



DUALMON

Strengthening capacities for the
implementation of dual education
in Montenegro Higher Education

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



5.2 Internal project control and monitoring report

Project acronym:	DUALMON
Project full title:	Strengthening capacities for the implementation of dual education in Montenegro higher education
Project No:	617392-EPP-1-2020-1-RS-EPPKA2-CBHE-SP
Funding scheme:	ERASMUS+
Project start date:	January 15, 2021
Project duration:	36 months

Abstract	Project evaluation report is an executive summary of quality assurance throughout the project.
----------	--

Title of document:	Report on Internal project control and monitoring
Work package:	WP5 Quality Assurance and Monitoring
Activity:	5.2 Internal project control and monitoring report
Last version date:	30.10. 2024
File name:	5.2 Internal project control and monitoring report
Number of pages:	18
Dissemination level:	Project consortium

VERSIONING AND CONTRIBUTION HISTORY

Version	Date	Revision description	Partner responsible
v. 1	30/10/2024	First version	FHJ
v. 2	27/11/2024	Second version	FHJ
v. 3	05/12/24	Final version	UNS

DISCLAIMER

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Contents

1.	Introduction	4
2.	Internal evaluation of the Models of Dual Education in Higher Education in Montenegro	6
2.1	Generic Models of Dual Higher Education (DHE) in Montenegro	6
2.2	Summary of the generic models	7
3. ..	Overall Satisfaction of Stakeholders with the Piloting of the DUALMON Project at Partner Faculties	7
3.1	Faculty of Electrical Engineering	8
3.2	Faculty of Maritime Studies Kotor	8
3.3	Faculty of Economics	9
4.	External evaluation	10
5.	Conclusion and Final Recommendations	12
6.	Annexes	15
2.	Report on the Models of Dual Education in Higher Education in Montenegro	15

1. Introduction

The final internal evaluation report focuses on the main outputs of the DUALMON project. The generic model and adaptation of the existing curricula, development of new curriculum, integration of suggestions of dual ideas into the existing educational Higher Education system, and recommendations deriving from the external evaluation.

The DUALMON project was designed to develop a dual higher education model tailored for Montenegro. This model, referred to as the DUALMON model, was conceived as a flexible and generic framework, enabling its adaptation and implementation across all regions of Montenegro. It summarized the needs of diverse stakeholders—including companies, higher education institutions (HEIs), students, and policymakers—which were collected and analyzed during the project's initial phase.

The model addressed key aspects of dual education, providing solutions for effective communication among students, HEIs, and companies, as well as guidelines on internship duration, financial incentives, student wages, examinations, and contractual documents. The insights and recommendations gathered through the project informed the development of a comprehensive and adaptable system for dual higher education.

One of the significant milestones achieved during the project was the Conference on DUALMON's added value to the industrial sector. This conference focused on improving the competencies of dual students to align with industry needs and featured participation from a broad range of stakeholders, including ministries and the Chamber of Commerce in Montenegro.

The DUALMON model also included a set of standardized contractual documents, such as templates for agreements, schedules, and labor protection forms, finalized in collaboration with the Chamber of Commerce. These documents benefited from the contributions of partners from program countries, who shared examples and best practices to ensure their practicality and compliance with legal and labor requirements.

The DUALMON model has thus provided a solid foundation for the future development of specific dual education models and proposals for improving the legal framework of dual higher education in Montenegro.

2. Internal evaluation of the Models of Dual Education in Higher Education in Montenegro

The evaluation of developed generic model was evaluated by the draft for minimum standards for the acceptance as a Dual study program in HE in the consortium of EU4Dual. These minimum standards of EU4Dual are lower than the standards provided by the Stifterverband¹ in Germany or the Austrian Accreditation Agency for Quality Assurance AQ Austria.

2.1 Generic Models of Dual Higher Education (DHE) in Montenegro

The generic part of the model ensures the foundations of the Dual character of the respective study program, as the flexible part considers successful implementation according to the individual requirements in the program environment. (See also in “Generic model for dual education in higher education (DUALMON model) for Montenegro, p.16 ff, Table 4.1.: The Generic and Flexible Dual Higher Education Model)

The project partners in Montenegro developed two main generic models of DHE:

- Parallel working, teaching and learning time schedules (see “Generic model for dual education in higher education (DUALMON model) for Montenegro”, chapter 4.1.)
- Sequential working, teaching and learning time schedules (see “Generic model for dual education in higher education (DUALMON model) for Montenegro”, [chapter 4.2.](#))

¹ Stifterverband is a joint initiative started by companies and foundations – the only one in Germany to be devoted entirely to consulting, networking and promoting improvements in the fields of education, science and innovation.

2.2 Summary of the generic models

The specific characteristics of the parallel and sequential model are well described in chapters 4.1.3 and 4.2.4. of “Generic model for dual education in higher education (DUALMON model) for Montenegro”.

Remarkably, all parameters that might have to be considered were considered in detail.

All models of the bachelor’s program start with the required internships after the program's second semester. The experience shows that applicants for a study program may apply with a very diverse background of pre-education. The first two semesters may be used to give the students a certain amount of common starting knowledge before they go to the enterprises for their first internship.

It should be taken additionally into consideration that a decisive advantage of the sequential model is that the students can concentrate on the venue where they are. The students can focus on the content of the study program and can focus on the challenges in the world of work at the time of their internship. The parallel model carries the risk that the student is more focused on studying or on the challenges of work. The performance is likely to suffer under this two-sided strain.

Both introduced models fulfill the parameters of the chosen evaluation schemes.

Overall, it can be said that the basic idea of Dual training is well reflected in all models presented. Both introduced models fulfill the parameters of the chosen evaluation schemes.

3. Overall Satisfaction of Stakeholders with the Piloting of the DUALMON Project at Partner Faculties

The piloting of the DUALMON project across the Faculty of Electrical Engineering, the Faculty of Maritime Studies Kotor, and the Faculty of Economics has been met with high

satisfaction from key stakeholders, including dual students, company mentors, and academic mentors. Surveys conducted in 2023 and 2024, as well as feedback from participants, indicate that the project has been largely successful, highlighting the potential for long-term sustainability and expansion of dual higher education. Below is a consolidated summary of the findings from the three faculties:

3.1 Faculty of Electrical Engineering

The pilot project at the Faculty of Electrical Engineering was deemed highly successful. Key highlights include:

The proactive integration of a 45-day professional internship for selected students in their sixth semester ensures the continuity of dual education practices.

Stakeholders expressed a strong commitment to the dual education model, underlining its value in enhancing professional readiness.

Recommendations emphasized maintaining and building upon the successes achieved during the piloting phase.

3.2 Faculty of Maritime Studies Kotor

The pilot project at the Faculty of Maritime Studies Kotor was equally successful, with stakeholders recognizing the potential for professional growth and improved mentoring through dual education. Key insights include:

The internship encouraged collaboration and skill enhancement, with future employment possibilities highlighted.

Recommendations for improvement include:

- Extending the internship period beyond 1.5 months.
- Allowing internships aboard ships, in addition to office-based roles.

- Enhancing promotion of dual education benefits.
- Ensuring full alignment of student tasks with learning outcomes.
- Expanding opportunities for all final-year students across study programs.
- As this was the faculty's first dual education initiative, it has laid a foundation for integrating this approach more formally in future curricula.

3.3 Faculty of Economics

The DUALMON project at the Faculty of Economics was highly effective, with significant outcomes for participants:

Of the 17 dual students, 8 received job offers from their respective internship employers.

Stakeholders expressed high satisfaction with the program's implementation, underscoring its relevance to professional development.

Recommendations for future improvements include:

- Extending internships beyond 1.5 months with shorter daily hours.
- Allowing students to select their preferred internship companies.
- Ensuring better alignment of internship tasks with learning outcomes.
- Broadening access to dual education for all final-year students.

The DUALMON project's pilot phase has demonstrated significant success across all three faculties, with high stakeholder satisfaction and tangible outcomes like job offers and professional growth. Moving forward, several recommendations were identified to further enhance the program, including extending internship durations, aligning tasks with learning outcomes, and expanding access to dual education. These insights provide a strong foundation for embedding the dual education model into higher education curricula and fostering long-term benefits for students and institutions alike.

For further details see also the project deliverable 4.8 Analysis of the results of pilot testing of each of specific Dual models.

4. External evaluation

The external evaluation report highlights the significance of the DUALMON project as a valuable initiative aimed at transforming Montenegro's higher education model to align more closely with the needs of the professional world. In a context where internships in companies have little tradition, the project is seen as ambitious and groundbreaking, laying the foundation for gradual and evolutionary progress toward a dual education model.

Key observations from the report include:

a. Cultural Shift Required for Dual Education

The successful implementation of a dual model needs deep cultural changes among all stakeholders:

- Academia: Needs to recognize the value of professional environments as legitimate training grounds, fostering mutual trust and collaboration with companies.
- Companies: Must view their role in training future professionals as an investment and allocate appropriate resources to this goal, including remuneration for student work.
- Students: Are encouraged to take an active role in their training, balancing dual roles as learners and employees in the workplace.

b. Progress Toward a True Dual Model

While the proposed model primarily resembles a traditional internship model, it represents a critical and necessary step toward achieving a genuine dual education system.

The ultimate goal should be a model that integrates academic and professional learning, ensuring coherence between the two environments and fostering collaboration between universities and companies.

c. Framework and Pedagogical Focus

A dual model should feature joint responsibility for training, assessment, and monitoring between universities and companies, with close collaboration to design training programs that ensure competency development.

The relationship among the three key actors—student/apprentice, academic tutor, and company mentor—requires a well-designed pedagogical framework to support meaningful engagement and outcomes.

d. Project Contribution and Future Potential

Despite limitations, the DUALMON project has successfully opened channels of communication between HEIs and companies, fostering a foundation of trust and collaboration. The pilot programs, though traditional in structure, are well-planned and represent a strategic starting point for building a dual education model.

The project's outcomes should be viewed as the beginning of a transformative process rather than an endpoint, serving as an accelerator for future developments.

The report concludes that the DUALMON project is a step toward modernizing higher education in Montenegro. By fostering closer ties between academia and industry, and encouraging an integrated approach to learning, the project has set the stage for further evolution toward a comprehensive dual education model.

For further information see also the project deliverable 5.3.1 External Evaluation report.

5. Conclusion and Final Recommendations

The DUALMON project has demonstrated significant progress toward transforming the Higher Education landscape in Montenegro by introducing dual education principles and practices. This initiative has laid the groundwork for fostering closer collaboration between academia and industry, aligning educational outcomes with professional requirements, and preparing students for successful careers. Based on the internal and external evaluations, the following final recommendations and outputs are proposed:

Strengthening Dual Education Practices

- Extend internship durations to provide students with deeper engagement and meaningful industry exposure.
- Expand internship opportunities to include diverse environments, such as ships for maritime students or sector-specific settings for economics and engineering students.
- Improve alignment between academic learning outcomes and practical tasks to ensure coherent and complementary skill development.

Enhancing Stakeholder Engagement

- Foster continuous dialogue and collaboration between HEIs and companies to build mutual trust and refine dual education frameworks.
- Promote awareness of dual education benefits among stakeholders, including students, companies, and policymakers, to enhance participation and commitment.
- Encourage companies to recognize their role in shaping the future workforce and invest in training resources and student remuneration.

Expanding Access and Flexibility

- Broaden the scope of dual education to include all final-year students across relevant study programs.

- Offer students the opportunity to select their preferred internship companies, fostering autonomy and alignment with career ambitions.
- Provide flexible scheduling options (parallel and sequential models) to accommodate diverse learning and working needs.

Developing a Comprehensive Legal Framework

- Build on the project's contractual templates to establish a legal framework that supports dual education, including agreements for practical stages, labor protection, and evaluation guidelines.
- Ensure compliance with international standards and adapt successful practices from program countries to the Montenegrin context.

Focusing on Long-Term Sustainability

- Institutionalize dual education practices within HEIs to ensure the continuance of the DUALMON model.
- Leverage the project's insights to advocate for policy changes that embed dual education as a key component of Montenegro's Higher Education system.
- Continue monitoring and refining dual education programs to align with evolving industry needs and student expectations.

Final Outputs

Generic Models for Dual Education: Two models (parallel and sequential) tailored to Montenegro's Higher Education system, adaptable to various academic and professional contexts.

Standardized Templates: Documents finalized for dual education implementation, ensuring clarity and compliance for all stakeholders.

Stakeholder Recommendations: Actionable insights derived from the pilot phase to guide future program enhancements and stakeholder engagement strategies.

Cultural Foundations for Dual Education: Strengthened collaboration between academia and industry, paving the way for a transformative cultural shift toward integrated learning.

The DUALMON project marks a crucial step in modernizing Montenegro's education system. By building on its achievements and addressing identified areas for improvement, the foundation is set for a sustainable and significant dual education model that meets the needs of students, academia, and industry.

6. Annexes

1. Report on the Models of Dual Education in Higher Education in Montenegro

Table of contents	Error! Bookmark not defined.
1. Introduction	15
1.1. Evaluation scheme Stifterverband	16
1.2. Evaluation scheme EU4Dual	17
2. Generic Models of Dual Higher Education (DHE) in Montenegro.....	6
3. Summary.....	4

1. Introduction

The Project DUALMON -617392-EPP-1-2020-1-RS-EPPKA2-CBHE-SP - aimed to “Strengthen capacities for the implementation of Dual Education in Higher Education in Montenegro”.

The partner University of Novi Sad and FH JOANNEUM are experienced in the introduction and development of Dual Educational study programs in Higher Education.

FH JOANNEUM is a member of the European University Alliance EU4Dual <https://eu4dual.education/> for developing and introducing the first European Dual University. Besides the collaboration of 9 European Universities in teaching, research, and development it is a common goal in EU4Dual to develop a center of excellence for Dual Education in HE in Europe and set up standards for Dual Education.

The evaluation of the developed generic model will be evaluated by the draft for minimum standards for the acceptance as a Dual study program in HE in the consortium of EU4Dual.

These minimum standards 1.2. of EU4Dual are lower than the standards 1.1. provided by the Stifterverband in Germany or the Austrian Accreditation Agency for Quality Assurance AQ Austria.

1.1. Evaluation scheme Stifterverband

Evaluation scheme based on the previously traditional scheme that has been used in legislation in Germany, Austria, and Switzerland to classify a study program as Dual:

Definition:

“Dual study” refers to the content and structural integration of at least two equivalent learning locations – university and company – for a jointly designed education at the university level.

The parameters (according to the German Stifterverband in 2015) characterize a Dual study program as follows:

- Multiple sequences of theory and practical phases and continuous reflection
- The practical phases go beyond the usual scope of a professional internship in a University course, both in terms of time and the concretization of the content.
- The acquisition of curricular-defined skills takes place at both learning locations and is characterized by the combination of scientific and implementation orientation.
- The admission procedures for universities and companies are the responsibility of the respective partners and are coordinated with each other.
- The admission procedures for universities and companies are the responsibility of the respective partners and are coordinated with each other.
- The company must assume a training obligation and be suitable for conveying the intended study content.

- The organization of the theory and practical phases provides the framework for a tolerable overall time burden for students.
- The relationship between the three partners - student, university, and company - is subject to binding regulations for quality assurance.
- There is a continuous training partnership with appropriate remuneration for the practical phases within the framework of an employment relationship that ideally lasts for at least two-thirds of the duration of the study.

(source: Maschke 2015, Stifterverband für die Deutsche Wissenschaft)

1.2. Evaluation scheme EU4Dual

Mandatory criteria to fulfill for classification as a Dual study program according to EU4Dual WP2

The mandatory seven main criteria for DHE are the following:

1. Study program and work placement are aligned
The skills and competencies a dual student will develop in the practical phase with the world of work partners are closely related to the content of the study program.
2. ECTS are awarded for work placement(s)
HEI and the world of work partners are both committed to validating the skills acquired in the workplace.
3. Skills development and learning outcomes are interlinked
Learning in different learning environments aims for continuous development of competencies and rising employability of the student.
4. The share of practical learning is a minimum of 20% of ECTS
Share of practical learning and dovetailed integration of learning content has to be documented and approved by HEI and World of Work.
5. There is a formalized commitment between partners

Practical and administrative arrangements are done and documented between all three parties.

6. Quality Assurance of the entire Dual Study Program

There is a close collaboration between HEI and the world of work partners for monitoring and evaluation of the study program, stakeholders' performance, and impact.

7. Dual learning dimensions are anchored to the overall policies and strategic framework of the study program.

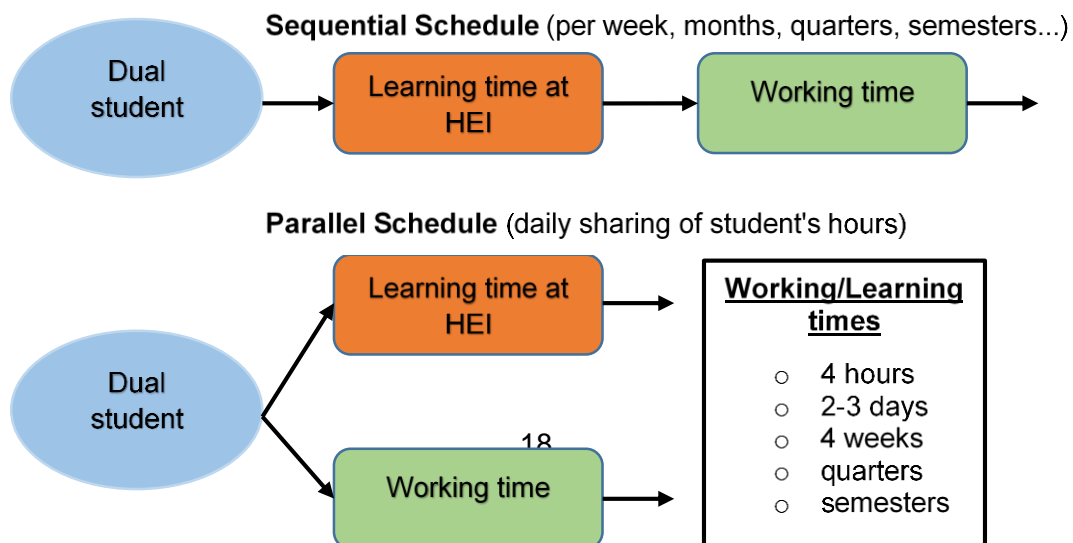
2. Generic Models of Dual Higher Education (DHE) in Montenegro

Section 4. in the “Generic Dual Higher Education Model” describes vivid the 5 generic models and their composition in generic and a flexible part.

The generic part ensures the foundations of the Dual character of the respective study program, while the flexible part takes into account successful implementation according to the individual requirements in the program environment. (See also in “Generic model for dual education in higher education (DUALMON model) for Montenegro, p.16 ff, Table 4.1.: The Generic and Flexible Dual Higher Education Model)

The project partners in Montenegro developed two main generic models of DHE:

- Parallel working, teaching and learning time schedules (see “Generic model for dual education in higher education (DUALMON model) for Montenegro”, chapter 4.1.)
- Sequential working, teaching and learning time schedules (see “Generic model for



dual education in higher education (DUALMON model) for Montenegro”, chapter 4.2.)

Figure: Sequential and parallel schedule of work and study of dual students

(source: “Generic model for dual education in higher education (DUALMON model) for Montenegro, p.26, Figure 4.3. Sequential and parallel schedule of work and study of dual students)

3. Summary of the generic models

The specific characteristics of the parallel and sequential model are well described in chapters 4.1.3 and 4.2.4. of “Generic model for dual education in higher education (DUALMON model) for Montenegro”

It is remarkable that all parameters that might have to be considered were considered in great detail.

All models of the Bachelor’s program start with the required internships after the program's second semester. The experience shows that applicants for a study program may apply with a very diverse background of pre-education. The first two semesters may be used to give the students a certain amount of common starting knowledge before they go to the enterprises for their first internship.

It should be taken additionally into consideration that a decisive advantage of the sequential model is that the students can concentrate on the venue where they are. The students can focus on the content of the study program and can focus on the challenges in the world of work at the time of their internship. The parallel model carries the risk that the student is more focused on studying or on the challenges of work. The performance is likely to suffer under this two-sided strain.

Both introduced models fulfill the parameters of the chosen evaluation schemes.

Overall, it can be said that the basic idea of Dual training is well reflected in all models presented.

Both introduced models fulfill generally the parameters of the chosen evaluation schemes.

4. Joint Report: Overall Satisfaction of Stakeholders with the Piloting of the DUALMON Project at Partner Faculties

The DUALMON project aims to develop a dual higher education model tailored for Montenegro. This model, referred to as the DUALMON model, is designed to be flexible

and generic, enabling its adaptation and implementation across all regions of Montenegro. Grounded in the needs of diverse stakeholders—including companies, higher education institutions (HEIs), students, and policymakers—the model reflects insights gathered through comprehensive analysis in the project’s initial phase.

The DUALMON model addresses key aspects of dual education, offering solutions for effective communication among students, HEIs, and companies, as well as guidelines on internship duration, financial incentives, student wages, examinations, and contractual documents. By integrating stakeholder feedback and best practices, the model will form the foundation for creating specific dual education models and legal framework enhancements in subsequent project phases.

A key milestone in the project is the Conference on DUALMON’s added value to the industrial sector, scheduled for M14. This event will focus on enhancing the competencies of dual students to better align with industry needs, featuring participation from a broad range of stakeholders, including ministries and the Chamber of Commerce in Montenegro.

To ensure practical implementation, the DUALMON model will incorporate standardized contractual documents such as templates for agreements, schedules, and labor protection forms. These documents will benefit from the expertise of the Chamber of Commerce and contributions from international partners, who will share examples and good practices from their own experiences. This comprehensive approach ensures the DUALMON model will serve as a robust foundation for advancing dual higher education in Montenegro.

The piloting of the DUALMON project across the Faculty of Electrical Engineering, the Faculty of Maritime Studies Kotor, and the Faculty of Economics has been met with high satisfaction from key stakeholders, including dual students, company mentors, and academic mentors. Surveys conducted in 2023 and 2024, as well as feedback from participants, indicate that the project has been largely successful, highlighting the potential for long-term sustainability and expansion of dual higher education. Below is a consolidated summary of the findings from the three faculties:

4.1 Faculty of Electrical Engineering

The pilot project at the Faculty of Electrical Engineering was deemed highly successful.

Key highlights include:

The proactive integration of a 45-day professional internship for selected students in their sixth semester, ensuring the continuity of dual education practices.

Stakeholders expressed a strong commitment to the dual education model, underlining its value in enhancing professional readiness.

Recommendations emphasized maintaining and building upon the successes achieved during the piloting phase.

4.2 Faculty of Maritime Studies Kotor

The pilot project at the Faculty of Maritime Studies Kotor was equally successful, with stakeholders recognizing the potential for professional growth and improved mentoring through dual education. Key insights include:

The internship encouraged collaboration and skill enhancement, with future employment possibilities highlighted.

Recommendations for improvement include:

- Extending the internship period beyond 1.5 months.
- Allowing internships aboard ships, in addition to office-based roles.
- Enhancing promotion of dual education benefits.
- Ensuring full alignment of student tasks with learning outcomes.
- Expanding opportunities for all final-year students across study programs.
- As this was the faculty's first dual education initiative, it has laid a foundation for integrating this approach more formally in future curricula.

4.3. Faculty of Economics

The DUALMON project at the Faculty of Economics was highly effective, with significant outcomes for participants:

Of the 17 dual students, 8 received job offers from their respective internship employers.

Stakeholders expressed high satisfaction with the program's implementation, underscoring its relevance to professional development.

Recommendations for future improvements include:

- Extending internships beyond 1.5 months with shorter daily hours.
- Allowing students to select their preferred internship companies.
- Ensuring better alignment of internship tasks with learning outcomes.
- Broadening access to dual education for all final-year students.

The DUALMON project's pilot phase has demonstrated significant success across all three faculties, with high stakeholder satisfaction and tangible outcomes like job offers and professional growth. Moving forward, several recommendations were identified to further enhance the program, including extending internship durations, aligning tasks with learning outcomes, and expanding access to dual education. These insights provide a strong foundation for embedding the dual education model into higher education curricula and fostering long-term benefits for students and institutions alike.