



Plan for Project Quality Control

DUALMON

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



DOCUMENT IDENTIFICATION	
Author	Maja Dragan, FH JOANNEUM
Contributor(s)	Hagen H. Hochrinner, FH JOANNEUM Mirko Savić, University of Novi Sad
Intellectual Output / Activity Type	5.1 Defining plan for project quality control
Intellectual Output Leader / Activity Leader	FH JOANNEUM
Type:	Report
Language:	English
Date:	10/06/2021
Version	V.3
Previous versions	Draft Version 1, 30/04/2021
	Draft Version 2, 20/05/2021
	Version 3, 10/6/2021

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.



Index/Table of contents

Objectives	5
1. Introduction	5
2. Quality Expectations	7
2.1. Quality of the project implementation	7
2.2. Quality of project deliverables	9
2.3. Quality of Project Management	11
2.4. General Project Guidelines	12
2.5. Amendments to the Manual	12
3. Internal monitoring	13
3.1. Project Quality Assurance Strategy	13
3.2. Quality responsibilities	14
3.3. Quality feedback by the target groups	17
3.4. Project Risk Management	17
4. External Monitoring	18
5. Partners' technical and financial reporting	19
6. Metrics for DUALMON	20
6.1 Basic prerequisites for Dual Study Program	20
6.2 Definition of „Dual Study Program “(in Austria)	24
6.3 Calculation of the workload for the students	25
6.4 Metrics for DUALMON as qualitative and quantitative indicators	27
7. Annexes	30

ABBREVIATIONS

EACEA:	Education, Audio-visual and Culture Executive Agency	EU: European Union
GA:	Grant Agreement	
HEI:	Higher Education Institution	
DUALMON:	Strengthening capacities for the implementation of dual education in Montenegro Higher Education	
LFM:	Logical Framework Matrix	
NEO:	National Erasmus Office	
PA:	Partnership Agreement	
PST:	Project Support Team	
QCT:	Quality Committee Team	
SC:	Steering Committee	
WP:	Work package	
WPL:	Work package Leader	

Objectives

The “Management Quality Manual” is a deliverable within WP 5 entitled “Quality Plan” of the DUALMON project.

The Manual will define the minimum quality requirements and provide the mechanisms for collecting, monitoring and analysing the management of the project, its implementation and deliverables. It also provides some templates for the events and deliverables in the project.

1. Introduction

The deliverable itself is produced based on clear responsibilities: the WPL (FHJ) drafts the manual, involves the Quality Committee Team (QCT) of the project and obtains feedback from all project managers.

The task leader then finalizes the manual which will be approved by the Steering Committee. The electronic version of the manual will be made available on the website of the DUALMON project.

Starting with the general strategy for quality control and monitoring, the manual will define the specific procedures, levels of control and the responsibilities of activity and WP leaders, the QC project team, the Project Coordinator and the Steering Committee.

The MQ Manual will explicitly detail contractual and financial management procedures, to ensure efficient and effective project management. This will include the relevant templates and supporting documents. Templates will include: PPT presentations, reports, attendance forms, minutes, participants’ feedback, risk monitoring forms, reviewers’ forms.

This manual defines procedures for:

- Internal monitoring,
- Quality and risk management,
- External monitoring and



- Partners' technical and financial reporting.

The structure of the deliverable is as follow:

- Chapter 2 defines the quality expectations of the consortium regarding the project as a whole, its deliverables, i.e. the documents, workshops, meetings and other activities and the project management as well as the general guidelines to be followed.
- Chapter 3 defines the internal monitoring strategy and outlines the responsibilities of the project partners as well as the core principles of the risk management strategy.
- Chapter 4 describes the external monitoring strategy.
- Chapter 5 focuses on the financial and technical reporting duties of the partners

The Annexes to the document provide templates (which are also available separately) to be used by the project partners.

*The Quality Committee Team (QCT) will be led by FHJ

2. Quality Expectations

The Management Quality Manual formalizes the approach that will be followed by the partners of the DUALMON project to ensure the highest possible quality of the project activities, outputs, outcomes and project management.

2.1. Quality of the project implementation

The main aim of the project is to improve the competences of higher education graduates in Montenegro, through the development of generic model of dual education (DUALMON model) and legal framework for introduction of dual education in order to support different needs and interests of students, companies, higher education institutions (HEIs) in the country and to provide recommendations to HEIs for implementation of dual education in the entire Montenegro. The model will be implemented, as a pilot test, at four faculties of University of Montenegro, from different fields: Faculty of Economics, Faculty of Electrical Engineering, Faculty of Tourism and Hospitality and Faculty of Maritime Studies.

Development of generic model of dual education (DUALMON model) will be conducted through transfer of knowledge from HE institutions from programme countries: University of Novi Sad (Serbia), FH JOANNEUM Gesellschaft M.B.H. (Austria), and Academia (Slovenia). Dual education in Austria and Slovenia is considered to be very successful and Austrian model is among the best in the world. FH JOANNEUM and Academia have several dual educational programs in the fields of information and communication technologies, engineering and engineering trades, and manufacturing and processing, while University of Novi Sad has participated in the project of introduction of dual education in Serbia and has experienced teaching staff in the implementation of dual education and development of legal framework in HE.

The overall aims of the project are:

- Improvement of the competencies of higher education graduates in Montenegro, according to the needs of employers,
- Increase motivation to study as well as to improve the employability of graduate students,
- Enable students from lower income families to access higher education, and

- Improvement of legal framework and accreditation standards in Montenegro in order to adapt to dual education.

Dual Higher Education (DHE) will enable students to acquire more relevant knowledge and skills by combining formal education with training acquired at the work place. The result of this type of education is reflected in the student's higher competencies in accordance with the requirements of the employer, which makes it easier to find a job. Internship in the company often leads to the employment of a student in the same company. This will increase interest of companies to offer internships, but also the student's motivation to study, as well as the desire to acquire professional skills during education. Possibilities for career development, more secure first job, and higher possibility for gaining employment will motivate young educated people to invest in themselves and study at the university.

Besides, the project will enable innovation and changes in the area of legal framework of accreditation process in Montenegro, because it aims at creating amendments to the law on HE and labour law, which will be submitted to the authorities, development of drafts of new law on dual education which will also be submitted to authorities, and creating amendments to accreditation standards which will be submitted to the authorities for approval and integration into the practice. These elements will lead to the greater match between universities in Montenegro and business companies, and between universities from this country and universities from other countries with well-developed dual education programs. Also, it is expected that the companies would provide scholarships to selected students realizing their internships during their studies. This will help students, especially those from lower income families, to cover their costs during studies (tuition fees, accommodation costs etc.). The significance of this approach is reflected in the ability of students to earn during studies and to become more employable on the market.

Dual education will bring better and more intensive cooperation between industry and higher education and it will contribute towards increase of innovation capacities. Students on dual education will be the channel for transferring knowledge and ideas from companies to academia and vice versa.

2.2. Quality of project deliverables

The project deliverables are classified into tangible such as reports, publications, manuals, printed and electronically available promotional material as well as intangibles deliverables in form of organized events (conferences, trainings, study visits, info days etc...)

A common quality expectation for all deliverables is their relevance to reach the overall objective and the specific objectives, with a further focus on their development in an efficient and effective manner. Timely delivery following the project work-plan as identified in the Application Form as well as the Partner Agreement is expected.

Developed Logo of the project:



2.2.1. Quality of internal project communication and documentation

A consistent and common format for all document based deliverables (word document, power point presentations) is to be followed by all partners using templates provided within [Visual Identity Manual](#). Those templates must be used in order to ensure a common visual identity as well as to ensure a good quality of information in documents produced by the project. All templates are part of the DUALMON Visual Identity Manual, which can be found on the following link:

https://drive.google.com/drive/folders/14_HeNAb0mH9a4M8Ret1Y5vYmVnTsukEB

2.2.2. Project Publications and Results

Project publications and results must display Erasmus+ Logo followed by the sentence " Co-funded by the Erasmus+ Programme of the European Union" To be placed on the cover or the first page and they must include the following disclaimer on the inner pages:

"The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect 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."

See following website:

https://eacea.ec.europa.eu/about-eacea/visual-identity_en

2.2.3. Quality of DUALMON Events

All events within the project should be organized professionally. The organizers should provide in due time to the participants the draft agenda and a note on the logistics (informing about travel arrangements, venue, suggested hotels, etc.).

The meeting organizers ensure smooth registration processes (including list of attendees – Annex B) and the implementation of the meetings respecting appropriate time for event sessions and breaks as well as the availability of all necessary materials (e.g. training and promotional material). The organizers will also ensure the recording of minutes of the meetings. Where appropriate (e.g. for trainings, seminars) also feedback forms will be distributed among participants (Annex C) and event reports related to feedback forms will be prepared by organizers. Power point presentation should be prepared using appropriate template (Annex H).

Each event should be documented when appropriate by presentations (upon the approval of the presenter) or video materials (upon approval of authors).

Based on obligations of the beneficiaries, the partners shall inform the public, press and media (internet included) of the event which must visibly indicate "with the support of the Erasmus+ Programme of the European Union" as well as the graphic logos of the project and Erasmus+ Programme. Posters, roll-up and other promotional materials shall be displayed during the event.

2.2.4. Quality of Promotional Materials

Communication and dissemination activities of the project will adhere to the Dissemination and Exploitation Plan (WP4, T4.1) of the project. All promotional materials will reflect the visual identity of the project and the Erasmus+ Programme.

2.2.5. Quality of websites and other electronic tools

The project envisages setting up its web-site and a google platform as intranet tool for project management:

Google drive link:

https://drive.google.com/drive/folders/1wocRpi4llqrykyLOz3bp_eOELMqnuE0I

All partners are asked to promote DUALMON project on their websites and other electronic tools (SUCH AS Facebook; Twitter, LinkedIn, newsletter etc....) by providing short description of the project, logo and link to the DUALMON website etc.

The project coordinator is responsible for setting up and maintaining the DUALMON web-site with all information and materials received from project partners. The DUALMON platform can be accessed by all partners depending on their assigned tasks and roles. It will be the single point of reference for the project documentation and communication among partners. The project coordinator will set up and maintain the project platform.

Set up and maintenance of the website is responsibility of University of Montenegro.

Project website: under construction!

LinkedIn: under construction!

Facebook profile: under construction!

2.3. Quality of Project Management

The project management structure was established at the project's Kick-off meeting in Podgorica to ensure effectiveness, decisiveness, flexibility and quality of work. It involves the Coordinator, a Steering Committee (SC), a Project Team* of each partner. The Steering Committee will review the activities and decide on any necessary contingency measures in

reorganization tasks and resources. The project management will be transparent and flexible but also strict enough to ensure the implementation of the project activities in order to achieve the project's objectives.

Each partner is equally and independently responsible for assigned activities, money use and reporting. Contact persons have the responsibility for the local management.

* Contact persons: Please see Annex xx – DUALMON Contact List

2.4. General Project Guidelines

Apart from the Quality Control and Monitoring Manual, the reference documents include:

- EACEA – DUALMON Grant Agreement*
- DUALMON project Partnership Agreement
- DUALMON detailed project description*
- DUALMON detailed project budget*
- DUALMON project dissemination and exploitation Plan*

*These documents are available on the project-platform and/or the homepage.

2.5. Amendments to the Manual

The procedures in this Manual can be amended by agreement of all partners or by a decision taken by the project's Steering Committee (SC). Any new version is communicated to all the partners and takes effect 15 calendar days after this communication.

3. Internal monitoring

Internal monitoring will be carried out by all partners, including self-evaluation by using the Logical Framework Matrix, Work Package description, budget, SC meetings, questionnaires / satisfaction surveys of target groups (e.g. participants of dissemination and events). The DUALMON platform and homepage will also be used for monitoring of project activities.

3.1. Project Quality Assurance Strategy

The quality assurance includes four levels of quality control (1) Deliverable authors (Task-, and WP-leaders), (2) Deliverable reviewers, (3) Coordinator level, and (4) Steering Committee level and final approval:

Project steering committee members:

University of Novi Sad	P1	UNS	Mirko Savić
University of Montenegro	P2	UOM	Boban Melović
FH Joanneum Gesellschaft M.B.H	P3	FHJ	Hagen Hocrinner
Academia druzba za storitve d.o.o.	P4	ACADEMI	Žan Dapcevic
OE Višja strokovna šola Academia Maribor		A	
Ministry of Education	P5	MOE	Danilo Alagić
Chamber of Economy of Montenegro	P6	CEM	Sandra Perić
Crnogorska plovidba AD Kotor	P7	CP	Slobodan Rašković
Voli Trade d.o.o.	P8	VT	Lejla Hadžikić
Hotels Group Montenegro Stars	P10	HGMS	Momčilo Medan
Agency for Control and Quality Assurance of Higher Education	P11	ACQAHE	Srdja Popović
Crnogorski Telekom AD Podgorica	P12	CT	Sekulović Nikica (Aleksandra Dujović)

3.1.1. Deliverable authors, Task and WP leaders:

The 1st level corresponds to the activity level. The presentation of deliverables and activities of the project are a joint responsibility of the associated Task Leader and his/her team, partners involved in the activity and corresponding WP leader. It shall guarantee the quality and timelines of the deliverable as identified in detailed Project Description and action (may be modified and agreed by the SC). They present a “final draft deliverable” to the deliverable reviewers (QCT).

3.1.2. Deliverable reviewers (QCT):

The 2nd level of control is elaborated by at least two reviewers who are not authors of the deliverable. The reviewers have 5 working days to respond by sending comments to the delivered documents. The deliverable authors have 5 more working days to conform to the reviewer comments or send their written objections. In this case the reviewers will have another 5 days to send back their final comments.

In case profound disagreements between reviewers and Task leaders arise, the 3rd level control of the deliverables will allow the project coordinator to have a final say – with the possibility to involve the rest of the consortium if deemed necessary.

3.1.3. Coordinator level:

The 3rd level control is carried out by the Project Coordinator. If a draft deliverable has not passed the 2nd level; the Coordinator will take the necessary corrective actions in order to come up with acceptable deliverables. If necessary, the Coordinator may involve the rest of the consortium. A draft deliverable that has passed the 2nd level of control will still be checked by the Coordinator for final comments and when accepted it will be forwarded to the Steering Committee for formal approval (if required).

3.1.4. Steering Committee level and final approval:

The 4th level control is done at the Steering Committee level. The Steering Committee is the highest decision making body of the partnership that takes the final decision for the approval of major deliverables.

3.2. Quality responsibilities

This project recognizes different bodies with different roles and responsibilities when it comes to the project activities and the project quality assurance procedure.

Each DUALMON activity has its leader; each deliverable has its author or co-authors. Each activity is part of a work package and each work package has its own leader.

3.2.1. Task Leader (main author of the deliverable) is responsible for:

- coordinating the development of the deliverable(s) according to the deliverable template,



- assigning parts of the work to other partners involved in the activity,
- coordinating the work of other partners involved in the activity,
- aligning the contributions of the other partners involved in the activity, in order to produce the deliverable,
- the submission of the deliverable to the WP leader (1st level control), the QCT (2nd level control) and the coordinator (3rd level control),
- implementing the suggestions of the QCT team,
- sending the amended draft deliverable,
- reporting to the WP Leader, especially when problems occur during the implementation of the activity,
- cooperating with the WP Leader and other partners in the same WP in order to ensure the activity's progress in line with the time table as foreseen by the WP description (respecting any changes approved by the Steering Committee as recorded in the respective minutes).

3.2.2. Other partners involved in the activity, co-authors are responsible for:

- the production of their part in the deliverable according to the Task Leader's instructions.
- providing contributions in compliance with the appropriated templates so that to ensure that the Task Leader will be able to put all contributions together in the desirable format.
- providing to the Task Leader all the complementary information regarding their work (i.e. references, bibliography, methodologies used, contact details of people interviewed etc.)
- implementing amendments to their contribution as a result of the amendments requested by the QAPT team.

3.2.3. WP Leader is responsible for:

- delivery of up-to-date information on the WP progress, making sure that all activities are in the time frame defined in the Action Plan,
- coordinating the Work Package and ensuring that all the activities are contributing to the WP's objectives,
- ensuring that all of the contributing partners are smoothly cooperating in order to accomplish the WP's objectives,



- sending alerts on time to remind about submission deadlines and the procedures to be followed and provides input and suggestions to the Task Leaders of the WP,
- providing to the Task Leaders comments and suggestions on the draft deliverables,
- verifying the satisfactory implementation of the recommendations.

3.2.4. Quality Committee Team (QCT):

- is appointed by the Coordinator.
- is responsible for the Quality Assurance exercise of deliverables,
- receives the draft deliverable from the Task Leader and provides feedback using the Checklist for review of deliverable (Annex A),
- sends the Checklist for review of deliverable to the Task Leader and the Coordinator,
- verifies the satisfactory implementation of the recommendations included in the Checklist for review of deliverable, in co-operation with the WP Leader,
- cooperates with the Project Coordinator on general issues related to the level of quality of the project's deliverables.

3.2.5. Project Coordinator

- cooperates with the QAPT and the Task Leaders on all matters arising relevant to ensuring the quality of the project's deliverables,
- accepts the deliverable or provides final comments to the Task Leaders and WP Leaders (3rd level control),
- cooperates with the WP Leaders in order to ensure that all WPs are progressing in conformity informs the QCT, the WP Leaders and the Task Leaders of any changes in the Partnership Agreement and the related Work Plan or any implicit changes in the implementation of the project that may affect the timing or the content of the relevant deliverables,
- officially submits all approved deliverables after their approval at 4th level control.

3.2.6. Steering Committee (SC)

Officially approves and finally accepts the deliverables.

3.3. Quality feedback by the target groups

The satisfaction of stakeholders, beneficiaries and end users will also be investigated. It will take into account a variety of information from different sources using visits, interviews, questionnaires to target groups and consultation with the project beneficiaries. A study visit questionnaire was also prepared (Annex D).

A template for feedback for different meetings / events was developed (Annex C). It needs to be adapted to the specific needs but the main items shall not be deleted.

Besides, a specific event report template (Annex A) is to be filled by project partners (organizers) for all DUALMON events (workshops, info days, trainings, etc. – except SC meetings). Report will include summary review of statistical data and will help in a final reporting.

3.4. Project Risk Management

As part of the internal quality management, a regular risk assessment will be carried and reviewed out during the Steering Committee meetings which shall lead to corrective actions and potential adaptations of the Work-Plan.

The risk management strategy addresses issues that could potentially endanger the achievement of the overall goal of the project and its objectives considering potential financial risks (overspending and underspending), timing (postponing of activities / deliverables), performance risks (project management) and sustainability of the project results. The main aim will be to provide a sound assessment, to anticipate challenges in a systematic way and to minimize the potentially negative overall impact.

The identification and assessment of new risks is a joint responsibility of all project partners who have to communicate them to the Project Coordinator and the Steering Committee, eventually suggesting also possible interventions and solutions, as soon as they get aware of those risks. In particular, partners may think of preventive actions (avoiding that the risk occurs) and corrective actions (decreasing the severity and impact), specifying also the resources that would be needed.

Also the external reviewers (representatives of NEO and EACEA) will be involved in the risk management. During their monitoring visits they will assess if there is a risk that the project will fail to meet its key indicators and if there is a risk that project partners will not be able to spend all the money according to the planned project budget.

All the partners should take care of the proper allocation of resources. There are several possible risks connected: the delay of the project implementation as defined in the project work plan; the rushed implementation of the work plan with low quality; an underspending during the project implementation (also causing a shift in the headings' ratio), meaning that the project timetable is followed with reference to technical deliverables, yet the relevant expenditures are not timely invoiced or validated etc.

The project partners all have to ensure that they allocate the needed resources to the project, both human and financial.

3.4.1. Practical approach to risk identification

The risks should furthermore be identified as early as possible in order to deal with them properly and to think about corrective and/or preventive actions.

In order to identify and monitor the risks within DUALMON project, a Risk monitoring sheet includes the information on corrective and/or preventive actions (Annex E).

4. External Monitoring

External evaluation will be conducted by two experts from the outside of consortium. They will be engaged in order to evaluate the quality of the developed undergraduate program and LLL seminar. Two partners will publish the public call for two experts in the field of IAR. Two experts will have two months to evaluate the program and to write the report on external evaluation. The report will be publically available on website of the project. On the basis of the report, consortium will correct the study program if necessary.

Additional monitoring of the project will also be performed by National Erasmus Office or National Agency (NA) and EACEA.

NA performs three types of monitoring, based on deliverable achievement:

Preventive (in the first project year)

Advisory (after the first project year)

Control (after the end of project – sustainability check).

The monitoring by NA includes the assessment of various aspects of project implementation, such as relevance (is project still relevant in terms of its goals and achievements), efficiency (are the activities in work-packages done on time), effectiveness (how well are project specific objectives met), impact (at the level of departments, faculty, university, etc.) and sustainability (what would stay after the project is finished).

Based on the progress of these aspects, the NA sends the report on their findings to EACEA.

5. Partners' technical and financial reporting

A guideline for the technical and financial reporting will be distributed to all partners.

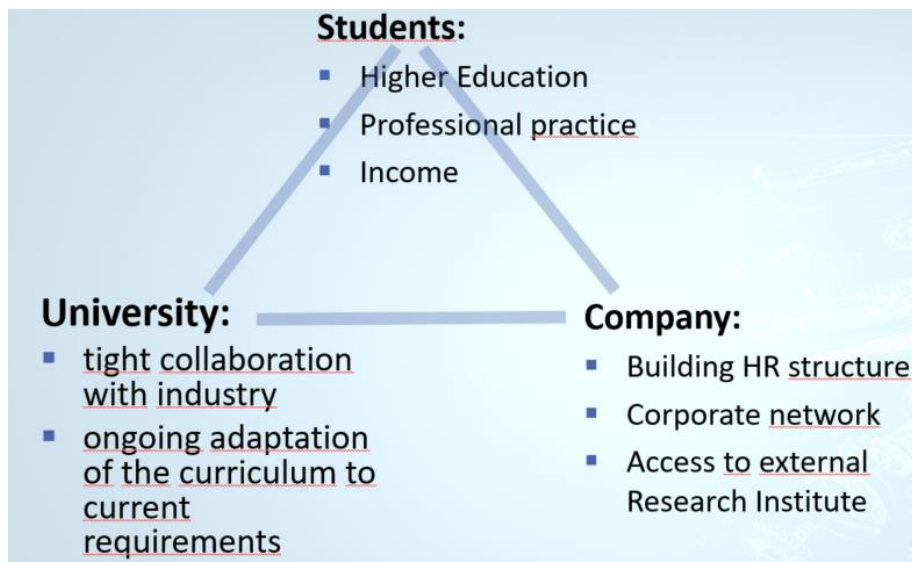
PST team and Coordinator will check the supporting documents for financial reporting sent to the Project Coordinator as hard copies twice a year. During their review, they will take into consideration following assessment criteria:

- conformity of the expenditures with the budget of the project;
- eligibility of the expenditures;
- correctness and completeness of all supporting documents and certified copies of invoices;
- correctness of the calculations and applied exchange rates;
- that any changes which occurred between budget categories are eligible and justified;
- financial biannual reports must be signed in original by the appointed contact person of partner institution;
- expenditures must be in conformity, including full eligibility, with the allocated budget

In case that information in Biannual Report are not complete or justified, the PST team will help and make recommendations on how this situation can be rectified prior to the final approval of the Biannual report by the Coordinator. The Report approved in this way is the basis for the transfer of next instalment to the partner institution.

6. Metrics for DUALMON

The Metrics itself formalizes the approach that should be followed by the partner universities when preparing, accrediting and performing a Dual Study Program. Goal of the project is to ensure the highest possible quality of the developed new dual curricula and realization of the dual study programs and cooperation among the strategic triangle.



Source: Hagen Hochrinner, FH JOANNEUM, 20. 6. 2020

6.1 Basic prerequisites for Dual Study Program

In Europe and the rest of the world there are various work integrated forms of study programs. To differentiate the dual study program short definitions of other forms are listed below:

- Curriculum-integrated learning:

Is a model of learning that describes the development of integrated lessons helping students make connections across subjects and disciplines.

- Work-related learning:

Planned activity that uses the context of work to develop knowledge, skills and behaviours useful in the workplace, including learning through the experience of work, learning about work and working practices, and learning the skills for work.



- **Work-based learning:**

Is an educational strategy that provides students with real-life work experiences where they can apply academic and technical skills and develop their employability skills.

- **Work-integrated learning:**

Are forms of experiential learning where the site of learning either occurs in the workplace or where the learning is strongly associated with a workplace.

- **Work enabling (more or less same as part time) program:**

A part-time course is usually a study program in which the student is employed or has an independent professional activity besides his/her study efforts. The study program is not

necessarily in the context of his/her job. The lessons/courses take place mostly at evening or Friday/Saturday. The courses in the program may be offered in presence and/or distance/online teaching.

- **Cooperative education:**

A term that is commonly used in North America to refer to programs in which learners spend time in several different workplaces (companies) and receive academic credit for the work experience, but in which there may be little connection between what the student does in the workplace and the curriculum of the university (school or college).

- **Dual education:**

In Europe mostly the term “Dual Education” is used and branded. It is related to the system of apprenticeship in Germany, Austria and Switzerland. This system requires two learning venues (university and company). There is a coordination of the curricular content and the internship of the student in the company. There is a continuous training partnership with appropriate remuneration for practical term as



part of an employment relationship, ideally this employment relationship lasts consistently for at least two thirds of the study period.

The dual higher education model is based on the recognition of the company being a special learning space where new knowledge is generated. Therefore, all concepts originate from the same root, the need to bring academia and business together and to integrate these two worlds. According to Geay (1998), it is the interaction of a priori two contradictory types of logic: the logic of transmission of knowledge from the university and the logic of production of the company. The integration of these two logics cannot be done by simple juxtaposition of periods of dominance. In this respect, dual education is not a simple model; it requires the construction of a systematic suitable relationship between the higher education institution and the company. It is not merely alternating between theory and practice; it involves building a system in which the relationships are bidirectional.

Dual education is an original model for professionalization. "The relationship between knowledge and competence is not a simple cause and effect relation, it depends on the commitment of the persons in action. It is through a confrontation with the world as it is that the individual builds its skills, mobilizing its personality, its knowledge in use and the capabilities of formalization. Therefore, activity and competition are inseparable and articulation of various educational spaces of the school and the world of work is necessary" (Malglaive, 1993: 44).

Given the pedagogical and educational dimension, in dual education a series of relationships between the actors involved in the training are established. In these relationships between actors double tutelage arises. Indeed, the student is accompanied throughout his/her training path by both the company and higher education institution, in particular by company mentors and academic mentors. Double mentoring appears to ensure and regulate the student's progress. In this regard, the company mentor plays a key role in the workplace for its ability to organize the learning and define the objectives; the academic mentor is in charge of relations with the mentor of the company to adjust the training process of the student.



Success lies in being able to integrate and combine the different learning venues from the higher education institution and company.

Since there are at least two realities involved nobody except the student has a complete overview. Thus, the student becomes a process owner, responsible for the “integration” part of the learning process. Part of the success of the process depends on the autonomy and the role of the student. The trio consists of the student, the company (company mentor) and the higher education institution (academic mentor). To ensure the efficiency of this training, the three actors in this process, student, company mentor and university mentor, shall thus have to:

- Define the practical phase of the student with both industrial and pedagogical results. It has to be adapted to build a progressive process with respect to the level of capacity of the student throughout the training (formative work experience);
- Provide the knowledge, know-how and soft skills needs to carry out the practical phase in the company;
- Develop active pedagogy to help a better understanding of problems upon which example the theory is conceptualized (Problem Based Learning);
- Develop critical thinking by the students in order to capitalize on the acquired skill in the company field.

Due to the performance of the students in two realities, there is a win-win situation for companies and higher education institutions. On the one hand, the dual education provides the labour market with skilled and adaptable workers who answer to the needs of companies. But on the other hand, higher education institutions also gain the knowledge provided by students and companies, as the latter obtained know-how improves their skills. Finally, it is important to highlight the impact of incorporating qualified young people in SMEs based on traditional models, since they can bring important changes both at the organizational and operational levels, facilitating the transition of companies to activities and sectors with greater added value.



Since there is no “one size fits all” model, a potential transfer of dual study programs to interested countries needs to be adapted to the particular national and local context. It can be noted there are three key pillars for the promotion and consolidation of dual in higher education:

- Educational and labour legislation and financial regulation to support their development;
- Training structure with an appropriate pedagogical model and adapted resources;
- Companies network to accept and to support the training of students.

The aim of this report is to evaluate the incorporation in the ongoing engineering studies curricula of regular practical phases in entities (the conversion of a traditional higher education model into dual higher education model) taking into account the national and institutional legislation and existing curricula.¹

6.2 Definition of „Dual Study Program “(in Austria)

According to the Agency for Quality Assurance and Accreditation Austria based on the University Quality Assurance Act and the Federal Ministry of Education, Science and Research (BMBWF) a study program has to fulfil the following criteria to be accredited as a “Dual Study program”:

- Repeated succession of theoretical and practical phases and continuous reflection.
- The practical phases go beyond the usual scope of a professional internship both in terms of time and in terms of specification of the content.
- The acquisition of curricular defined competences takes place at two learning locations and is characterized by the combination of science and

¹ Source: I. Egurbide and E. Iturbe, IMH, Spain; DYNAMIC project: External evaluation report, February 2021



implementation orientation.

- The company commits to a training obligation and is able to convey the intended course content.
- The organization of the theoretical and practical phases provides the framework for a tolerable total workload (h) for students.
- The admission procedures for university and company are in the responsibility of the respective partners and are coordinated with each other.
- The relationship between the three partners (student, university and company) is subject to the binding regulations for quality assurance.
- There is a continuous training partnership with appropriate remuneration for internships as part of an employment relationship, which is ideally continued consistently for at least two thirds of the study period.²

6.3 Calculation of the workload for the students

The calculation is based on an academic year embodied by 1,500 [h] with 60 [min/h].

The curriculum grants 30 ECTS per Semester according to 750 [h] workload including 125 [h] (5 ECTS for the practical training in the company).

In the study program of PTO there is an additional requirement of 299 [h] of practical training in the company. So the calculated weekly workload is in average about 40 [h].

The balance of the weekly workload in the theoretical and the practical term is calculated by the scheme given below:

² Source: Witzani, A. (2016): *Duales Studium in Österreich*. In: Hauser (ed), *Hochschulrecht. Jahrbuch 16*, p 62 - 77, Wien.



	Theorie		Practice	Sum	
	lessons	self-learning			
Duration	15		11	26	[weeks]
ECTS	25		5	30	[ects]
	625		125	750	[h]
actual	42				[h/week]
			38,5		[h/week]
			424	424	[h]
	375				units [#]
	281	344		625	[h]
Self-learning units	13,76 [ects]			344	[h]
Teaching units	11,24 [ects]			281	[h]
Practice	5 [ects]			125	[h]
Sum ects granted	30 [ects]			750	[h]
Add. required internship				299	[h]
Sum workload				1 049	[h/sem.]
workload (15 + 11 =)	26 [weeks]			40	[h/week]

1 academ. year	1 500 [h]
1 semester	750 [h]
1 semester	30 [ECTS]
1 [ECTS]	25 [h]

1 [h]	60 [min.]
1 Unit	45 [min.]
Unit (=lesson, sem., lab, ...)	

Scheme of weekly workload calculation



6.4 Metrics for DUALMON as qualitative and quantitative indicators

6.4.1 Qualitative indicators – curriculum

Compliance with the dual study program curriculum objectives following a five-point scale, (5 – in full compliance, 1 – no compliance).

No.	Qualitative indicators	5	4	3	2	1
1.	The aims of dual education are evident.					
2.	The dual curriculum meets project objectives.					
3.	The dual curriculum meets the objectives of the academic study program.					
4.	The dual curriculum is appropriate for the target group of students (content, workload, schedule).					
5.	The dual curriculum is feasible both at university and in enterprises.					
6.	The dual curriculum is well structured.					
7.	The dual curriculum ensures a good balance between academic studies and internships.					
8.	The sequence of subjects is consistent and provides an opportunity for developing knowledge and skills.					
9.	The weight of the courses is accordingly distributed within each semester.					
10.	The dual curriculum ensures the knowledge and skills matching the current qualification profile in IAR.					
11.	The dual curriculum ensures the acquisition of professional skills and key skills for working in a business environment.					
12.	The schedule of the dual curriculum enables students to master the courses in terms of their quantity and quality.					
13.	The dual curriculum allows students to master the workload both in the university and enterprise.					
14.	The dual curriculum provides students with an opportunity to shape their studies according to their interests.					
15.	The dual curriculum enables students to actively participate in the learning process.					
16.	The dual curriculum allows students to work on multidisciplinary projects in a real-life business setting.					
17.	The dual curriculum meets the current skills demands of industry.					
18.	The dual curriculum corresponds to current trends in higher engineering education.					
19.	The dual curriculum is in conformity with National and European higher education regulations.					
20.	The dual curriculum provides an opportunity for faster realization on the labour market and against youth unemployment.					



6.4.2 Qualitative indicators – organisation of dual study program

Compliance with the Dual Study Program definition following a five-point scale, (5 – in full compliance, 1 – no compliance).

No.	Qualitative indicators	5	4	3	2	1
1.	Repeated succession of theoretical and practical phases and continuous reflection.					
2.	The practical phases go beyond the usual scope of a professional internship both in terms of time and in terms of specification of the content.					
3.	The acquisition of curricular defined competences takes place at two learning locations and is characterized by the combination of science and implementation orientation.					
4.	The company commits to a training obligation and is able to convey the intended course content.					
5.	The organization of the theoretical and practical phases provides the framework for a tolerable total workload (h) for students.					
6.	The admission procedures for university and company are in the responsibility of the respective partners and are coordinated with each other.					
7.	The relationship between the three partners (student, university and company) is subject to binding regulations for quality assurance.					
8.	There is a continuous training partnership with appropriate remuneration for internships as part of an employment relationship, which is ideally continued consistently for at least two thirds of the study period.					

6.4.3 Quantitative indicators



	1 st year	2 nd year	3 rd year
N° of contacts with companies			
N° of involved companies			
N° of enrolled students			
N° of graduated students			
N° of employed students			
N° of company mentors			
N° of academic mentors			
N° of questionnaires for students on Dual Study programs			
N° of questionnaires for companies			
N° of questionnaires for company mentors			
N° of questionnaires for academic mentors			

7. Annexes

For the feedback following methods should be used:

The methodology World Café - consists of common parts serving the comparability between the stakeholder groups and of specialized elements designed for each of the stakeholder groups separately.

The common method used with each of the stakeholder groups is the question round with each of the groups. During the question session, 5 questions are presented and explained. The participants have 5 minutes per question to write a feedback using moderation cards. Each of the group is asked exactly the same 5 questions. The purpose is to find out to what extent the expectations of the separate stakeholder groups towards the dual study model match.

The following questions are asked:

Question 1

Do you see the connection between the theoretically taught contents of the university and the given practical training at all?

Question 2

What do you see as the biggest benefit for the company and the students?

Question 3

How can you understand whether the company's activities really complement the curriculum?

Question 4

Are the quantity and quality of care provided by the mentors sufficient?

Question 5

Which kind of assessment and feedback tools (written or oral) did you use to reflect the practical training? To whom these were submitted?

The methodology of questionnaires for the three involved parties in the strategic triangle: students, academic mentors and company mentors.

INTERNSHIP IN THE COMPANY

Feedback questionnaire – UNIVERSITY mentors

Dear academic mentor,

At the end of the internship at the company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us!

Collected data will be processed anonymously.

University :

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.
x – I don't know / not relevant

The academic mentor got all the necessary information of his tasks prior the beginning of the internship.	1	2	3	4	5	6	x
The academic mentor knew about the student`s tasks in company.	1	2	3	4	5	6	x
The academic mentor knew in advance what work tasks the student will have to fulfil.	1	2	3	4	5	6	X
The academic mentor knew which skills and competences the student should acquire with each task.	1	2	3	4	5	6	X
The academic mentor was introduced to the company structure.	1	2	3	4	5	6	x
The academic mentor was told about his duties and role in this dual education.	1	2	3	4	5	6	x
The academic mentor was given enough time to fulfil his tasks.	1	2	3	4	5	6	x
The academic mentor has communicated openly with the student and gave feedback to his work performance.	1	2	3	4	5	6	x
The academic mentor took chance to get in touch with industrial surrounding.	1	2	3	4	5	6	x
The academic mentor was supportive to student`s questions during their internship.	1	2	3	4	5	6	x
Work tasks were mostly relevant/suitable to the study programme.	1	2	3	4	5	6	x
Clearly structured internship was priorly accordated with company.	1	2	3	4	5	6	x
The academic mentor saw that student took responsibility for his professional career.	1	2	3	4	5	6	x



The academic mentor has got no feedback what the student was doing during the internship.	1	2	3	4	5	6	x
University mentor of internship was available if required during internship.	1	2	3	4	5	6	x
Overall satisfaction with the feedback from internship.	1	2	3	4	5	6	x
I would recommend students for internship to a befriended academics.	1	2	3	4	5	6	x
During internship I was least pleased with:							
My suggestions for improvement of the quality of internship:							

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year.

How do you assess the planning of an next internship?

In what way did it influence your cooperation with the university (R&D support work, orientation, expectations, acquisition of competences/skills/knowledge)?

Thank you!

INTERNSHIP IN THE COMPANY

Feedback questionnaire – COMPANY MENTORS

Dear company mentor,

At the end of the internship in your company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us!

Collected data will be processed anonymously.

Company :

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.
x – I don't know / not relevant

The university provided all the necessary information prior the beginning of the internship.	1	2	3	4	5	6	x
The student was well accepted by employees in the enterprise.	1	2	3	4	5	6	x
I knew in advance what work tasks the student will have to fulfil.	1	2	3	4	5	6	x
I knew which skills and competences the student should acquire with each task.	1	2	3	4	5	6	x
Mentor was introduced to the student`s program.	1	2	3	4	5	6	x
Mentor was told about his duties and role in this dual education.	1	2	3	4	5	6	x
Mentor was given enough time to fulfil his tasks.	1	2	3	4	5	6	x
Mentor has communicated openly with the student and gave feedback to his work performance.	1	2	3	4	5	6	x
The student was given space to express initiative/interest and took chance.	1	2	3	4	5	6	x
Employees have responded openly and supportive to student`s questions.	1	2	3	4	5	6	x
Work tasks were mostly relevant/suitable to the study programme.	1	2	3	4	5	6	x
* Clearly structured internship was accorded with university.	1	2	3	4	5	6	x
* Responsibility was given to the student for professional career.	1	2	3	4	5	6	x
Sometimes we didn't really know what to do with the student.	1	2	3	4	5	6	x
University mentor of internship was available if required during internship.	1	2	3	4	5	6	x



Overall satisfaction with the internship.	1	2	3	4	5	6	x
I would recommend students for internship to a befriended company.	1	2	3	4	5	6	x
During the internship I was least pleased with:							
My suggestions for improvement of the quality of internship:							

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year.

How do you assess the planning of the next internship?

In what way did it influence your cooperation with the university (R&D support work, orientation, expectations, acquisition of competences/skills/knowledge)?

Thank you!

INTERNSHIP IN THE COMPANY

Feedback questionnaire - STUDENTS

Dear student,

At the end of the internship in the company, you are kindly invited to answer the following questions. Questionnaires will be analysed for the needs of optimizing the organisation and the internship process. Your opinions and suggestions are of great importance to us!

Collected data will be processed anonymously.

Study programme :
Study year :
Company :

Choose the appropriate level of agreement: 1 – I fully agree to 6 – I fully disagree.
x – I don't know / not relevant

The university provided all the necessary information prior the beginning of the internship.	1	2	3	4	5	6	x
I was well accepted by employees.	1	2	3	4	5	6	x
I knew in advance what work tasks I will be doing.	1	2	3	4	5	6	x
I knew which skills and competences I will acquire with each task.	1	2	3	4	5	6	x
Mentor introduced me to the work environment.	1	2	3	4	5	6	x
Mentor has acquainted me with the company.	1	2	3	4	5	6	x
Mentor told me which work tasks to do and what should I learn by doing them.	1	2	3	4	5	6	x
Mentor was available for my questions.	1	2	3	4	5	6	x
Mentor has communicated openly with me and gave me feedback for my work.	1	2	3	4	5	6	x
I was able to express initiative / interest, if I wanted to do so.	1	2	3	4	5	6	x
Employees have responded to my questions.	1	2	3	4	5	6	x
Work tasks were relevant/suitable to my study programme.	1	2	3	4	5	6	x
Work plan comprised of tasks was helpful for my internship.	1	2	3	4	5	6	x



*Please, add a comment – in what way it influenced acquisition of competences/skills, your expectations for WBL etc.:								
* Clearly structured internship has increased my motivation for work tasks.	1	2	3	4	5	6	x	
* Clearly structured internship has increased my responsibility for my professional career.	1	2	3	4	5	6	x	
Sometimes I didn't really know what to do in the company.	1	2	3	4	5	6	x	
Organiser of internship was available if required during my internship.	1	2	3	4	5	6	x	
I got accustomed to the culture of the work environment and the rules of behaviour in the company.	1	2	3	4	5	6	x	
I got accustomed to the working discipline and responsibility for performance of tasks.	1	2	3	4	5	6	x	
Overall satisfaction with internship.	1	2	3	4	5	6	x	
I would recommend this company for internship to a friend.	1	2	3	4	5	6	x	
During internship I was most pleased with:								
During internship I was least pleased with:								
My suggestions for improvement of the quality of internship:								

1 – I fully agree ... 6 – I fully disagree. X – I don't know / not relevant

Please, describe your experience regarding internship in comparison to the internship in the first year. How do you assess the planning of the internship? In what way did it influence your internship (work, orientation, expectations, acquisition of competences/skills/knowledge?)

Thank you!