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Description and concept of the specific dual models of HEIs First Draft

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Abstract

This document describes the concepts of specific dual model developed at the Faculty of Economics, University of Montenegro. It represents a basis for presentation of specific dual models to companies and preparing documents necessary for piloting dual program at the Faculty of Economics.

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1. Motivation for the implementation of a specific model of dual education in the academic study program Economics - module Microeconomics

The mismatch between the education system and the labour market is a serious threat to economic growth and development of Montenegro. This disorder, which manifests itself as a mismatch between labour supply and demand for labour, ultimately leads to a decline in the usefulness of labour and inadequate use of the most important factor of production. The economy is facing the problem of inefficient use of basic resources - human potential. Therefore, the long-term growth trend of the gross domestic product and the total potential of the economy are also in question (MEA, 2016)¹.

The research on this issue conducted in Montenegro in 2016. revealed that there are several aspects of mismatching between education systems and labour market needs.

Table 1: Forms of mismatch between supply and demand in the labour market

Vertical mismatch	The level of education or skills is lower or higher than the job requirements.
Horizontal mismatch	The level of education or skills is appropriate, but not the area of education.
Overqualification	The person has a higher level of qualifications than the job requires.
Underqualification	The person has a lower level of qualifications than the job requires.
Overskilling	A situation where a person is unable to make full use of their skills and abilities in the current workplace.
Underskilling	Situation in which a person lacks the necessary skills ability to perform current work according to applicable standards.
Credentialism	A situation in which the level of education required to get a job exceeds the level of education necessary to do the job adequately. This situation refers to the employer's belief that the certificate or diploma implies higher productivity of the individual.
Economic skills obsolescence	A situation in which previously used job skills are no longer necessary, outdated or lost in importance.

Source: MEA, 2016.

Table 1 points out that in Montenegro there is a recorded presence of various forms of mismatch between supply and demand in the labour market, which is predominantly a consequence of the mismatch between the education sector and the economy sector. Namely, the dominant type of non-compliance refers to the situation when a person has a lower/higher level of education than labour market requirements, as well as the case when there is a match in the level but not in the type of qualifications for a particular job. In addition to the above, mismatches in the labour market are manifested through the process of obsolescence of knowledge and skills of an individual necessary to maintain its competitiveness in the labour market during the time, which highlights the need to implement lifelong learning. Also, one of the problems pointed out by the mentioned research is that, viewed from the perspective of the employer, there is no adequate knowledge behind the diploma of the graduate student, which emphasizes the employer's assumption that a certificate of graduation should a priori guarantee higher productivity of graduated students.

¹ MEA (Montenegreen Employers Association). (2016). Mischance of the labor market and the education system in Montenegro. Available at: <https://www.poslodavci.org/biblioteka/publikacije/neuskkladjenost-trzista-rada-i-obrazovanog-sistema-u-crnoj-gori-stvaranje-ambijenta-za-odrzivi-razvoj-preduzeca-u-crnoj> (16.03.2022).

Although significant efforts have been made in the past few years to harmonize the education system with the needs of the labour market, the situation has not reached satisfactory level yet. This is also confirmed by the report of the European Commission, which gave a recommendation related to development of the Economic Reform Program for 2021. The recommendation involved making additional efforts to improve the quality of higher education and developing skills that are aligned with labour market needs.

Better defined learning outcomes and their compliance with new challenges in the labour market, insufficiently developed concept of practical teaching and dual education and continuous monitoring and evaluation of achieved results are areas that need to be improved. The above especially emphasizes the role and importance of the DUALMON project, particularly if we keep in mind the fact that it targets all the mentioned disputed areas.

In order to fully understand the role and contribution of the DUALMON project, it is important to point out the challenges that are present in all phases of higher education: from education/career planning, enrolment to employment and meeting labour market expectations. Addressing these challenges involves the implementation of a series of activities aimed at making further progress in the three priority areas. The first area is to strengthen the links between education and the economy, with the aim of improving the quality of vocational education and the relevance of learning outcomes in vocational education. The second one refers to the process of lifelong learning and adult education, with the aim of creating flexible conditions and opportunities for retraining and additional training of young people and adults. Finally, the third area is related to the modernization of higher education, through improvement of the quality and relevance of practical education and training in higher education, in order to increase employability and reduce the gap between skills acquired during education and skills needed in the labour market (MEA, 2016).

Improving quality in the three mentioned areas has been recognized as one of the priority goals within the draft Strategy of higher education of Montenegro for the period 2021-2025. The mentioned document identified the biggest challenges and defines recommendations regarding the activities that need to be implemented in order to achieve future quality development in the field of higher education. In this sense, it is necessary to (Ministry of Education, Science, Culture and Sports, 2021)²:

- Improve the model of practical teaching, in order to provide all students with adequate practical training and preparation for the labour market.
- Conduct an analysis of learning outcomes and redefine them if justified, in order to best meet global labour market trends.
- Improve the quality of higher education in teaching, learning and professional development using European good practice and modern technologies.
- Align the quality assurance system of higher education with European standards and guidelines.
- Develop lifelong learning programs, while monitoring and controlling the quality of programs, including providing conditions for the recognition of non-formal and informal learning.
- Develop competitive educational staff, by investing in research and professional development.

The identified challenges are particularly pronounced in the field of Economics, given that it includes a wide range of theoretical knowledge in various fields, such as finance, accounting, marketing, management, quantitative economics, etc., and whose adoption is to certain extent a prerequisite for acquiring practical knowledge by engagement in the company, i.e. work environment. Having in mind a large number of different disciplines in the field of economics, whose knowledge is important for understanding all segments of any business entity, the integration of practical classes is crucial to enable students to successfully solve real business problems and tasks. Hence, the implementation of the DUALMON project gives students of

² Ministry of Education, Science, Culture and Sports. (2021). Draft strategy of higher education of Montenegro for the period 2021-2025. Available at: <https://www.gov.me/clanak/nacrt-strategije-visokog-obrazovanja-crne-gore-za-period-2021-2025> (16.03.2022).

Economics the opportunity to gain knowledge and skills they need for successful integration within the company through work in the real sector, but also to better understand all work processes that take place within the company. In this way, a double effect is achieved - balancing theoretical and practical knowledge on the one hand, and strengthening the competitiveness of students in the labour market on the other hand. All previously stated is in line with Law on Higher Education, which stipulates that study programs should include at least 25% of practical classes conducted at a higher education institution or within a company, leaving room for educational institutions to define the manner of its implementation (Government of Montenegro, 2015)³.

It is important to emphasize that the DUALMON project specified for Faculty of Economics is designed in a way to incorporate all activities previously suggested by draft Strategy of higher education of Montenegro. In that sense, this specific model is aligned with European standards and guidelines, and it is based on best teaching practices of other European countries, which have already implemented certain programmes of dual higher education. The dual model on Faculty of Economics will be organized in a way to improve practical teaching and to provide students with adequate practical training necessary for gaining and maintaining competitiveness on labour market. Besides of that, this specific model ensures achievement of outcomes that are commonly defined by all three main groups of stakeholders: students, higher education institutions (bearing in mind their possibilities and limitations) and companies and other entities from the market. In other words, the specific model of dual education at the Faculty of Economics enables the development of intersectoral mobility, but also further strengthening of cooperation between this institution and the labour market, which is necessary in order to rationally connect the needs of students, education institution(s) and companies. Developed cooperation provides conditions for significant progress with a numerous positive effects, both for the faculty and for the labour market, which is especially important for adequate and timely adaptation to dynamic changes in all areas of the labour market and contemporary requirements of economy.

2. Concept of specific model of dual education – module Microeconomics

This section provides a detailed description of the specific model that will be implemented at the Faculty of Economics.

Namely, the starting point for defining a specific model comes from the accreditation of study programs, and knowledge and skills that are the focus of individual modules. According to the last accreditation from 2017, basic studies of economics at the Faculty of Economics are organized according to the 3 + 2 + 3 model, in order to harmonize studies with the way of studying at universities in the European Union, and to enable the implementation of the Bologna Declaration. In this way, compatibility with other universities in Europe has been achieved, and preconditions have been created for a better flow of students to European universities. At the same time, this contributed to leverage the international recognition of the Faculty of Economics, and the University of Montenegro at the same time.

Starting from the goals of the project and the way of organizing the studies, in cooperation with the partners, it is decided to implement dual education in the final year of basic academic studies in Economics. Specifically, the pilot project will be implemented in the Microeconomics module on within the last (VI) semester of study. The reasons for making such a decision are multiple. First of all, the Microeconomics module is predominantly focused on the economic sector, incorporating theoretical knowledge from all crucial functional units of the company (such as finance, accounting, marketing, management, etc.). In other words, this model covers a wide range of areas in the field of Economy, which is in line with the needs of business partners. In this way, students are directed to acquire specific knowledge and skills through dual

³ Government of Montenegro. (2015). Law on Higher Education. Available at: <https://www.gov.me/dokumenta/9b4f57fd-9bae-465a-953a-0430da131af1> (16.03.2022).

education, which are especially valued by potential employers, and which are important for their competitiveness in the labour market. In addition, the Microeconomics module is represented in the last semester of basic academic studies, which ensures that the project includes those students who have already acquired theoretical knowledge, necessary to successfully adapt to the work environment within the company and solve real business problems and challenges. In this way, students can apply the acquired theoretical knowledge and upgrade it with practical skills gained through the process of dual education. Finally, this opens the possibility for companies, after completing the dual program (education) and academic studies, to offer employment to students, which opens the possibility to develop professional staff that is tailored to the specific needs of the company.

The project will be realized at the Faculty of Economics by applying the third sequential model defined by the generic model. According to the selected sequential model, working hours of dual student are scheduled after gaining the theoretical knowledge planned by all courses within study module Microeconomics. More precisely, the first semester and a half of the second semester of 3rd year is intended for learning at HEI, while the second part of the second semester is intended for working in a company. This model also includes certain amount of time for individual learning of dual student, which is scheduled during the examination periods in January/February and June. Schedule of time intended for working, teaching and individual learning for this sequential model is as follows (table 3):

- **Working time** – every day with 8h/day for 4 weeks during May in the second semester of the 3rd year of a study, and every day with 4h/day for 2 weeks in June.
- **Teaching time** – every day with 6h/day during the three months of the second semester of the 3rd year (i.e. in last two weeks of February, and all weeks in March and April)
- **Learning time** – during the teaching period (three months of the second semester) each day with 2h/day, each day with 4h/day during the first two weeks in June and 8/day in the last two weeks of June i.e. during the examination period.

Table 3: Teaching, learning and working time schedule in VI semester

	11 W	4 W	2 W	2 W	Teaching	Learning	Working
H/week	30	20	20	20	330	40	120
H/week	10	20	20	20		190	80
Sum:					330	230	200

Legend:

	Teaching h
	Learning h
	Working h

The previous table shows that students will spend approximately 1/3 of their time at the faculty within the third year of study, acquiring theoretical knowledge. The reason for this decision stems from the fact that by then (during the previous two years and the first semester of third year of study) students have already gained all necessary theoretical knowledge needed for their successful integration into working processes within a company. This is one of the most important prerequisites that must be met in order for students to properly understand business processes in the company. Percentage shares of total teaching, learning and working hours are given below in the table 4.

Table 4: Percentage share of total teaching, learning and working hours in VI semester

Activities	Total h	%
Teaching	330	43.42%
Learning	230	30.26%
Working	200	26.32%
SUM	760	100.00%

Practical work of students in the company will be evaluated as part of the final exam, or as the whole final exam, depending on the decisions of individual professor at the module Microeconomics. This module involves six subjects, which are presented below in the Table 5.

Table 5: Subject included in the module Microeconomics

Subjects	Number of classes	ECTS
Financial Management	3+2+0	6
Economic-Mathematical Methods and Models	3+2+0	6
Entrepreneurship	3+2+0	6
Business Information Systems	3+2+0	6
Human Resources Management	2+0+0	3
Trade management	2+0+0	3

The selection of students who will be included in the dual education program will be conducted by selecting 5 students for each subject who stand out according to the achieved results, rated based on pre-defined criteria (which will be discussed in the next part of the document). This is important to point out, because the subjects covered by the Microeconomics module are organized so that each of them can be linked to a specific department in the company. Having in mind the specificities of different departments within the company, and the specificities of work tasks that employees solve in individual departments, it is important to emphasize that the expected learning outcomes of dual students will be defined depending on the company sector in which he/she will work. The choice of sector in the company within which the student will be engaged, as well as the expected learning outcomes will depend on the content and goals of the subject to which the dual student was linked during the selection process. Hence, the expected knowledge that a dual student should acquire during his/her internship will depend predominantly on the subject to which he/she is related and the sector in the company in which he/she was deployed, so there will be certain differences in the expected outcomes between different dual students. Precise definition of learning outcomes will be the responsibility of the subject professors. In this regard, depending on the sector in which dual students are involved, some general expected learning outcomes may be:

- Making business decisions, based on indicators of financial analysis; assessment of the financial position of the company; acquisition of practical knowledge required for the evaluation of investment projects; preparation of planned financial reports.
- Understanding and practical application of entrepreneurial strategies; use of practical tools to conduct comprehensive market research; development of practical skills needed for realistic assessment and use of innovative opportunities in order to launch and develop business.
- Understanding and application of methods and techniques related to planning, design, engineering, implementation and maintenance of information systems; making specifications of user requirements regarding business information systems; planning the development of information technology in accordance with the business plans of the company.
- Presentation and application of methods and models of quantitative analysis, which are used for decision making in economics; defining goal functions and constraining conditions in linear programming problems; analysis and interpretation of results obtained by applying linear

- programming.
- Analysis and planning of the company's human resources needs; evaluation of employee performance; preparation and implementation of decisions made in the selection process of candidates; application of motivational factors in order to manage human resources more efficiently.
 - Defining and implementing sales strategies based on better understanding of the specificities of target segments, in order to make sales decisions; acquiring practical skills to improve the sales processes based on understanding the specificities of different types of business activities.

Monitoring the progress of dual students during their internship will be the responsibility of both the professor and the mentor in the company. In order to more accurately evaluate the achieved outcomes, special attention will be paid to monitoring the development of students' ability to solve real business tasks and challenges within a defined time frame, both individually and as a team member. In this way, after the students' internship is completed, it will be possible to more realistically assess the potential contribution of this project in the process of harmonizing curricula with existing requirements of employers and the labour market. Obtained results could serve as a starting point for further development of the legal framework of dual higher education.

3. Legal framework for the implementation of the dual education model at the Faculty of Economics

The Law on Higher Education does not recognize the possibility of Dual Higher Education in Montenegro. Hence, the aim of this project is to point out the needs and benefits of dual education in the higher education system, as well as to define the rights and obligations of all three parties involved in its implementation, to provide a basis for later specification of the legal framework of dual education. Hence, one of the goals of the project is to identify decision-making areas that will be used by policy makers in Montenegro to propose a law on higher education, which would provide a framework for the implementation of dual education in higher education institutions, and define mutual rights and obligations of students, higher education institutions and employers.

Piloting of a specific model of dual education at the Faculty of Economics, in academic studies within the module Microeconomics, will be performed taking into account the specifications given below.

1. Name of the higher education institution where the dual education project is implemented:

University of Montenegro, Faculty of Economics, street Jovana Tomaševića, 37.

2. The process of selecting students to participate in a dual education pilot project

As previously mentioned, the pilot project will be implemented during the VI semester, in the academic studies of Economics, within the module Microeconomics. Having in mind the larger number of students attending this module, but also the limited number of project partners, it is necessary to define the criteria according to which the selection of those students who will have the opportunity to participate in the pilot program of dual education will be made.

The selection will be done in such a way that up to 5 students will be selected for each subject in the Microeconomics module. Subject professors will be in charge of selecting students, who will rank them on the basis of certain objective criteria. Some of these criteria may be the results achieved by the student on the basis of colloquia, tests, or some other type of knowledge testing, and the method of testing students' knowledge will be determined by the decision of the subject professor. Accordingly, all students from the module will have the opportunity to participate in the dual program, but only five students per subject will

be selected – those who have achieved the best results based on previously defined selection criteria.

Having in mind that this is a pilot project, adjustment of the work plan by subjects will be predominantly related to redefining the structure of student scoring, in a way that it includes work in the company. The number of points that a student can achieve on this basis will be an integral part of the final exam, and the maximum number of points that a student can achieve on this basis will be defined by the subject professors. In the part of theoretical classes, during the pilot project, there will be no significant changes, so dual students will follow the classes at the Faculty together with other students until May (i.e. until they are sent to work in the company).

3. Rights and obligations of participants (Faculty, companies and students) in the pilot project

It is important to point out that the number of students who can do an internship within one company is not predefined, but that number depends on the company's capacity, i.e. its ability to provide students with adequate integration into work processes and assign a mentor to each of them, who will oversee their work. Given that the areas of work covered by the Microeconomics module are presented in every company, the activity of the project partner is not particularly important.

During the pilot project, it is envisaged that dual students will have two mentors - an academic and a company mentor. Academic mentors will be subject professors who select students according to the previously explained process. The company with which the contract on the internship of the dual student is signed is also obliged to nominate mentors, who would monitor the student's progress during an internship. The academic mentor gives consent to the engagement of the mentor by the employer, after reviewing his/her CV and, if necessary, conducting an interview. The academic mentor and the mentor from the company are obliged to make a learning plan for each student according to the model of dual education, no later than one month from the beginning of classes in the sixth semester. In addition to information about the employer and the company mentor, the learning plan must contain the professional profile of the student, as well as learning outcomes that must be achieved through work within the employer.

In accordance with the defined model, the student is obliged to adhere to the schedule of internship. In other words, the student is required to work every day with 8h/day for 4 weeks during May in the second semester of the 3rd year of a study, and every day with 4h/day for 4 weeks in June.

The academic mentor and the mentor from the company are obliged to maintain continuous communication during the student's internship, in order to harmonize the student's learning and work and make it easier for him to write a report at the end of the internship. At the same time, it is important to emphasize that the mentor in a company must have a higher degree of education than the degree of education of dual students, i.e. a minimum BsC in the field of economics (180 ECTS). The list of employers who meet the conditions for participation in the dual education program will be selected based on the attached documentation that will contain information regarding the following items defined by the HEI:

- List of activities of employers who can participate in the implementation of the working tasks covered by the selected study module.
- Specification of general obligations to be fulfilled by the employer in order to achieve learning through work on the study module (e.g. harmonization of work tasks within a specific employer with the program and subjects covered by HEI, occasional meetings of employer and academic mentor, HEI reporting on student work, way of presenting what has been learned, etc.).
- Competence of the mentor in terms of education (minimum 180 ECTS credits, etc.) and 2 years of work experience. The HEI should indicate how to check the competencies of the mentor with the employer (e.g. CV with professional achievements, interview with the teacher).

- A list of necessary equipment provided by the employer to the student.

The student is obliged to keep a diary of activities and to write a report at the end of the internship at the employer, in which he/she will point out what learning outcomes he/she has mastered and in what way. Upon completion of the internship, a survey of students, employers and academic mentors will be conducted, in order to obtain clear information on the quality of the dual model and its importance for all three parties, as well as information regarding eventual modification of dual education in the future.

4. Plan of the implementation of the curriculum by the employer

Specific obligations, as well as the plan of realization of learning through work will be defined by individual contracts that Faculty will sign with the employer and a student, no later than one month after the beginning of classes in the module Microeconomics, and in agreement with the academic mentor and the employer's mentor. The curriculum will contain the framework of dynamics of mastering the desired learning outcomes. Students will learn by working on projects that are implemented by employers, so this plan must define which projects can be applied by the employer and specify the stages in the implementation of the project in which the student must participate. It is planned that the student will study through work at the employer every day with 8 hours a day for 4 weeks in May, as well as 4 hours a day for 4 weeks in June. This means that the student will spend approximately 200 working hours with the employer.

The workload of students participating in piloting dual education in this way would be: approximately 330 hours of active learning through teaching and 200 hours of learning through practice.

Financial aspects of student admission by employers

During the piloting of the dual education program, the companies that sign the contract on participation in its realization and admission of students, are not obliged to pay compensation to students for the time spent in the company.

5. Verification of realized learning outcomes through internship

Employers will be required to issue a certificate to students upon completion of an internship program. The certificate will contain the time that student spent working, a description of the jobs in which the student was engaged and the competencies that he/she acquired.

6. Change of the employer

If it is determined that there are valid reasons for requesting a change of company within which the internship is performed, the student will be allowed to do so. In that case, choosing a new company can be done in two ways. The first way is that the Faculty establishes cooperation with a new company, and the second is that the student proposes a potential company within which can complete the internship process. In both cases the final decision on the selection of a new company should be made by the Faculty, where the same (previously described) rules and conditions regarding the procedure of its selection should be applied.

7. Recommendation for future development of legal framework on dual higher education

The aim of this part of the document is to provide insight into the details of the implementation of the planned dual education program in the module Microeconomics and needed changes in legal framework. As already mentioned, this model will serve to acquaint employers interested in the participation in the future dual education programmes, so that they can express a desire to participate and define the number of students which they can receive and guide through the internship process.

Assuming the successful implementation of this pilot project, it will be necessary to regulate in the legal framework the key issues related to the further implementation of dual higher education. It is important to emphasize here that the dual education system is still not recognized in our market, and it should be previously accredited. One of the important results of the pilot project will certainly be the comments and recommendations of all three key groups of stakeholders (faculties, companies and students), which should serve as inputs for defining legislation in this area.

Therefore, the successful implementation of this project would require precisely defined rules regarding the further engagement of companies that would be partners in the implementation of dual education, as well as the method of selection and enrolment of students in the same.

In this regard, it is recommended that at least one month before enrolling students in the third year of academic studies in Economics, the process of selecting companies in which dual students will do internships. This is important because the number of interested companies depends on the total number of students who could be enrolled in a dual education program. Interested students would have the opportunity to apply for a dual education program when enrolling in modules. In case the number of interested students is higher than the one that the partner companies can accept, it would be necessary to carry out the selection process. In this part, it is recommended that the selection of students to be enrolled in the dual education program is based on the results achieved by students in previous years of study (average grade achieved during studies, awards, competitions, etc.). The process of pairing dual students and companies should be the responsibility of HEI in agreement with the subject professors from the module Microeconomics. The implementation of the above recommendations indicates the need to specify the key aspects of dual education programs in the legal framework, and in terms of the implementation of certain steps it is necessary to provide an appropriate dose of autonomy to University units.