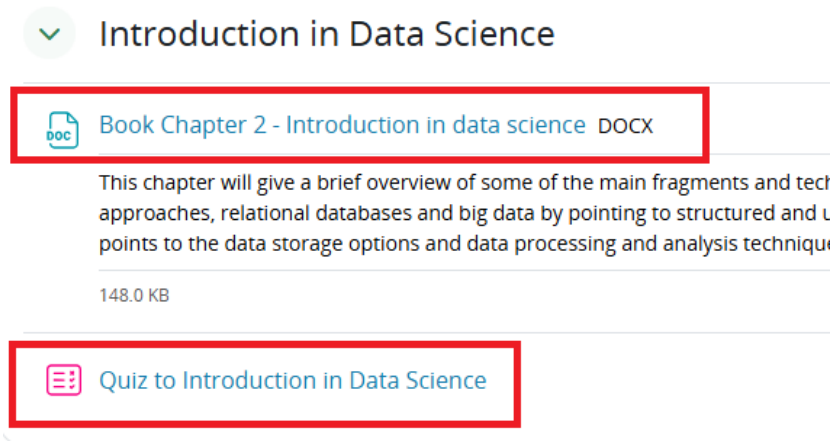

Fig 21. Course content

You can access assignments and quizzes within their respective topics by clicking on the title of the specific assignment or quiz. This will open the activity, where you can follow the provided instructions to submit your assignment or complete the quiz.

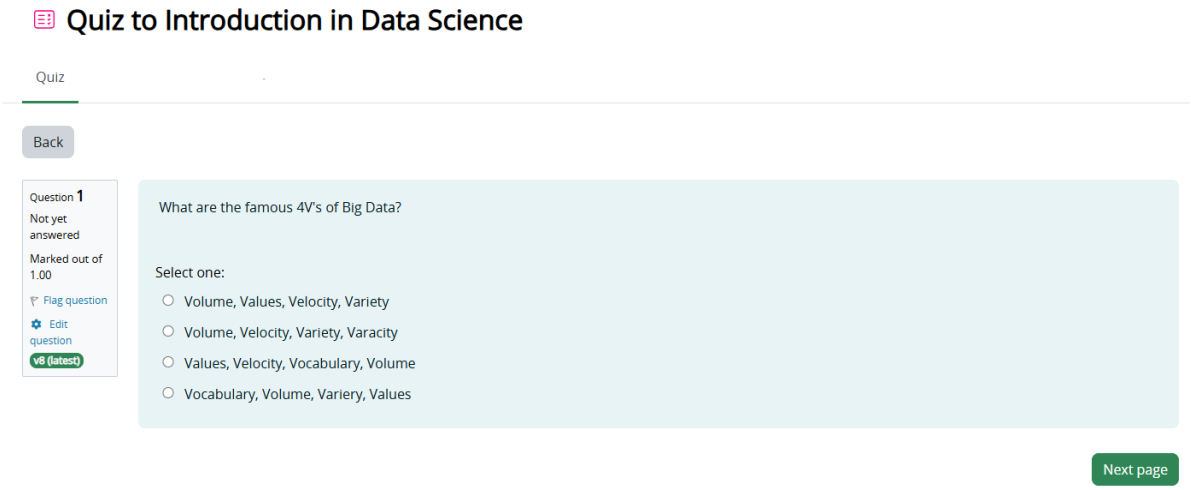

Fig 22. Quiz example

Once you have submitted your work, the results will be available in the **Grades** section for your review.

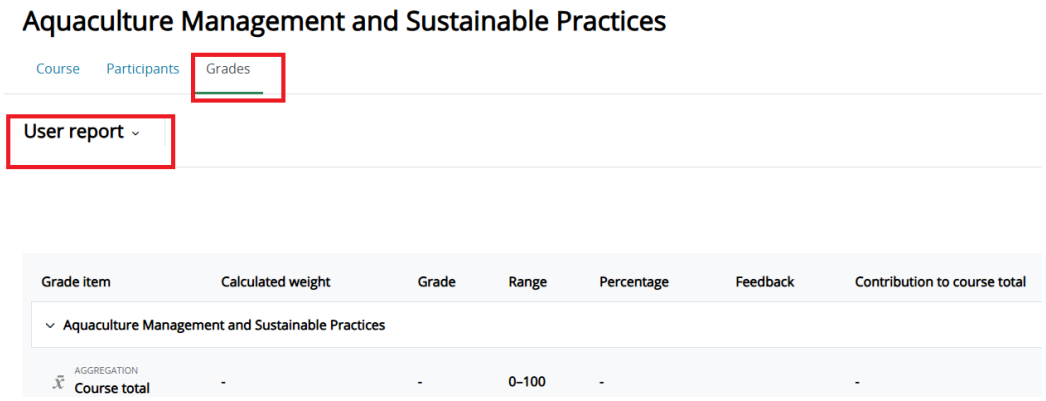

Fig 23. Grades section

3. Communication and Support

Stay informed by checking notifications regularly. Use them to receive updates about course activities, upcoming deadlines, or important announcements. Additionally, you can engage with peers and instructors by participating in discussions or asking questions directly through notification-linked forums or posts.

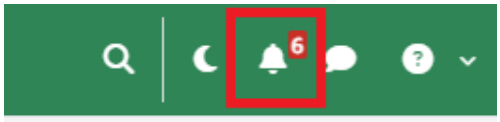

Fig 24. Notifications icon

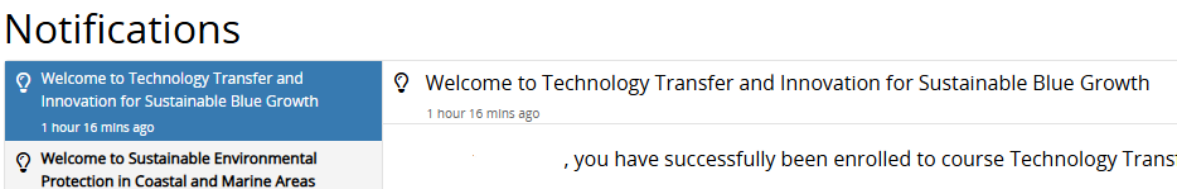

Fig 25. Notification's list

To communicate privately, click on a user's name (e.g., your peer or instructor) and select the option to send a message. This feature is ideal for discussing individual concerns, seeking clarification, or sharing feedback.

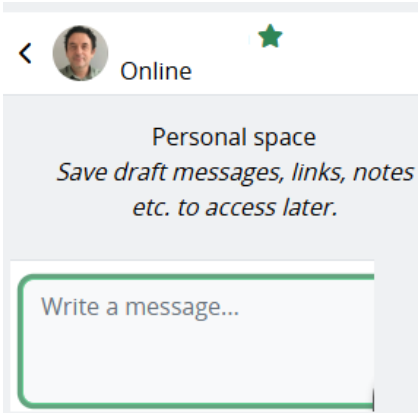

Fig 26. Private messaging

If you encounter any technical issues, use the **Support option** within the platform, typically located in the navigation menu or help section. Alternatively, you can reach out directly to the course administrator for further assistance. Ensure that you provide a detailed description of the issue for quicker resolution.

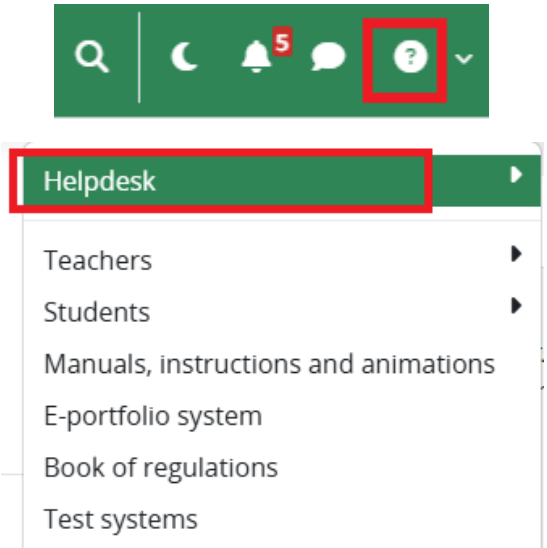

Fig 27. Support option

4. Course Management and Administration

Effective course management is essential for delivering a smooth and engaging learning experience. The MareSkill e-learning platform provides robust tools for customizing courses to meet the needs of both instructors and learners. This section explains how to access and modify course settings, add or edit course modules, and manage user enrolment. By following these steps, instructors can ensure that their courses are well-structured, up-to-date, and aligned with learning objectives.

4.1 Accessing Course Settings

From the **My Courses** menu, locate and click on the course you wish to edit. This will take you to the course homepage, where you will find the **Settings** menu.

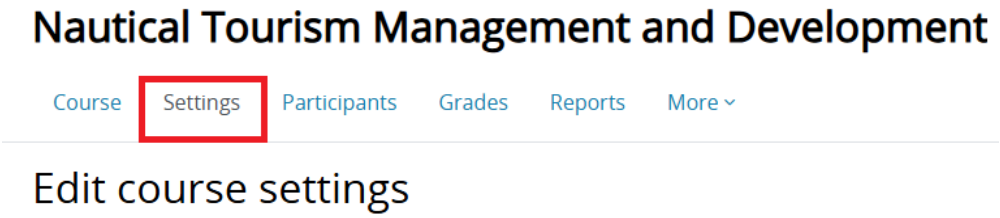

Fig 28. Settings menu

Under the **General** section, you can define the course's full name and short name, adjust its visibility for students, enable or disable the option to download course content and set the start and end dates with precise timing. The course ID number can also be specified if needed.

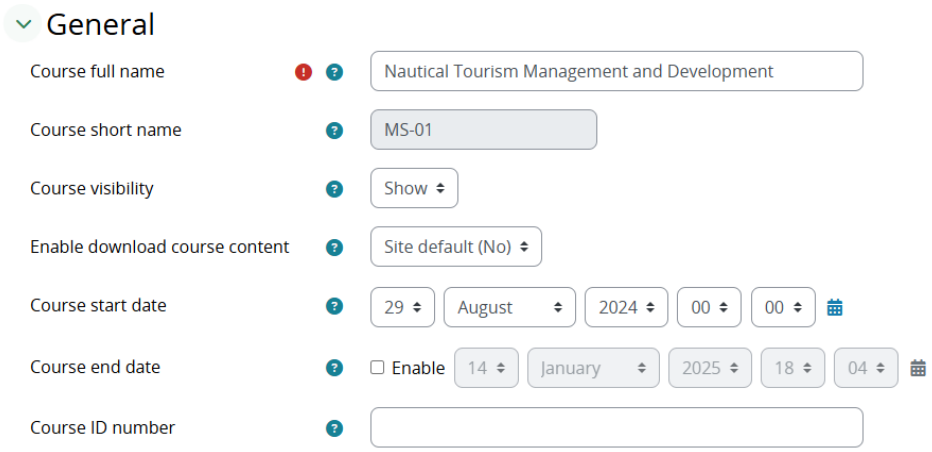

Fig 29. Settings menu

In the **Description** section, you can provide a summary of the course content and objectives and upload an image to represent the course visually. Images must be in GIF, JPEG, or PNG format and 512 MB in size.

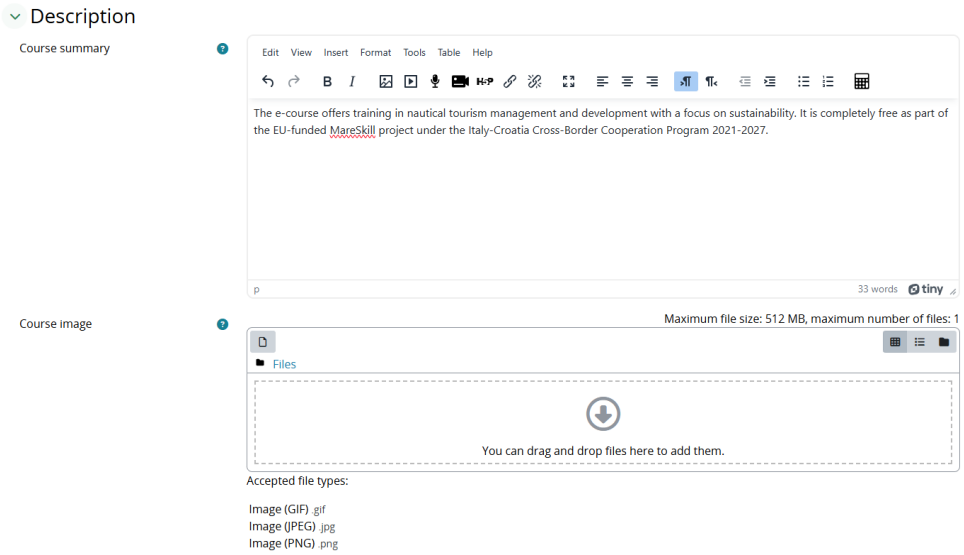

Fig 30. Description section

The **Course Format** section allows the selection of the course structure, such as topic-based or weekly formats. **Hidden sections** can either remain completely invisible or appear as unavailable, while the **course layout** determines whether all sections are displayed on one page or one at a time.

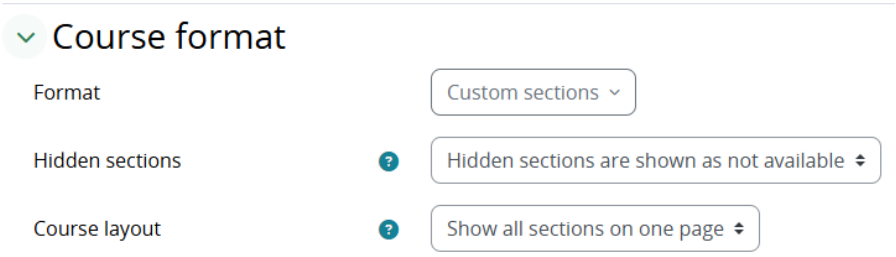

Fig 31. Course format

Within the **Appearance** category, you can enforce a specific theme or language for the course, adjust the number of announcements shown, and decide whether to enable students to view the grade book. Additionally, options are available to hide or show activity reports and dates associated with course activities.

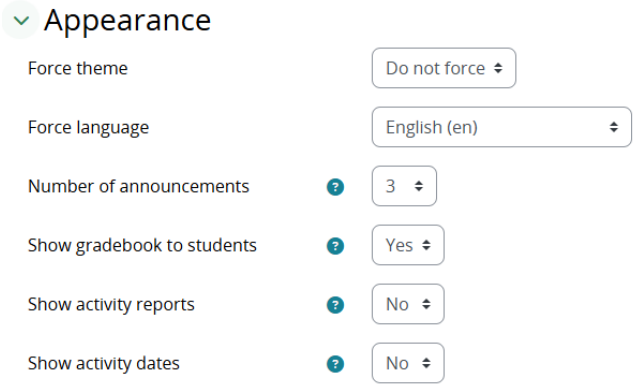

Fig 32. Appearance category

The **Files and Uploads** settings manage the maximum file upload size, which is currently set at 512 MB. Legacy course files can also be enabled or disabled as required.

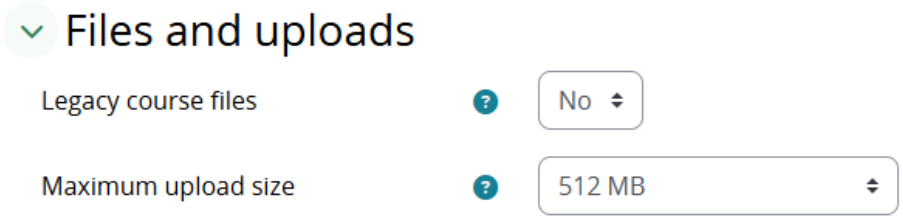

Fig 33. Files and Uploads settings

In **Completion Tracking**, you can activate the feature to track students' progress and completion of activities.

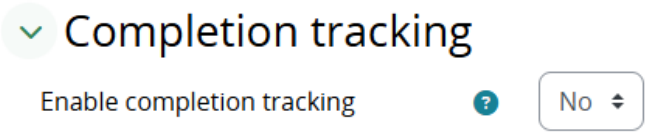

Fig 34. Completion Tracking

Finally, under **Groups**, you can manage collaborative learning by enabling group modes, setting default groupings, or forcing a specific group mode for the course.

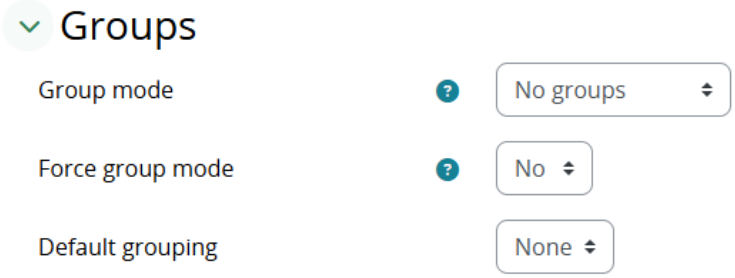

Fig 35. Groups

The **Tags** section allows for adding keywords that enhance the course's discoverability and organization, though no tags are currently selected.

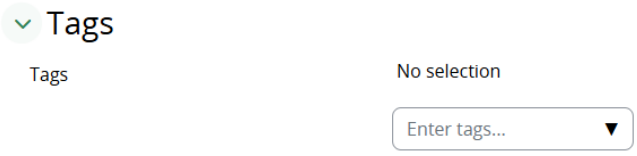

Fig 36. Tags section

4.2. Managing and Editing Participants in the Course

Look for the **Participants** menu. This section provides tools for filtering and sorting users based on various criteria such as first or last name, roles, groups, and last access to the course. You can search for participants using alphabetical filters or by entering specific details, ensuring quick and precise access to user information.

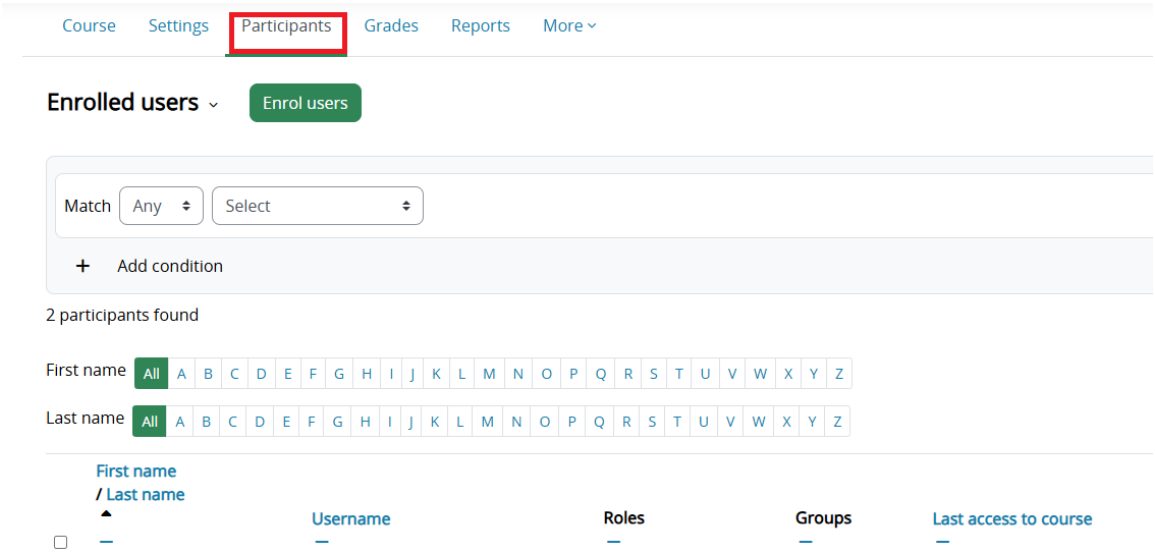

Fig 37. Participants menu

The system displays participant details, including their first and last names, usernames, assigned roles (e.g., **Teacher**, **Assistant**, **Participant**), group affiliations, previous access time, and current status. Sorting options organize participants alphabetically by name, username, or the last time they accessed the course.

To perform actions on selected users, highlight the participants you wish to modify and use the "With selected users..." dropdown menu to assign roles, update statuses, or perform other administrative tasks. This setup makes it easy to add, update, or manage student information effectively.

To add a new user, use the **Enrol users** option. In the Search field, enter the name or username of the user you want to add. For students, assign the role of **Participant**. Suppose you wish to add another instructor who will collaborate on the course and assign the role of **Assistant**. Once confirmed, the user will be enrolled in the course and appear in the Participants list, ready for further management.

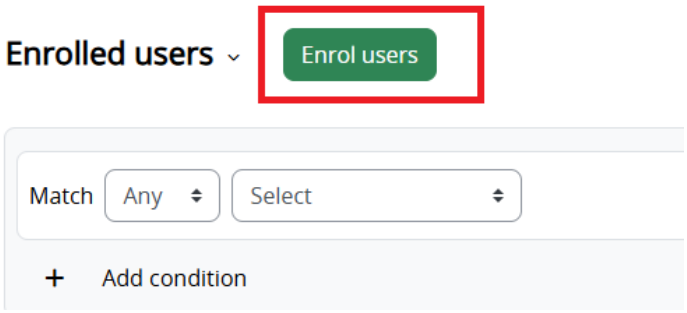

Fig 38. Enrol users option

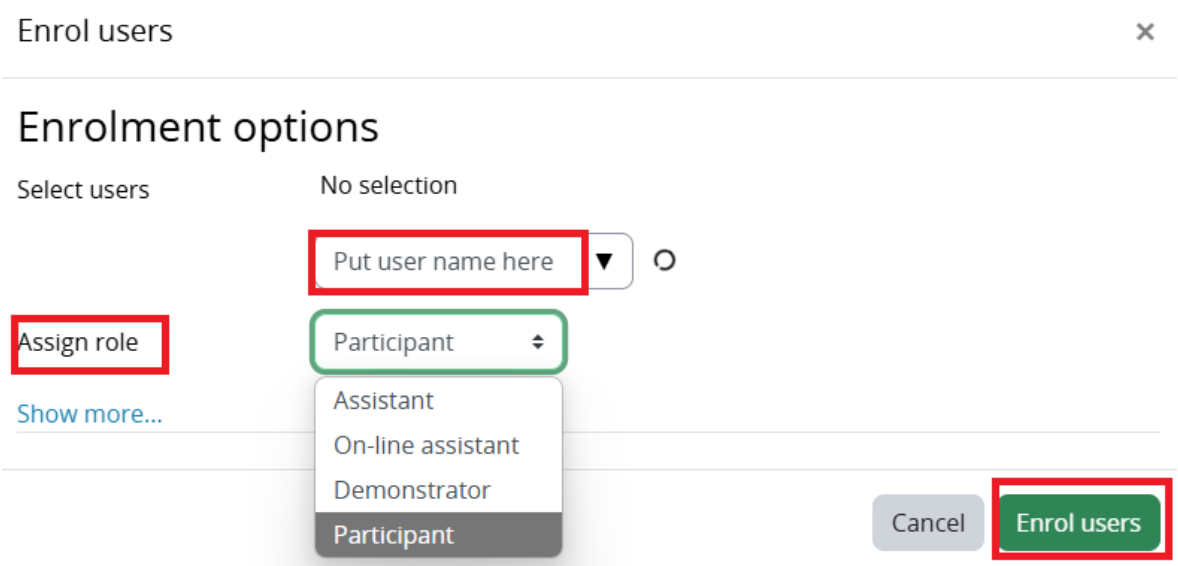

Fig 39. Enrolment options

4.3. Grading Overview and Student Performance Tracking

The grading menu provides an overview of student performance in the course. It features a searchable list of users, allowing you to locate specific participants quickly. The table displays student names in the first column and assessable activities grouped by course and category across the top.

Details include each student's Username, individual activity grades, and the **Course Total** for an aggregated view of their performance. Additionally, the **Mean of Grades** and **Overall Average** offer a quick summary of student progress and overall course statistics, helping instructors monitor and evaluate student achievements effectively.

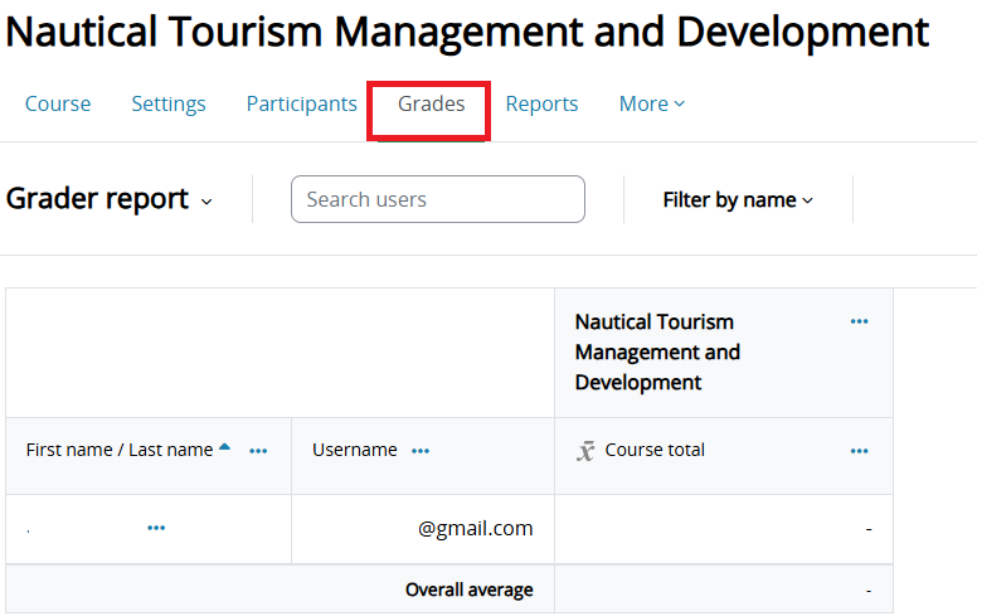

Fig 40. Grading menu

4.4. Comprehensive Course Reporting and Activity Monitoring

The Reports menu includes several key features:

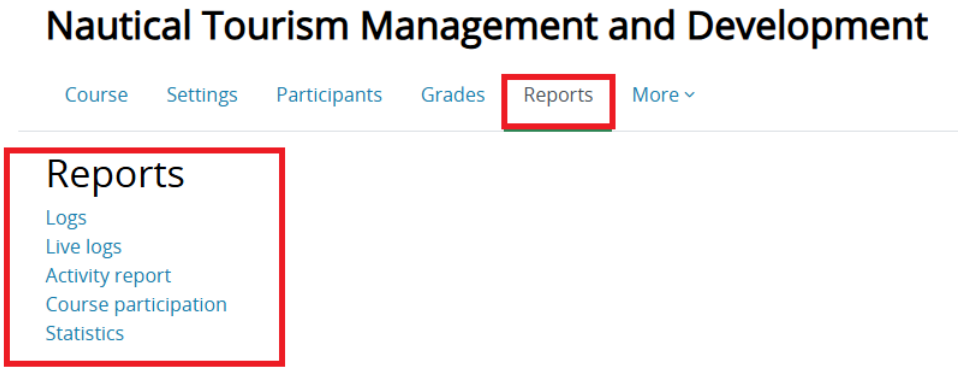

Fig 41. Reports menu

Logs allow you to filter and view activity logs for the course. You can select specific users, dates, activities, actions, and event types. This provides a detailed record of user interactions, including actions performed, the source of events, and timestamps.

Live Logs: This section displays real-time activity within the course, updated every 60 seconds. It includes details such as the time of the event, the user involved, the event context, the component

(e.g., activity report, grader report), the action performed, and the user's IP address. This is particularly useful for tracking current course activity.

Activity Report: This summary includes the number of views and interactions for each activity in the course, as well as details on the number of views, related entries, and the last access time for each activity module.

Course Participation: This provides insights into each participant's level of engagement, showing their interactions with course activities and resources over a specified period. Filters allow for tailored reports based on user roles, actions, and specific activities.

Statistics: This section displays graphical and numerical summaries of course activity over a chosen time frame, giving an overview of participant engagement trends.

4.5. Advanced Course Tools and Management Options

This section under the **More** category provides additional tools and settings for managing and enhancing your course.

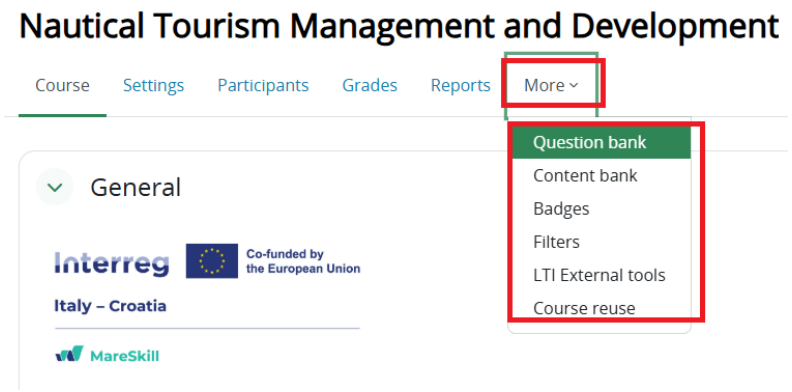

Fig 42. More category

Here's an overview of its key features:

Question Bank: A repository for managing questions used in quizzes and assessments. Filters allow you to refine questions by category, include or exclude subcategories, and choose whether to display hidden questions or show question text directly in the list.

Content Bank: A central location for storing and managing reusable course content, such as files or multimedia resources. You can search for content by name and organize it by course or category.

Badges: This section displays the badges participants can earn for completing specific activities or achieving milestones. If no badges are set up, the section will indicate their absence.

Filter Settings: This provides options to turn various filters on or off to enhance course content. These include multimedia plugins, auto-linking for activity names, embedding questions, displaying MathJax or algebra notation, and enabling multi-language content. All filters default to "On" unless manually adjusted.

LTI External Tools: This option allows the integration of third-party tools, such as interactive content or specialized assessments. Students can access these tools directly within the course. For example, the Online Meetings tool integrates the eduMeet system for hosting online meetings, consultations, or smaller lectures without the need for recording.

Course Reuse: Includes options to import, back up, restore, or reset course content. These tools facilitate transferring content between courses, creating backups for data security, and resetting courses for reuse in subsequent sessions.

5. Creating and Editing Course Content

Activating the Edit mode in the upper right corner allows instructors to add and modify sections of a course. This feature allows instructors to quickly design and update the course structure, manage activities, and customize resources. Once the Edit Mode is enabled, the course becomes fully interactive for editing purposes.

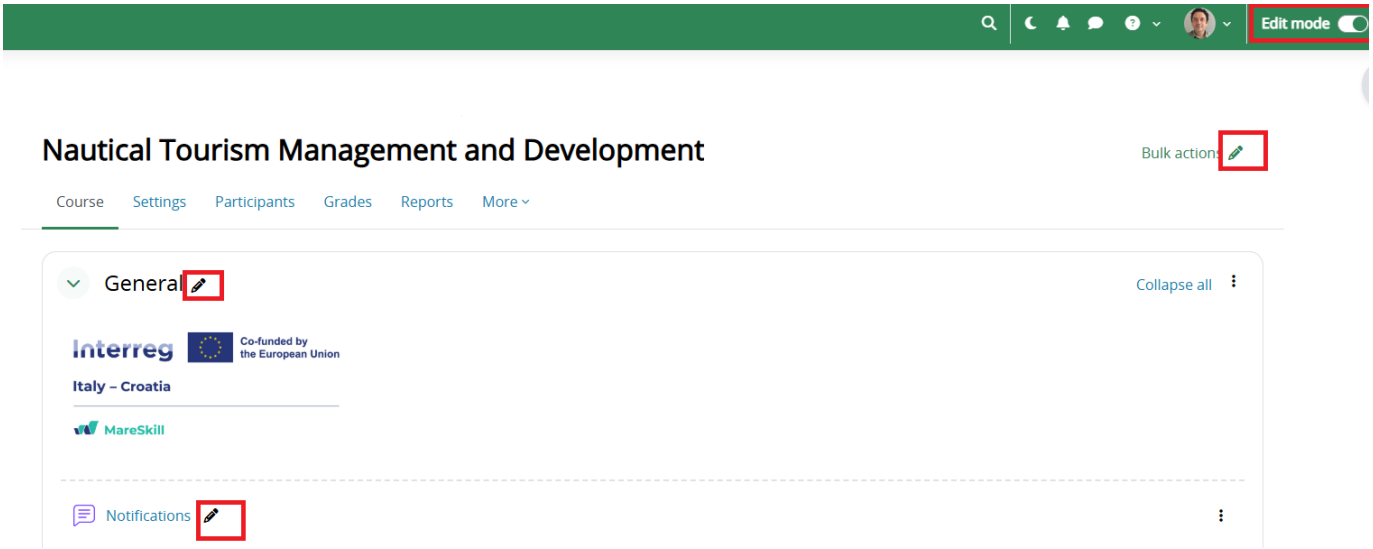

Fig 43. More category

5.1. Editing Existing Content

When **Edit Mode** is enabled, each resource or activity displays two icons following it. The **pencil icon** allows you to edit the title directly inline—click the icon, type the new title, and press Enter to save.

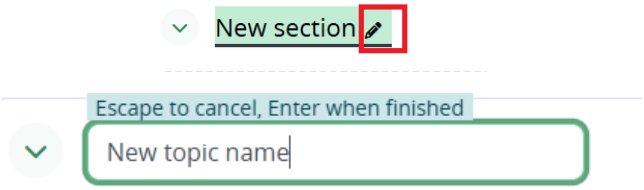

Fig 44. Edit Mode

The **three vertical dots** icon opens a dropdown menu with additional options, such as editing settings, duplicating, hiding, moving, or deleting the item. This streamlined interface makes it easy to update content and manage course elements efficiently.

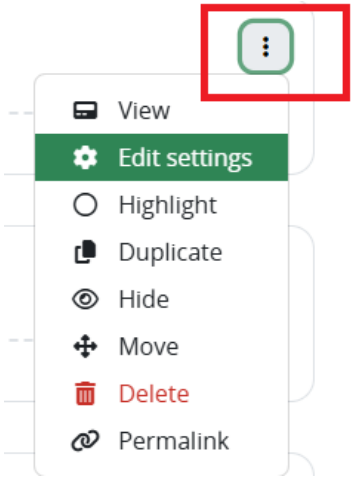

Fig 45. Edit Mode

5.2. Adding New Activities or Resources

When Edit Mode is enabled, a button labeled **Add an activity or resource** will appear at the bottom of each section.

Fig 46. Add an activity / or resource

Clicking this button opens a popup menu displaying a variety of tools and resources that can be added to the course. **Activities** include interactive tools like assignments, quizzes, forums, or workshops that encourage student engagement and participation.

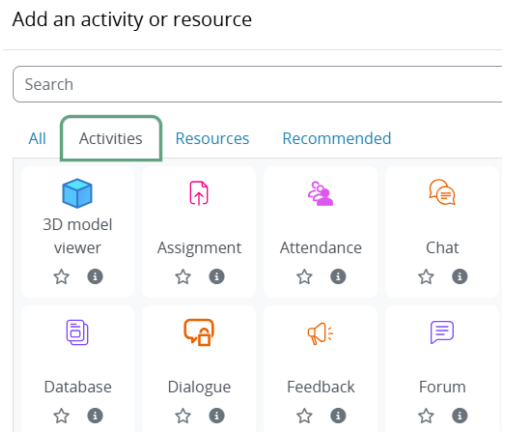

Fig 47. Add an activity / or resource

Resources add static content such as files, pages, URLs, or labels to provide students with information and materials.

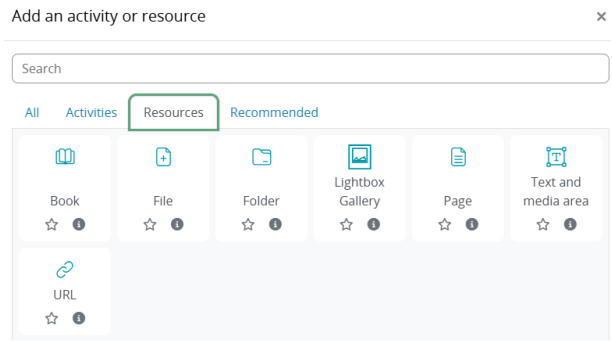

Fig 48. Add an activity / or resource

After selecting an activity or resource, you'll be directed to a settings page where you can customize its details, including the title, description, visibility, and other specific configurations. Once saved, the new item will appear in the selected course section and be ready for use.

6. Tips and Tricks for Educators

The MareSkill LMS platform offers a wide range of tools and functionalities designed to help educators create engaging and compelling learning experiences. With the ability to add multimedia resources, design interactive assessments, and manage course content efficiently, the possibilities are extensive.

In the following sections, we focus on two of the most common use cases: adding resources such as videos and files and creating quizzes. These examples provide a practical starting point, while educators are encouraged to explore the platform's full range of features to best suit their teaching goals.

6.1. Adding Resources: Videos, Files, and More

At the bottom of the section, click **Add an Activity or Resource**.

Fig 49. Add an activity / or resource

From the list of **Recommended**, choose **File**. This will open the New File configuration form.

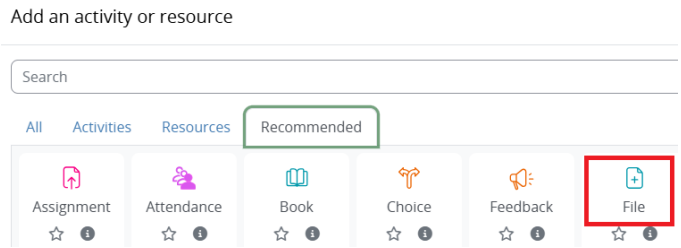

Fig 50. Add an activity / or resource

Under **General Settings**, enter a clear and concise name for the file, such as "*Week 1: Introduction Presentation.*" This name will be visible to students in the course. Optionally, you can provide a brief description of the file's content or purpose in the Description field. If you want this description to appear on the course page, select the "*Display description on course page*" checkbox.

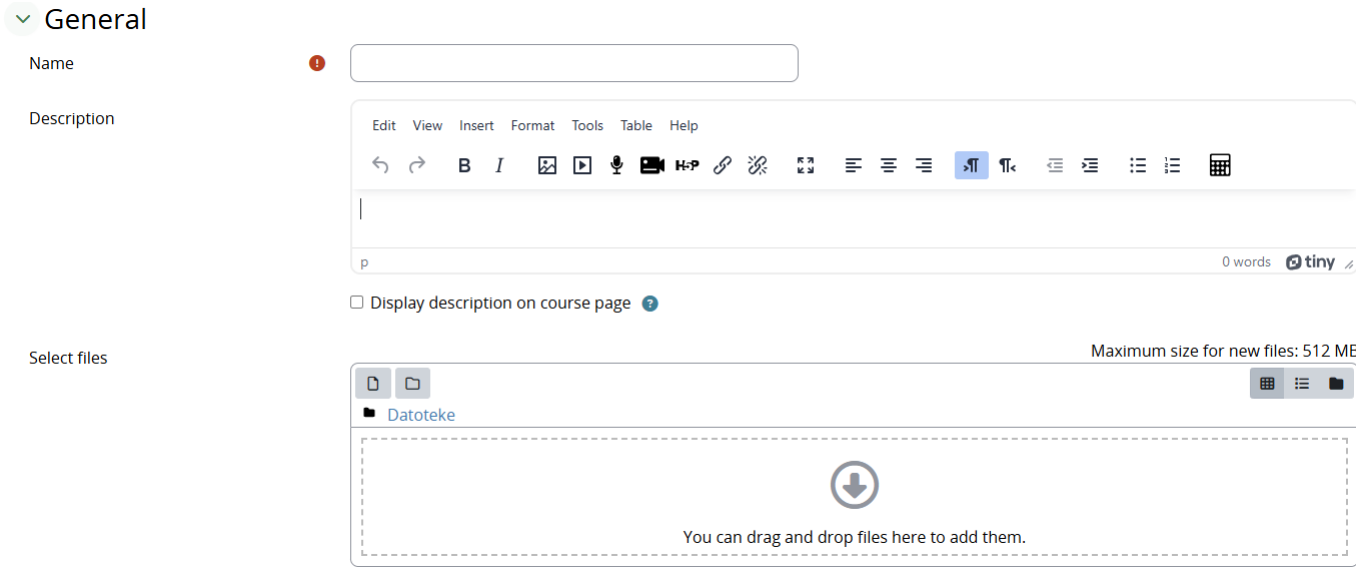

Fig 51. Add an activity / or resource

In the **Select files** section, upload your file by either dragging and dropping it into the designated area or clicking "Select files" to browse and upload it from your computer. The platform supports various file formats, including PDFs, Word documents, and PowerPoint presentations, with a maximum file size of 512 MB.

The **Appearance Settings** allow you to customize how the file is displayed to students. You can choose to display it automatically, embed it within the course page, open it in a new browser tab, or force it to download. Additional options include showing the file size, type, upload, or modification date for better context.

Within the **Common module settings**, decide whether the file should be immediately visible on the course page or hidden. If needed, you can assign an ID number for tracking or administrative purposes. You also have the option to enforce a specific language for the file, though this is optional.

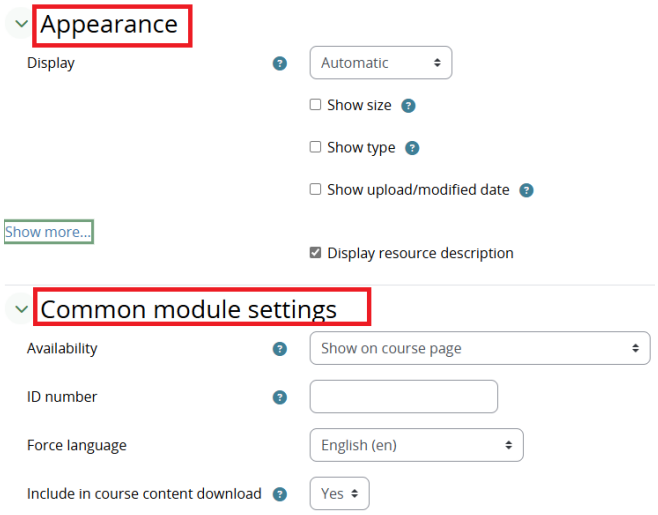

Fig 52. Apperance / Common module settings

In the **Restrict access** section, you can define conditions for accessing the file. For example, you can set a specific date, require the completion of another activity, or limit access to groups of students.

Tags can be added to help organize and categorize the file. To make the file easier to locate within the LMS, type relevant keywords into the **Tags** field.

Lastly, if you want students to be notified of the new or updated file, enable the "Send content change notification" option. This ensures all participants are informed promptly.

Once all settings are configured, click **Save and return to course** or **Save and display** to finalize the process. The file will then appear in the selected section and be ready for students to access.

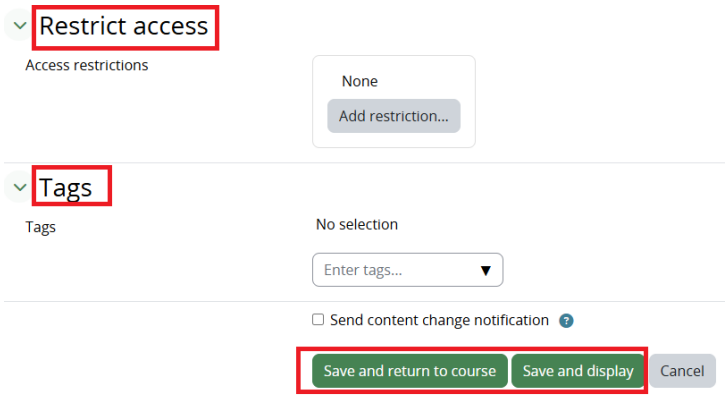

Fig 53. Restrict access section

6.2. Creating and Managing Quizzes

From the list of **Recommended**, choose **Quizz**. This will open the New File configuration form.

Quizzes are a powerful tool for assessment and enhancing the learning process. To set up a new quiz, enable editing mode within your course and click **Add an Activity or Resource**. Select **Quiz** from the **Recommended** list, and a configuration form for the new quiz will appear.

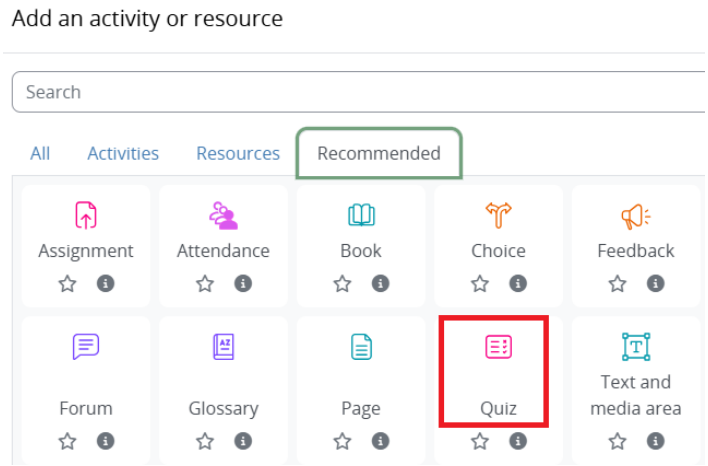

Fig 54. Creating and managing quizzes

Enter a clear and descriptive name for the quiz (e.g., "*Quiz: Week 1 - Basics*") in the **Name** field. Optionally, provide a description to explain the purpose of the quiz or give essential instructions to students. If you want the description to be visible on the course page, check the **Display description on course** page option.

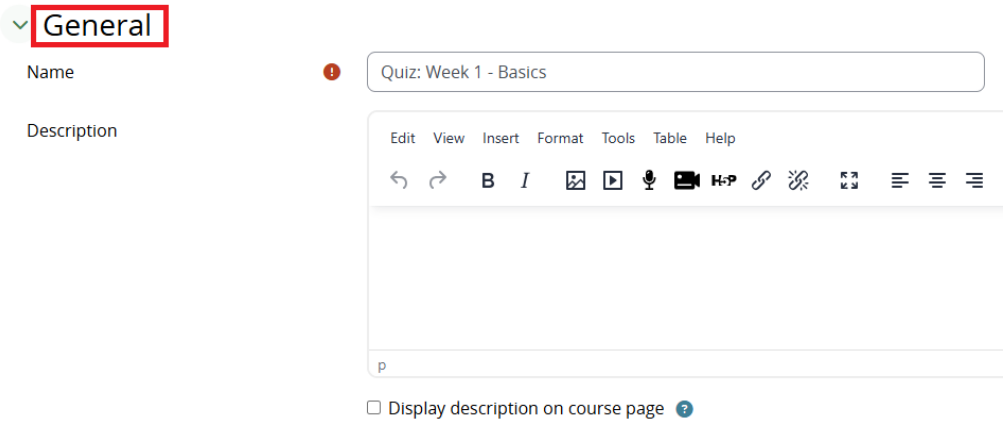

Fig 55. Creating and managing quizzes

In the **Timing** section, you can control when the quiz will be accessible to students. To specify the start and end times, enable the **Open the quiz** and **Close the quiz** options, then set the desired date and time. If needed, you can also set a time limit for the quiz by enabling the **Time limit** option and specifying the duration in minutes. When the time expires, you can choose to submit attempts or discard incomplete ones automatically.

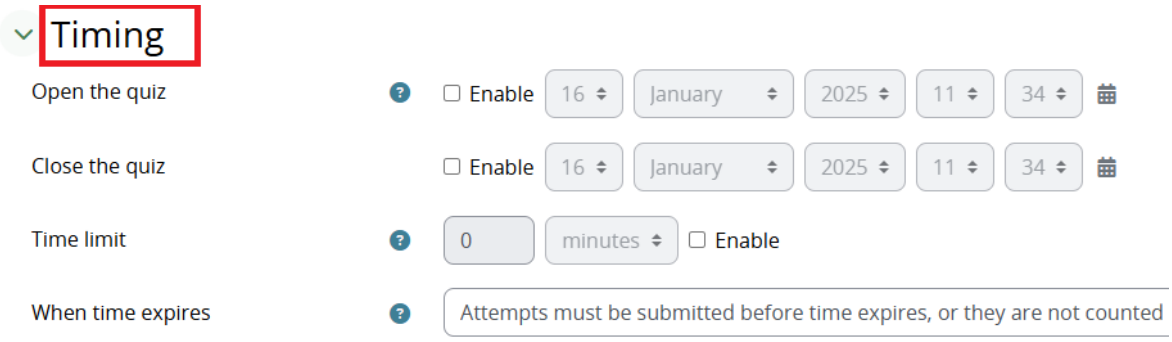

Fig 56. Timing section

The **Grade** section lets you define how the quiz will be scored. Select a **Grade category** if applicable, set the **Grade to pass**, and choose the number of Attempts allowed (e.g., unlimited or a specific number). For multiple attempts, decide on the Grading method (e.g., highest grade, average grade, first attempt, or last attempt).

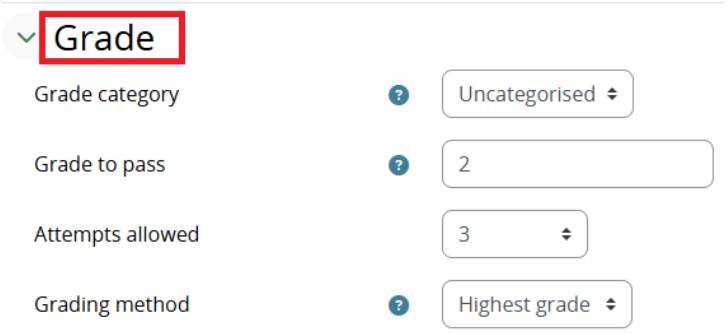

Fig 57. Grade section

In the **Layout** section, choose how questions will be displayed. For instance, you can opt to display one question per page or all questions on a single page. In the **Question behavior** section, you can enable Shuffle within questions to randomize question order and set how students will interact with questions (e.g., deferred feedback or immediate feedback).

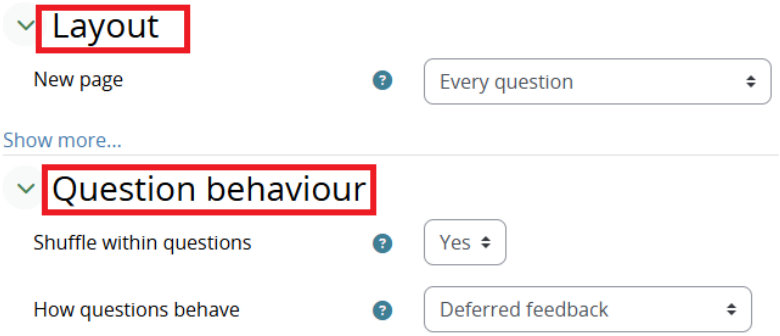

Fig 58. Layout section / Question behavior

The **Review options** section determines what feedback students will see and when. For example, during the attempt, you can allow students to see whether answers are correct in real time. Immediately after the effort, you can provide feedback right after submission. Later, while the quiz is still open, you can enable access to feedback during the quiz window. After the quiz is closed, you can allow students to view feedback only after the quiz deadline. Feedback can include details such as correct answers, specific feedback for each question, overall feedback, and grades.

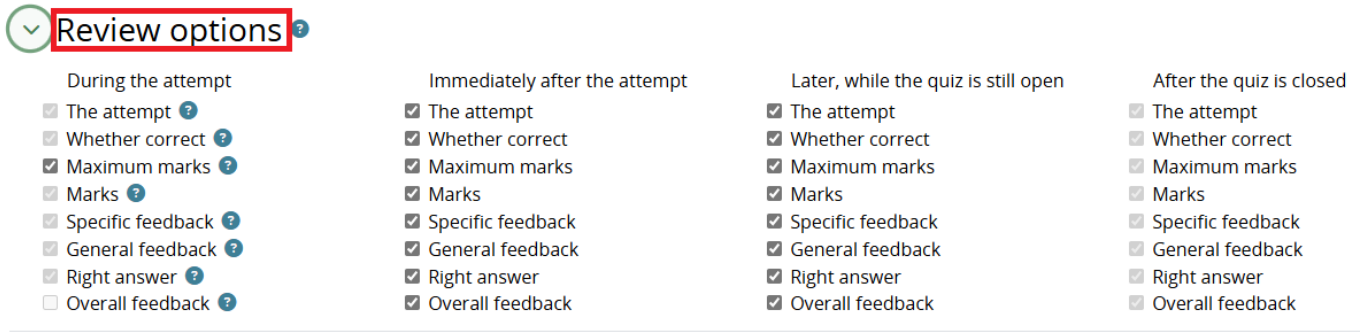

Fig 59. Review options

Under Appearance, you can customize settings like showing the user's profile picture and setting decimal places for grades. If needed, enable the Safe Exam Browser to ensure a secure testing environment.

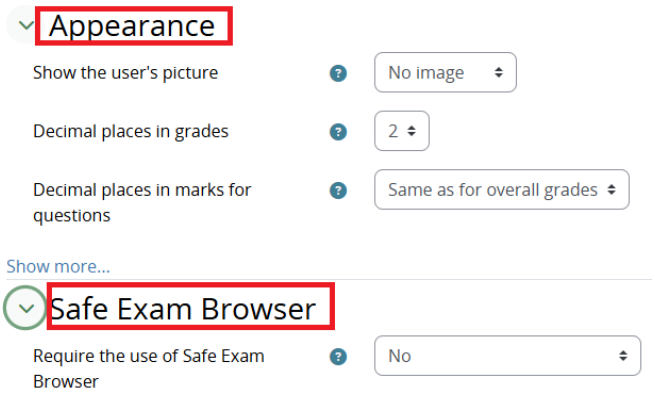

Fig 60. Review options

In the **Extra restrictions on attempts** section, you can add a password to access the quiz, restrict access by IP address, or enforce delays between attempts.

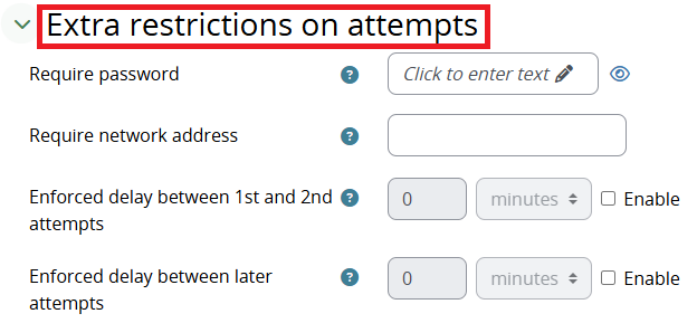

Fig 61. Extra restrictions on attempts section

The **Overall feedback** section allows you to provide customized messages based on students' performance. For instance, for a grade boundary of 100%, you might write, "*Excellent work!*" For a grade boundary of 0%, you could write, "*Please review the materials and try again*."

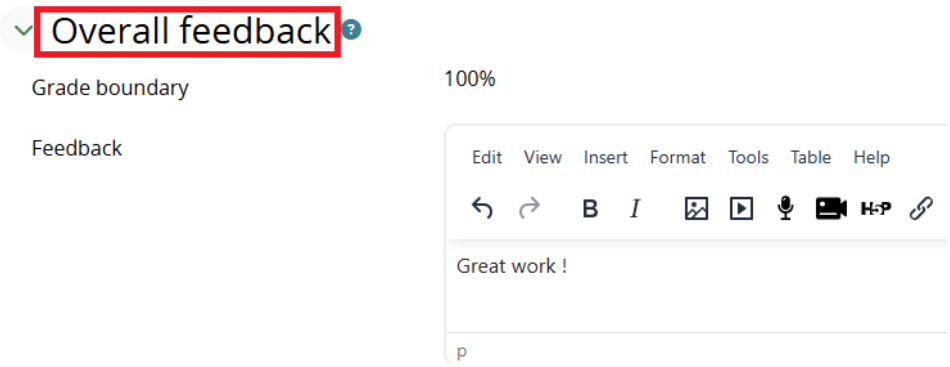

Fig 62. Overall feedback section

In **Common module settings**, decide whether the quiz will be visible to students and assign an ID number if necessary. Use **Restrict access** to control when or to whom the quiz is available, based on criteria like completion of other activities, dates, or group membership.

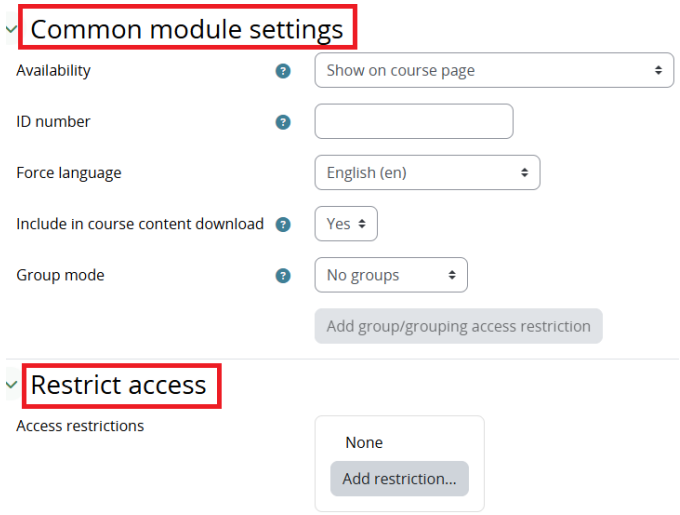

Fig 63. Common module settings section

Once all settings are configured, click **Save and return to course** or **Save and display**. The quiz will now appear in the selected section of the course, ready for students to access.

To add questions to a previously created quiz, first open the quiz settings by clicking the three vertical dots on the right side of the quiz name and selecting **Edit settings**.

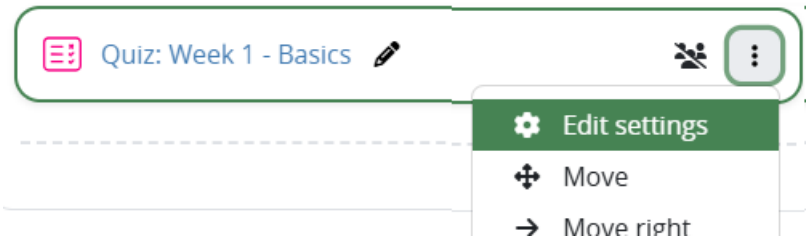

Fig 64. Quiz settings

Once the settings are open, you can start adding questions to the quiz. You have two options: you can add questions one by one by selecting the **Questions** tab, or you can utilize a question bank by navigating to the **Question bank** tab. Both methods allow you to customize the quiz according to your needs, with the question bank being beneficial for reusing or organizing multiple questions efficiently.

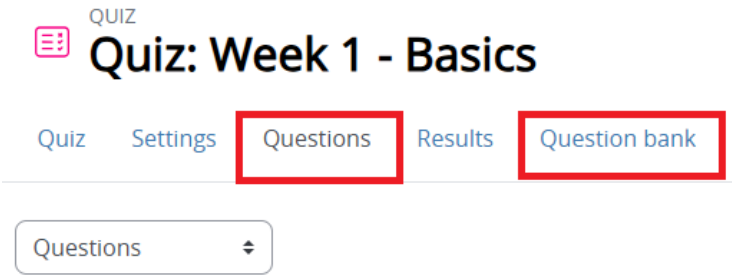

Fig 65. Quiz questions

Open the **Question bank** and add new questions by clicking **Create a new question**.

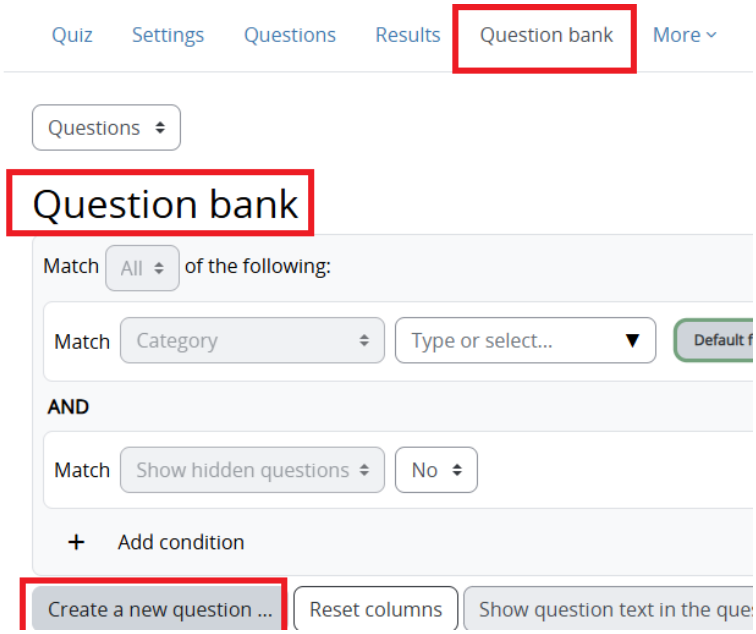

Fig 66. Quiz question bank

From the list of available question types, select the format that best suits your needs. For example, if you want to use a question with multiple correct answers, select the **Multiple choice** category. This option allows students to select more than one correct answer from the provided options.

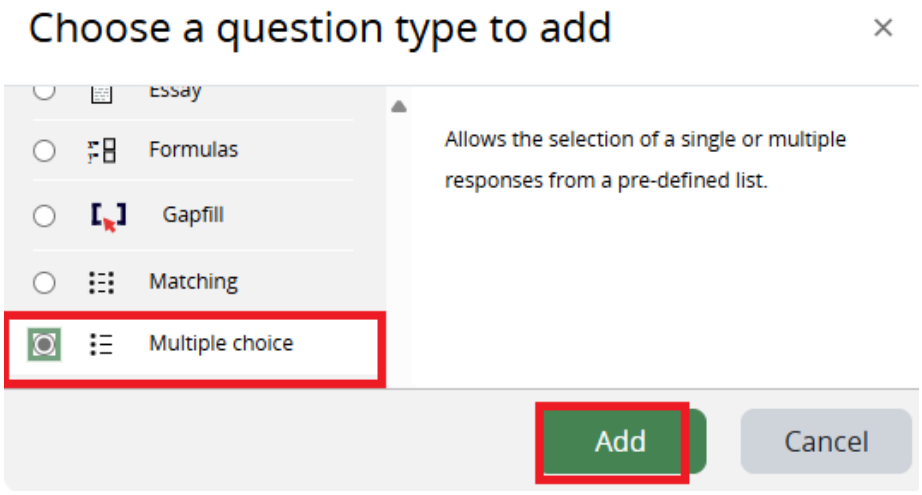

Fig 67. Quiz multiple choice question

As an example, we will create the following question: "*Which of the following are renewable energy sources?*" The options will include Solar energy, Coal, Wind energy, and Natural gas, with Solar energy and Wind energy as the correct answers.

Enter "*Renewable Energy Sources*" in the Question name field as a brief identifier for this question. In the Question text field, write the whole question: "*Which of the following are renewable energy sources?*" Set the question status to "Ready" and assign a default mark, such as 2, which represents the total points for the question. Optionally, you can add general feedback to provide additional information or context for students after they answer.

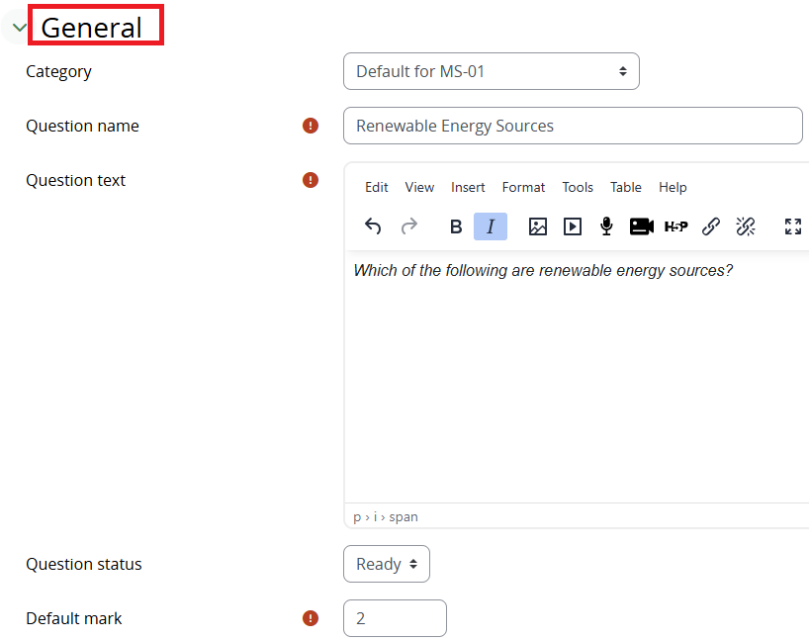

Fig 68. Quiz multiple choice question

Under the question behavior settings, select **Multiple answers allowed** to enable students to choose more than one correct option. Enable the option to shuffle the choices to randomize their order for each attempt. Set the numbering format to "A., B., C., ..." for clarity.

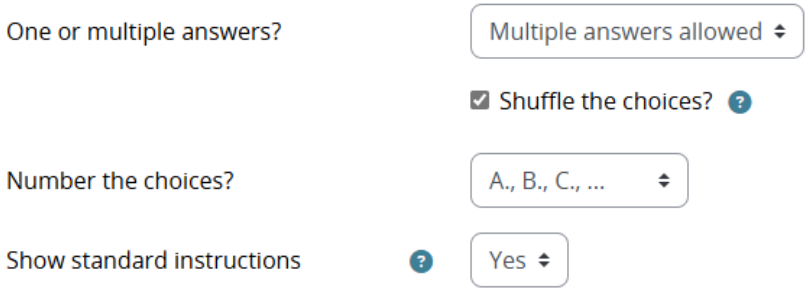

Fig 69. Quiz multiple choice question

In the answers section, define the response options. For Choice 1, enter "*Solar energy*" and assign a grade of 50%, representing half the total points for this correct answer. Add optional feedback, such as "*Correct! Solar energy is renewable*." For Choice 2, enter "*Coal*" and assign a grade of None, with feedback like "*Incorrect. Coal is not renewable*." For Choice 3, enter "*Wind energy*" and assign a grade of 50%, with feedback like "Correct! Wind energy is renewable." For Choice 4, enter "*Natural gas*" and assign a grade of None, with feedback like "*Incorrect. Natural gas is not renewable*."

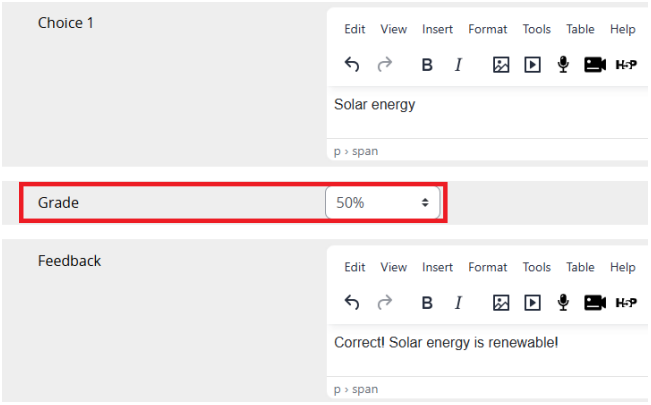

Fig 70. Quiz multiple choice question

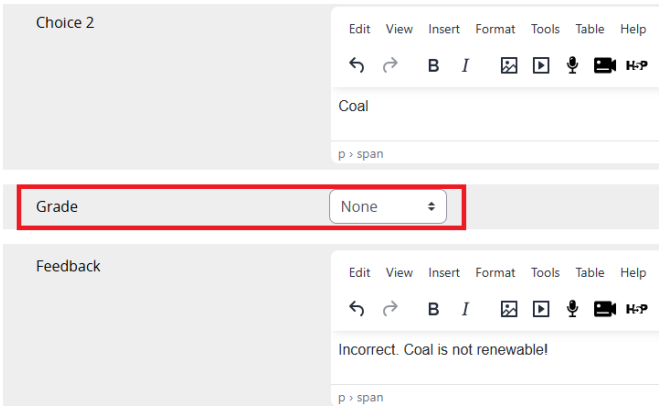

Fig 71. Quiz multiple choice question

In the combined feedback section, you can customize responses for different levels of correctness. For any correct response, enter feedback such as "*Great job! You identified the renewable sources."* For partially correct responses, write feedback like "*You got some correct answers. Review the materials for more information*." For incorrect responses, provide feedback such as "*None of the selected answers are correct. Please try again*."

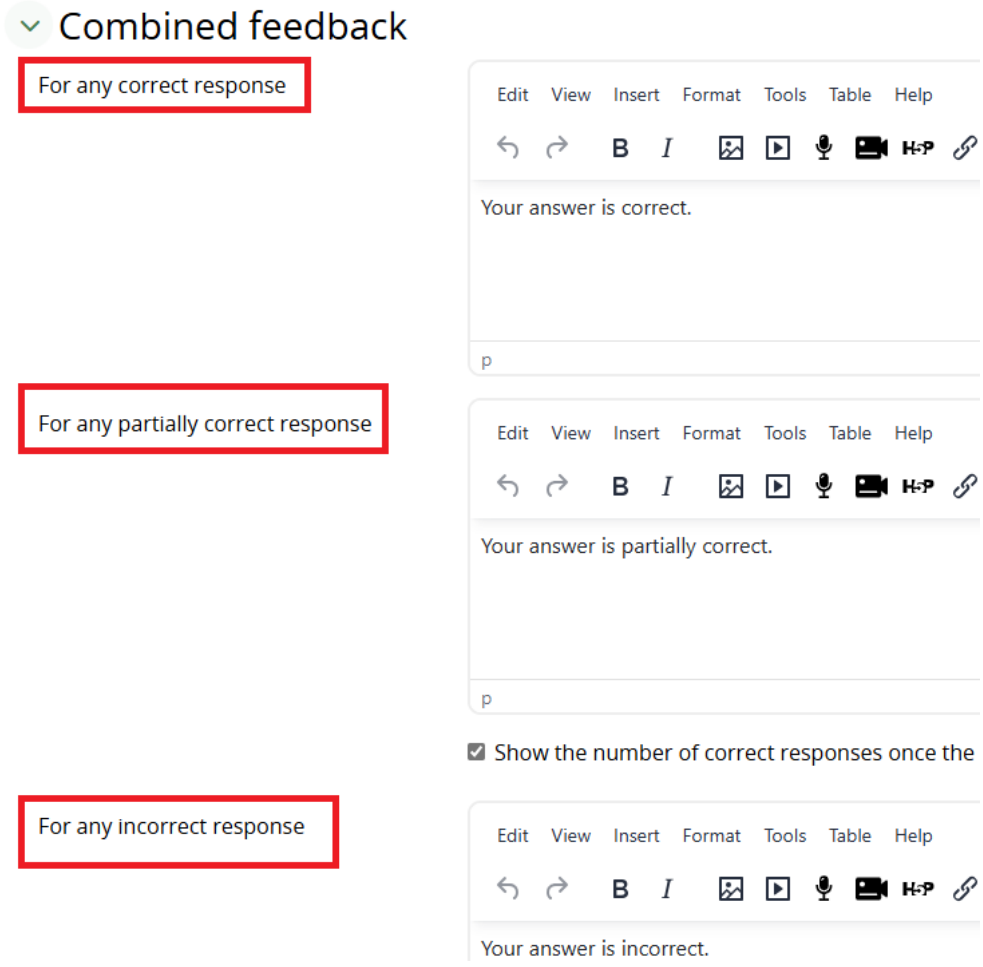

Fig 72. Quiz multiple choice question

If you want to allow multiple attempts, configure the penalty for each incorrect try, for example, 33.33%, to deduct points for subsequent attempts. You can also add hints, such as "*Focus on sources that don't deplete over time*" or "*Consider solar and wind energy*" and enable options to clear incorrect responses or show the number of correct answers.

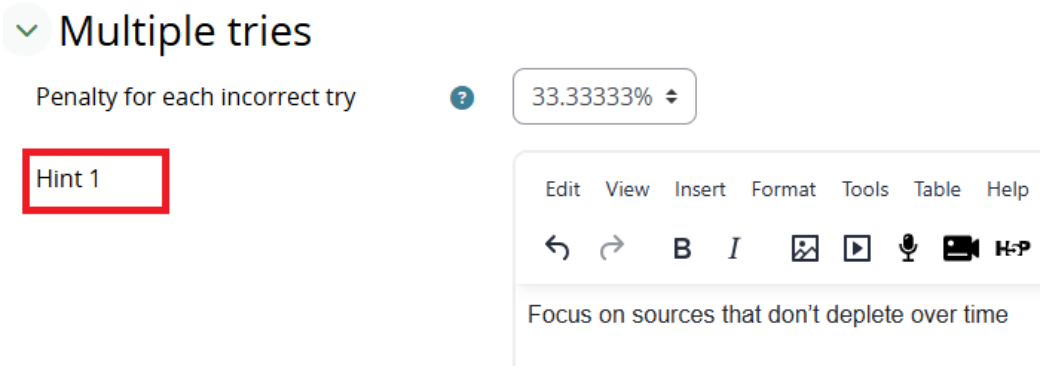

Fig 73. Quiz multiple choice question

Once all settings are complete, click **Save changes** to add the question to the question bank.

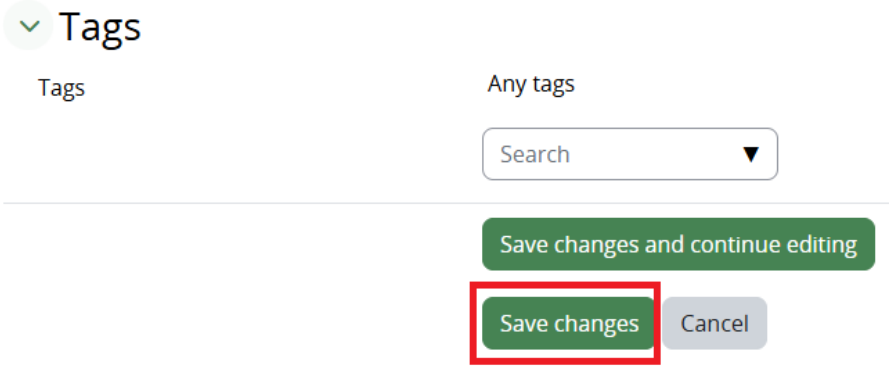

Fig 74. Quiz multiple choice question

To add a new question from the question bank to the quiz, navigate to the Questions tab of the quiz editor. This section provides an overview of the quiz, including the total number of questions, the **maximum grade**, and the total marks currently included in the quiz.

Click the **Add** button, which will display three options. These options allow you to create a new question directly within the quiz, select a question from the question bank, or add a randomly chosen question from a specific category in the question bank.

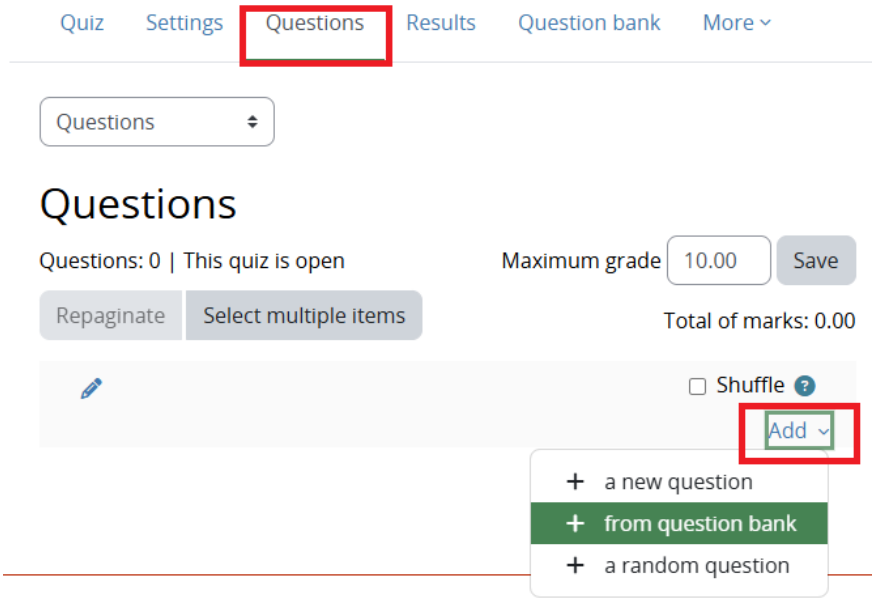

Fig 75. Quiz multiple choice question

Select the option **from question bank**. A window will appear displaying all the available questions in the question bank, organized by category. You can browse through the categories or use the search bar to locate a specific question.

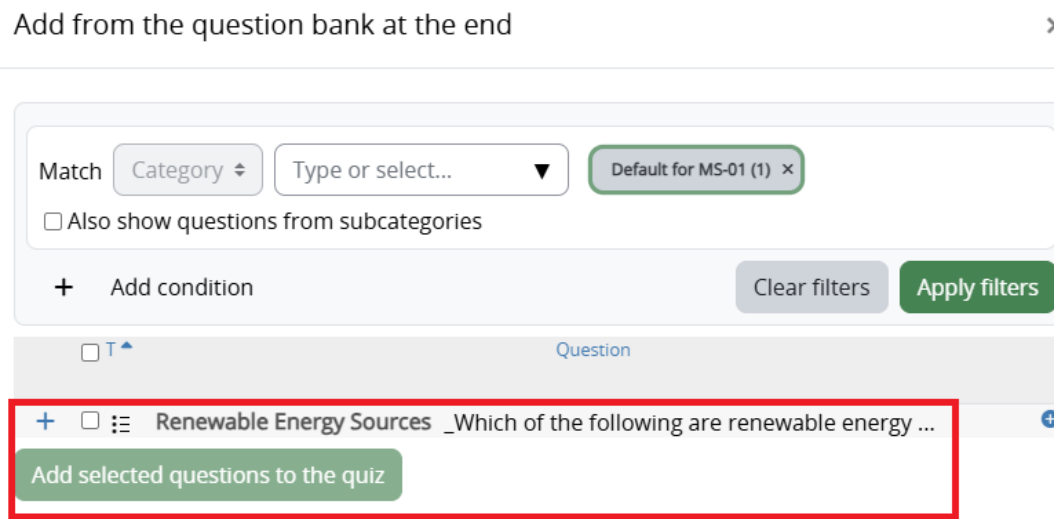

Fig 76. Quiz multiple choice question

Identify the question you wish to add, such as "*Renewable Energy Sources*" and check the box next to it. If you need to include multiple questions, you can select several at once from the list. Click Add selected questions to the quiz to include the chosen questions. These will now appear in the quiz editor under the Questions tab, along with the existing ones.

Please review the updated **Total of marks** and compare it to the **Maximum grade** to ensure the quiz aligns with your intended structure. If necessary, adjust the points allocated to individual questions to maintain balance.

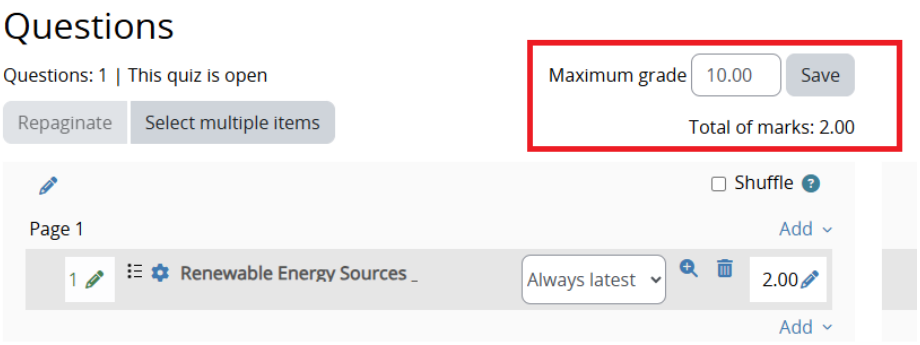

Fig 77. Quiz multiple choice question

Finally, save your changes or preview the quiz to confirm that the added questions are displayed correctly and meet your expectations. This process ensures efficient integration of questions from the bank while maintaining the overall structure of your quiz.

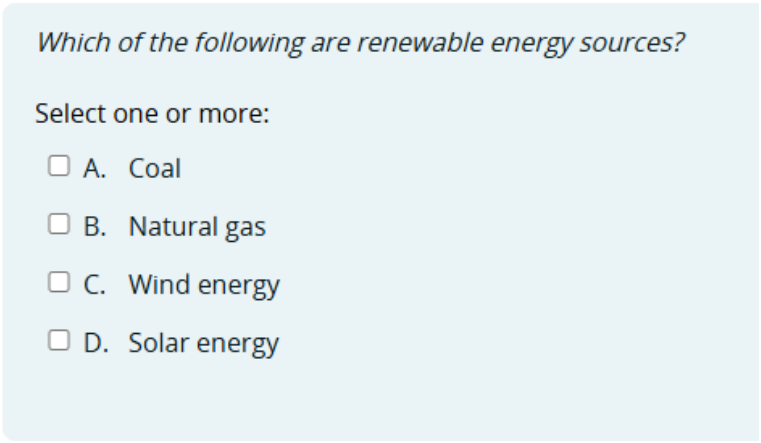

Fig 78. Quiz multiple choice question

6.3. Adding and Managing Assignments

An assignment allows educators to collect, review, and grade student submissions for tasks such as essays, reports, or projects. It serves as a structured way to manage submissions, provide feedback, and track student progress, ensuring an organized and efficient evaluation process.

To add an assignment, navigate to the desired section of your course and click **Add an activity or resource**. From the list of **Recommended** options, select Assignment to create a space where students can submit their work, such as essays, reports, or projects, for evaluation. This feature allows you to configure submission types, deadlines, and grading settings tailored to the course requirements.

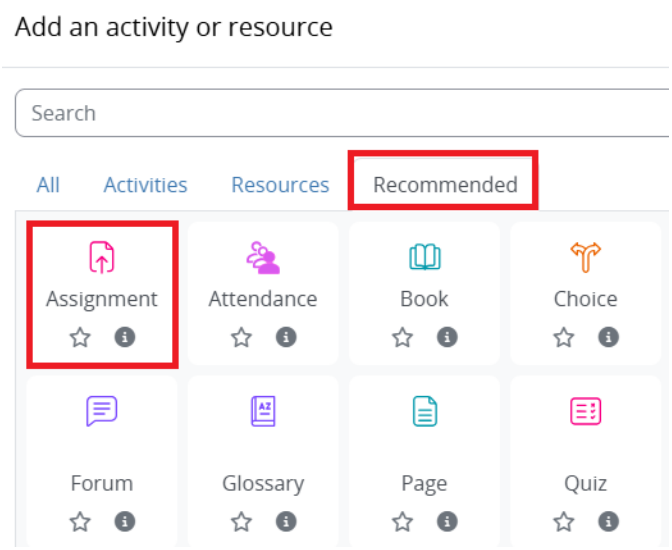

Fig 79. Adding and managing assignments

In the **General** section, provide a clear and descriptive **Assignment name** (e.g., "*Essay on Sustainable Tourism*"). Optionally, add a **Description** to outline the task, such as instructions or submission guidelines. If you want the description to appear on the course page, check **the Display description on the course page**. You can also upload **Additional files** (e.g., templates, reading materials) by dragging and dropping them into the designated area or using the file picker.

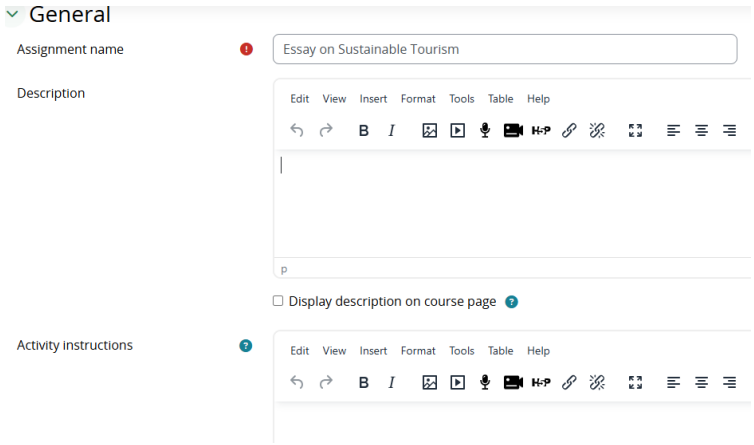

Fig 80. Adding and managing assignments

In the **Availability** section, set the key dates for the assignment. Use **Allow submissions from** to specify the earliest date students can start submitting their work. Configure the **Due date** to indicate the submission deadline. Optionally, set a **Cut-off date** to allow late submissions until a specific point

if you want a reminder to grade submissions by a particular date, enable and configure **Remind me to grade by**.

Under **Submission types**, choose how students will submit their work. Enable **File submissions for** file uploads (e.g., PDFs, Word documents) or **Online text** for students to type directly into the LMS. Specify the **Maximum number of uploaded files**, the **Maximum submission size**, and any **Accepted file types** (e.g., ".pdf, .docx"). For written responses, enable **Word limit** and set the maximum number of words allowed.

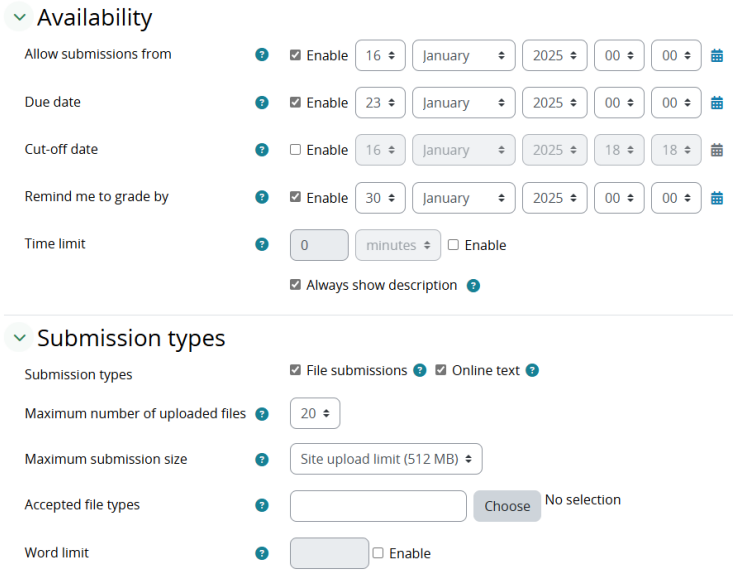

Fig 81. Adding and managing assignments

In the **Feedback types** section, configure how feedback will be provided. You can enable options like **Feedback comments**, **Annotate PDF** (for inline feedback on uploaded files), and Feedback files (to upload marked versions of student submissions). You can also use the **Offline grading worksheet** for bulk grading.

Adjust the **Submission settings** to control the submission process. You can **require students to click a submit button, accept a submission statement**, or allow **additional attempts** if needed.

For group assignments, use the **Group submission settings** to enable submissions in groups and specify group configurations.

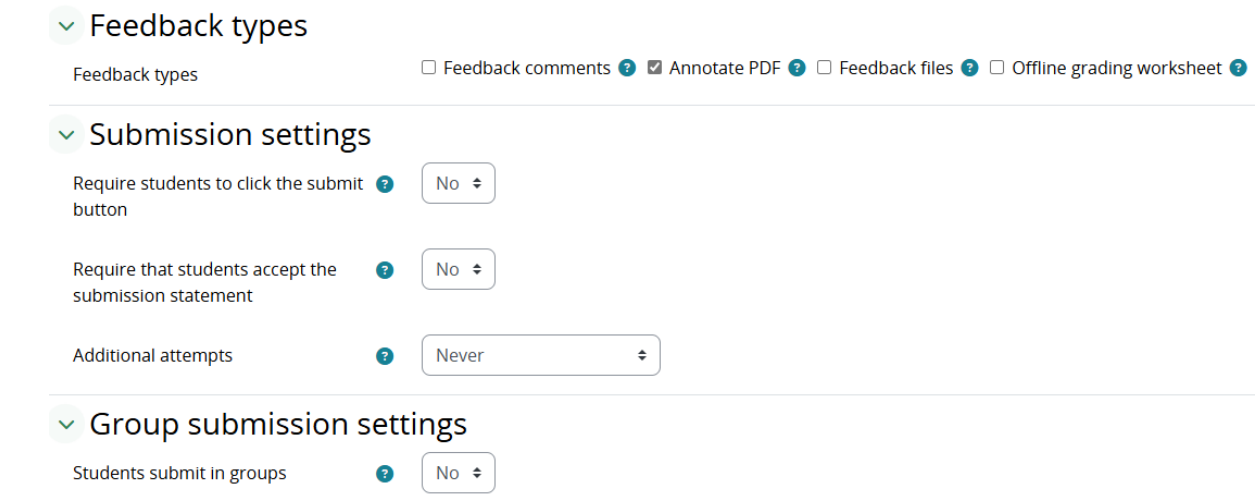

Fig 82. Adding and managing assignments

In the **Notifications** section, configure whether graders are notified about submissions or late submissions and set default notification preferences for students.

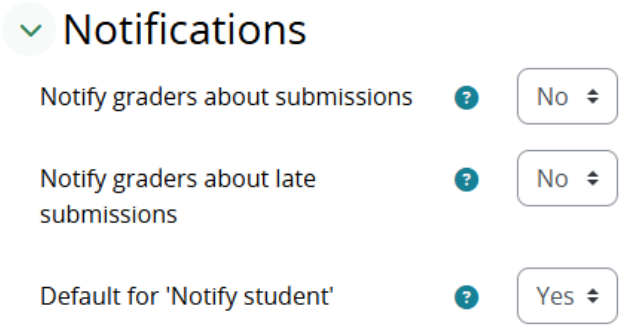

Fig 83. Adding and managing assignments

The **Grade** section allows you to set the **Maximum grade** for the assignment (e.g., 100 points) and choose a **Grading method** such as **Simple direct grading**, **Marking guide**, or **Rubric**. You can also specify a **Grade to pass**, enable anonymous submissions, or use marking workflows to manage the grading process.

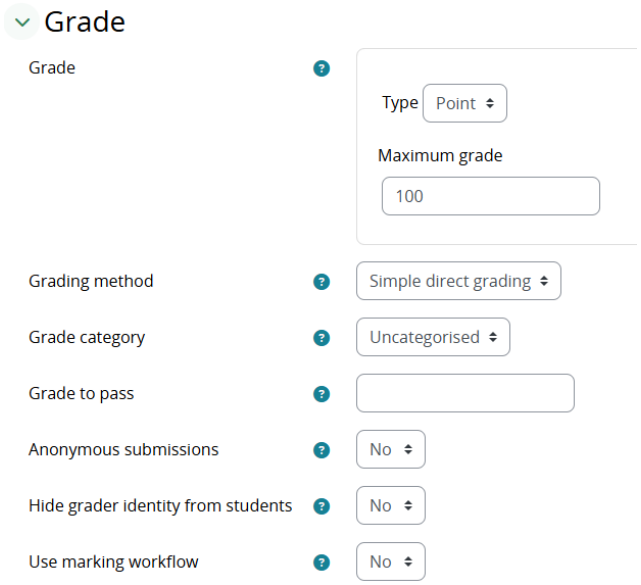

Fig 84. Adding and managing assignments

Once all settings are configured, click **Save and Return to Course** or **Save and Display** to finalize the assignment. The assignment will now appear in the selected course section, ready for students to view and submit their work.

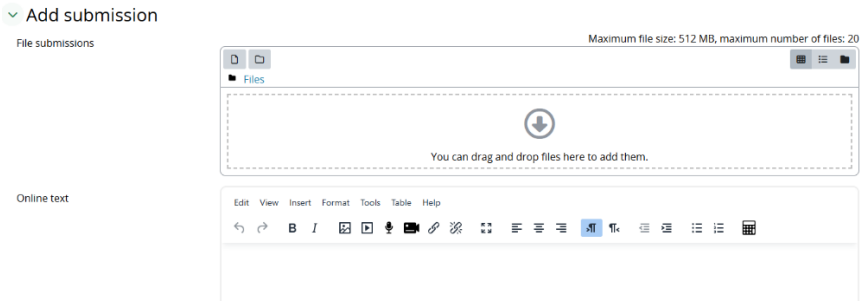

Fig 85. Adding and managing assignments

6.4. Backing Up a Course

Creating a backup of your course is always a good practice to ensure the safety of your data and to enable local downloads for transferring the course to other Moodle systems.

To begin the backup process, navigate to the **Open block drawer** on the right-hand side of the screen (indicated by a left-facing arrow). Clicking it will reveal additional options.

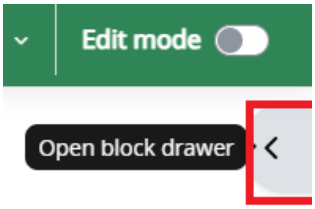

Fig 86. Open block drawer

From the menu, select **Administration**, then **Course administration**, where you will find the **Backup** option.

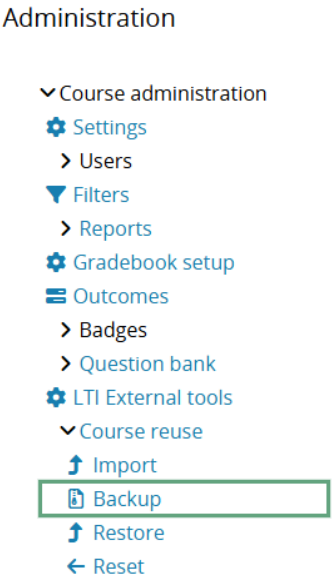

Fig 87. Backing up a course

Once in the backup menu, you can configure the settings to include various elements of the course, such as enrolled users, user role assignments, activities, resources, files, comments, and grade history. The process involves five main steps: **Initial settings, Schema settings, Confirmation and review, Perform backup**, and **Complete**. Each step allows you to customize and review what will be included in the backup.

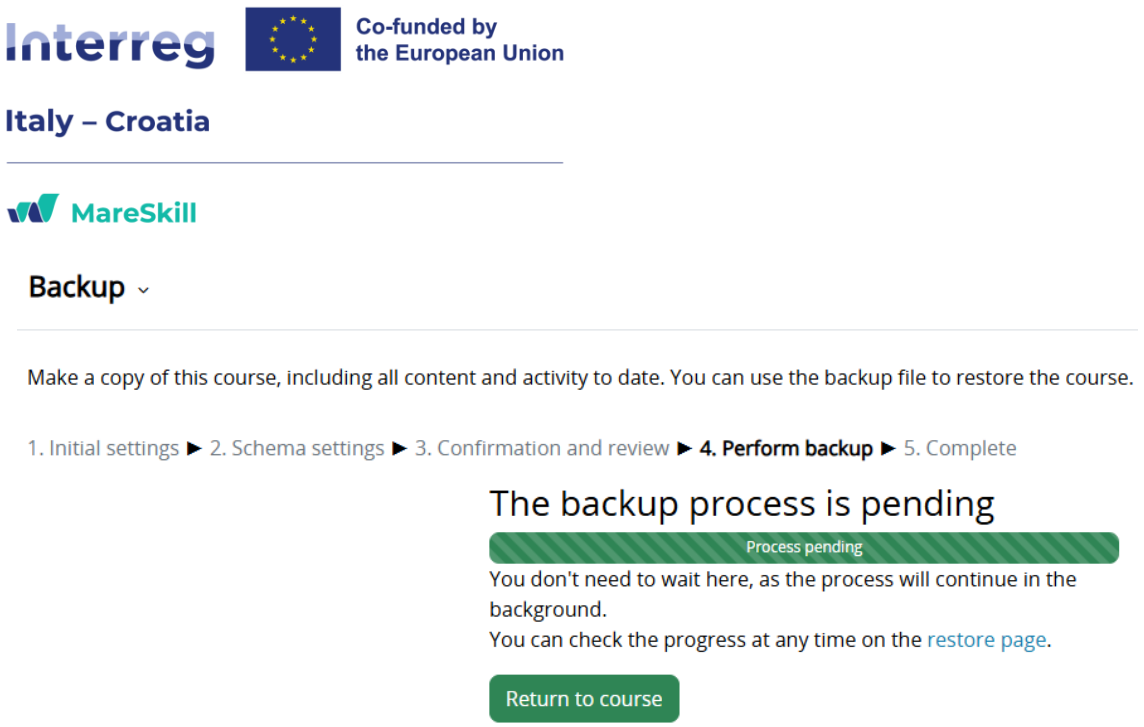

Fig 88. Backing up a course

After completing the process, the backup file will be saved in the Course backup area. You can then download it to your local device for safekeeping or future use or restore it on other Moodle systems.

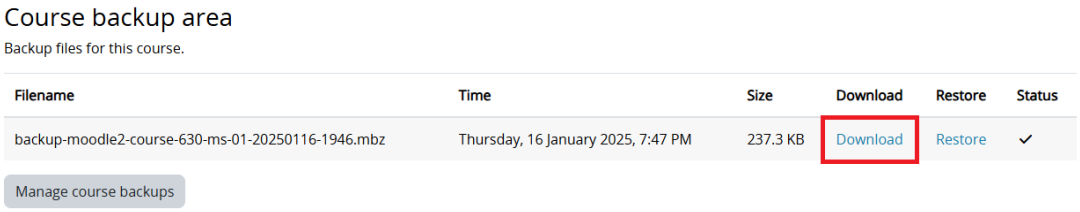

Fig 89. Backing up a course

7. Frequently Asked Questions (FAQ)

I'm using *Access via a local user account,* and I forgot my password. What should I do?

Click on the **Lost password** option on the login page and follow the instructions.

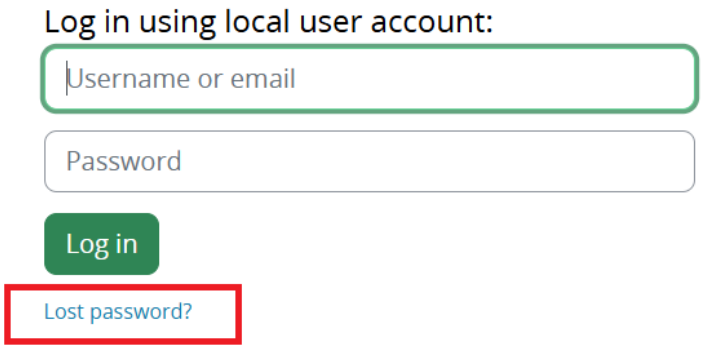

Fig 90. Backing up a course

I cannot access the course. Whom should I contact?

If you have any course-related questions or need assistance, first contact your local instructor for guidance. If additional support is required, you can email the course administrator at mareskill@vus.hr. Be sure to include your name, course name, and a clear description of the issue or inquiry to ensure a prompt response.

Final Notes

Regularly check the announcements section on the platform to stay informed about important updates, including new materials, activity deadlines, or changes to the course schedule. Announcements serve as a primary communication channel, ensuring you don't miss any critical information.

Actively engage in discussions by contributing your thoughts, asking questions, and responding to your peers. This collaborative approach enhances understanding and helps build a supportive learning community. Additionally, make it a priority to complete all assignments and activities on time to reinforce your learning and apply the concepts covered in the course. Consistent participation is key to maximizing your educational experience and achieving your goals.

References

1. J. Singh, "How to use Moodle 4.1," Teacher's Manual for the world's most popular open source LMS, 2023. [Online]. Available: https://www.downes.ca/files/docs/How_to_use_Moodle_4.1.pdf. [Accessed: Feb. 16, 2025].
2. eduGAIN, "How to use eduGAIN" 2020. [Online]. Available: https://edugain.org/participants/how-to-use-edugain/. [Accessed: Feb. 16, 2025].
3. Interreg Italy-Croatia 2021-2027 Programme: "Smart and Innovative Blue Skills for Competitive Blue Economy (MareSkill)," Interreg Italy-Croatia, 2023.
4. University Computing Centre (SRCE): mod.srce.hr – Croatian National e-Learning Platform," SRCE, 2024. [Online]. Available: https://www.srce.unizg.hr/. [Accessed: Feb. 16, 2025].

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