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SafeEngine - Blended Learning through Innovative Tools for Sustainable and Safety Engineering and Social Inclusion

Erasmus+ Programme Key Action 2
Strategic Partnerships

EVALUATION PLAN

Project Management

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Key words

Assessment; criticalities; strategic objectives; performance



1 Introduction

1.1 Project Overview

SafeEngine is a project of cooperation for innovation and the exchange of good practices, which aims to improve the knowledge of engineering students in the sector of health, safety and social inclusion in the workplace.

In order to reach this aim, the project intends to develop, test and implement 4 stackable course modules, specifically addressed to Master Science (MS) students of engineering classes, related to the following topics: i) occupational health and safety; ii) environmental risk assessment; iii) safety in process industries; and iv) social inclusion of peoples with disabilities in the workplace.

The specific objectives (SOP) of SafeEngine are:

- SOP1. Development and implementation of 4 stackable e-learning course modules and related practical works with open online access.
- SOP2. Development of best practices, common standards and guidelines for designing and making e-learning courses.
- SOP3. Testing the innovative practices developed in the framework of SafeEngine project through innovative ICT technologies and mutual learning.
- SOP4. Dissemination and Exploitation of project results.

1.2 Objective of the plan

The objective of this evaluation plan (EP) is to define the organization system and the operative methodology aimed at assessing: i) the correct development of the proposed activities and the efficacy of their implementation; ii) the achievement of the established milestones; iii) the management of the critical events.

The assessment will be effectuated taking into account the established objectives of the project.



2 Methodology

2.1 Plan design

The design of the present EP plan was carried out through the following steps:

- definition and prioritization of project's objectives
- identification of the activities to be evaluated
- attribution of the responsibilities
- identification of the performance's indicators
- management of the criticalities
- scheduling of the activities
- reporting

The definition and prioritization of the project's objectives was fundamental to recognize the objects of the assessment. Project's objectives, in fact, were associated to a certain number of activities included in the project description, which were identified as Activities to be Evaluated (AE). Then, considering the main actors involved in the development of the identified AE, it was possible to attribute the responsibilities. To support the assessment process, several Key Performance Indicators (KPIs) were identified, and it was proposed an operative approach to face the criticalities. Successively, looking at the Gantt chart of the project, it was organized the scheduling of the assessment process. Finally, it was established a procedure to report the results of the EP.

2.2 Plan preparation and sharing

The EP was prepared by Università degli Studi di Napoli Federico Federico II (UNINA) and circulated among the other partners for editing and revisions.

3 Organization system for project assessment

3.1 Prioritization of project's objective and identification of the activities

Project's objectives are, of course, well declared in the project's description. Nonetheless it is fundamental to identify and prioritize them, to correctly address the assessment activities, being aware that it is impossible to evaluate everything, and it is important to focus on selected areas.

The main Strategic Objective (SO) of SafeEngine is to increase the knowledge of engineers in the following fields: i) occupational health and safety; ii) environmental risk assessment; iii) safety in process industries; and iv) social inclusion of peoples with disabilities in the workplace. Such an increase can be considered the main attended impact coming from project's development.

The evaluation of the results obtained in this specific area, is therefore the most important element of the EP. Although a complete evaluation of the obtained impact can be effectuated only *a posteriori*, a proficient assessment can be also conducted during the development of the project.

Another important SO of SafeEngine is to provide new skills in the adoption of non-traditional teaching tools, to the people participating to the project. Non-traditional teaching tools are becoming more and more important, due to increasing globalization, and to the diffusion of new systems of communication. In the specific case of SafeEngine, teachers are supposed to acquire a novel knowledge in the creation and use of on-line courses. The evaluation is therefore addressed to the results of this potential acquisition.

A third SO of SafeEngine, which is generally common to all Erasmus+ projects, is the creation of new partnerships. This third objective is also included in the EP.

The defined SO are linked to several activities/events, envisaged in the project, indicated as AE, which are listed below using the same identification code adopted in the proposal:

- A1 - Project Management
- A2 - Development of best practices, common standards and guidelines for on-line courses
- A3 - Development of SafeEngine e-learning tools
- A4 - Training of students and professors for online learning
- A5 - Online learning development
- A6 - Selection of the target groups for long-standing summer school
- A7.1 - Short-term staff training in Sibiu
- A7.2 - Short-term staff training in Malaga
- A7.3 - Short-term staff training in Naples
- A7.4 - Long-standing winter school in Naples
- E1 - Multiplier event in Sibiu
- E2 - Multiplier event in Malaga
- E3 - Multiplier event in Naples
- A8 - Information, promotion, and dissemination

Some of these AE end with specific Intellectual Outputs (IO), which are:



- O2 - Training methodologies for online learning
- O4 - Four E-books
- O5 - Videos showing practical works correlated with the course modules
- O10 - Evaluation method for student's assessment in teaching and e-learning activities

Once more IO are identified using the same code adopted in the proposal.

The association between SO and AE is reported in Figure 1. The association between AE and IO is reported in Figure 2.



Figure 1 – Correspondence among SO and AE

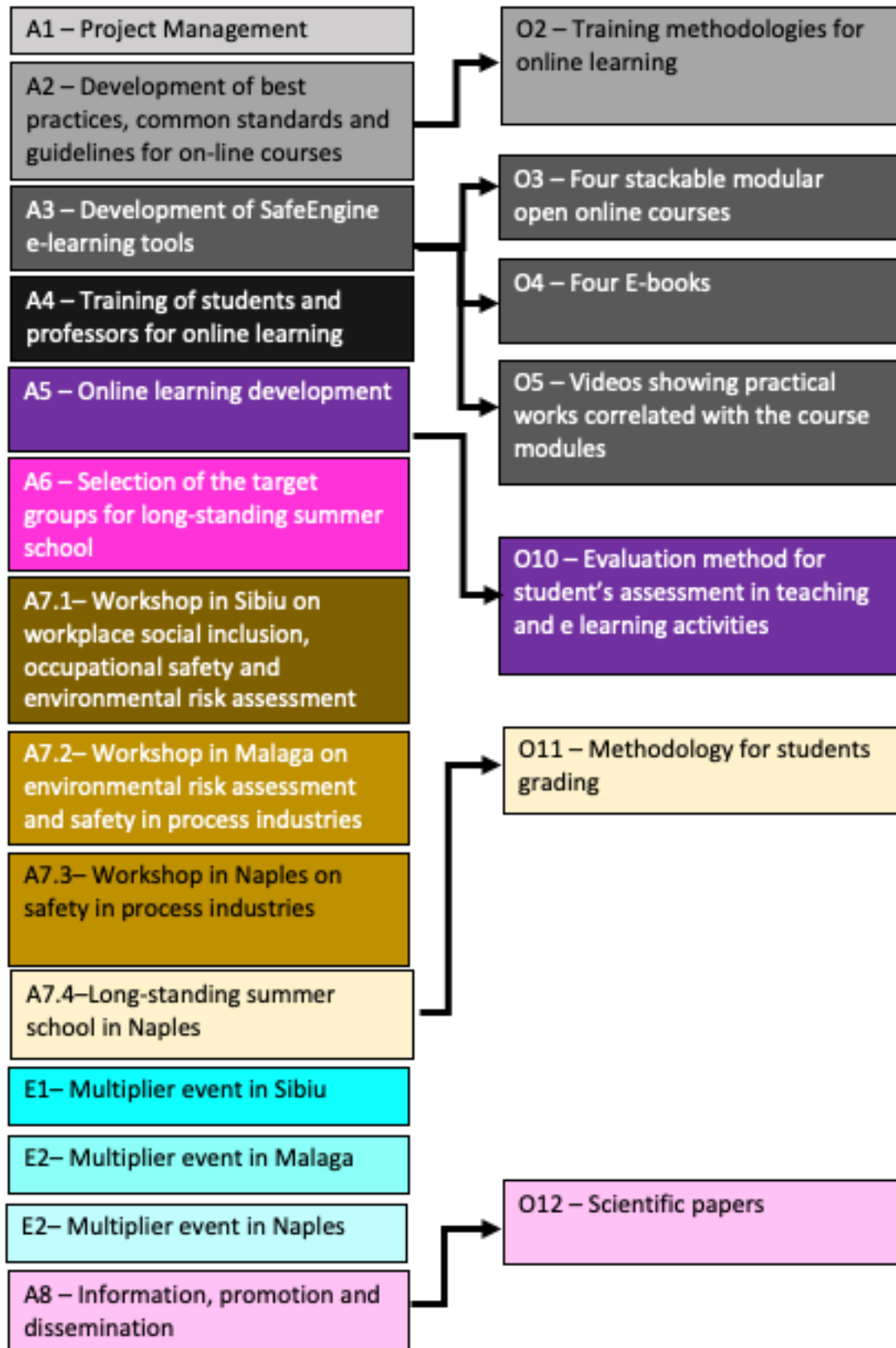


Figure 2 – Correspondence among AE and IO



3.2 Responsibilities and Indicators

The responsibility of the evaluation is attributed to the Board of Evaluators (BE), chaired by the project manager, prof. Diana Cocarta, and composed by one component from each partner institution (Universitatea POLITEHNICA din Bucuresti, UPB, Universidad de Malaga, UMA, Universitatea Lucian Blaga din Sibiu, ULBS, Università degli Studi di Napoli Federico II, UNINA). The BE will meet every 5 months and will examine the results of the assessment, conducted by the Leading Organization (LO), already individuated, for each of the AE and IO in the project description (Figure 3).

According to the obtained results, the BE may decide to put in place corrective actions, as described in the successive paragraph.

Five meetings (M) are also scheduled during project development (M1 – Kick off meeting; M2 – Meeting for organization of the online learning programme; M3 – Progress meeting #1; M4 – Progress meeting #2; M5 – Closing project) as indicated in Figure 4. Two of them (M3 and M4) are specifically finalized to the assessment of critical activities and events.

For the assessment process, the responsible makes use of the KPIs, identified in the proposal to support the evaluation procedure and listed in Table 1. KPIs of Table 1 are integrated, case by case, by specific analyses.

Table 1 – Key Performance Indicators

• **Timeliness KPIs:**

- Cycle Time: the time needed to complete a certain task or activity was established for every task and activity provided in the framework of the "Intellectual outputs" and "Timetable" paragraphs of the project proposal, when starting and ending phases were indicated.
- On-Time Completion Percentage: the project manager as well the main responsible of every partner, will make intermediate evaluations in order to check if a task could be completed by a given deadline and to what extent this is being done progressively.
- Time Spent: in order to spend the allocated budget to specific activities of the project in a proper manner, the project manager and the main responsible of every partner will be in charge of evaluating the amount of time that is spent on the project by each team member. The time initially allocated to each member of the team will consider the hours/days of work that have been allocated within the current proposal for each expected result.
- Number of Adjustments to the Planned Activities: here it will be assessed how many times partners will require to be made adjustments to the completion date of the project activities. In this regard, in order to avoid delay concerning the closure date of the project, only adjustments that will allow to be recovered during the 3 years of project implementation will be agreed.

• **Budget KPIs**

- Budget Variance: in this regard, over the project implementation it will be assessed how much the actual budget varies from the projected budget; it will be measured in this way, how close the financed amount of expenses is to the expected value.
- Line Items in Budget: the project manager as well as the main responsible of the partners will keep track of individual expenditures as established in the framework of the project proposal. This will be a detailed way to see how the budget was spent and to identify any weaknesses.
- Expenses Performance Index: along the SafeEngine implementation, the project manager, together with the financial responsible of the project will centralize all the financial information and will compare the budgeted cost of the project activities that will be accomplished until a certain moment with the real spent it.

• **Satisfaction KPIs**

- Level of Satisfaction concerning the way the project is carried out - it will be evaluated through direct discussions with the partners
- Level of Satisfaction concerning the training activities provided by the professors within the Winter School - it will be evaluated through questionnaires available at the end of every training activity of the students

• **Quantitative KPIs**

- 1 intermediary report which will be delivered to the National Monitoring Agency by the project manager
- 5 Minutes of the Transnational Project Meetings

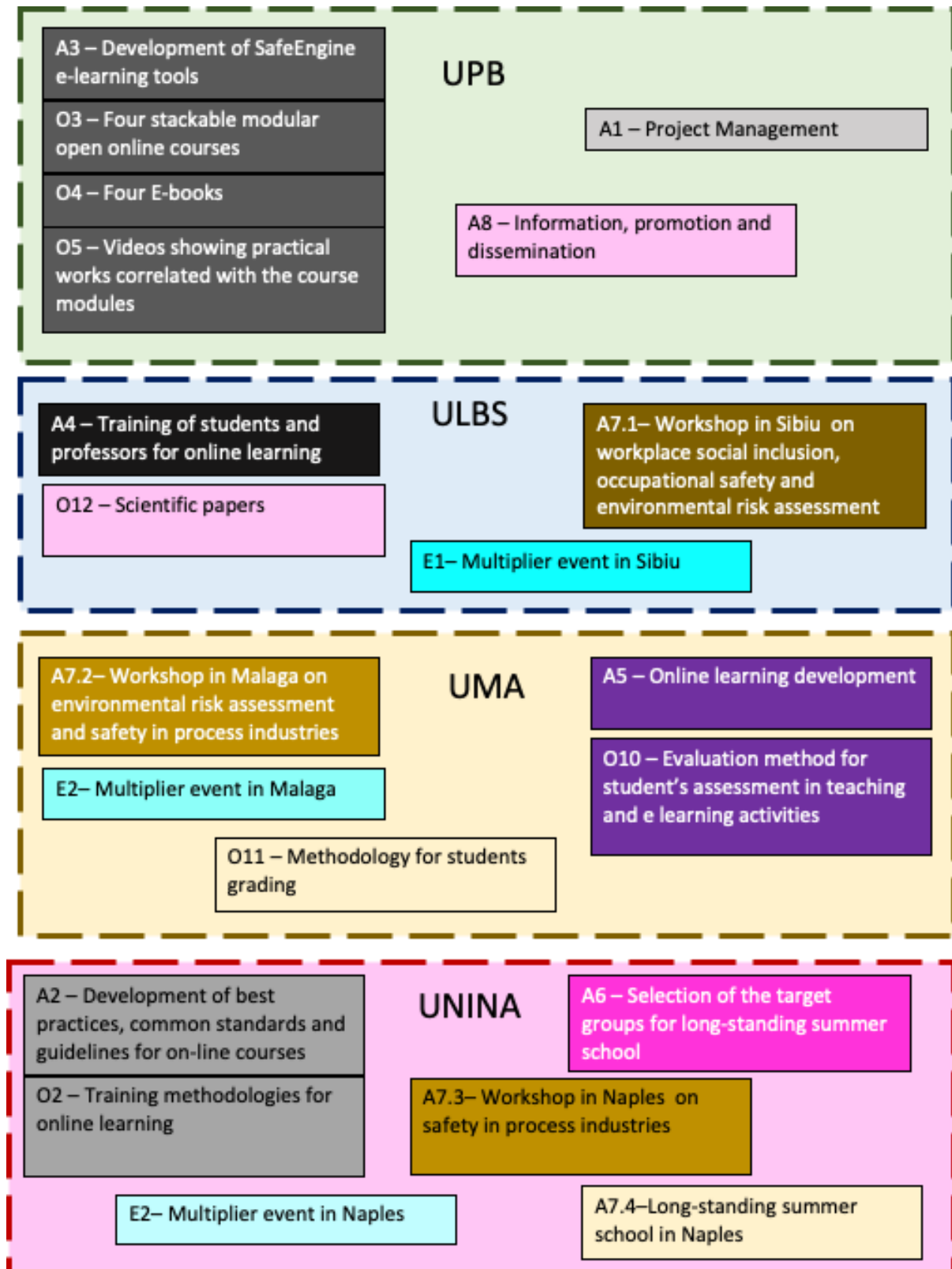


Figure 3 – LO for each AE and IO

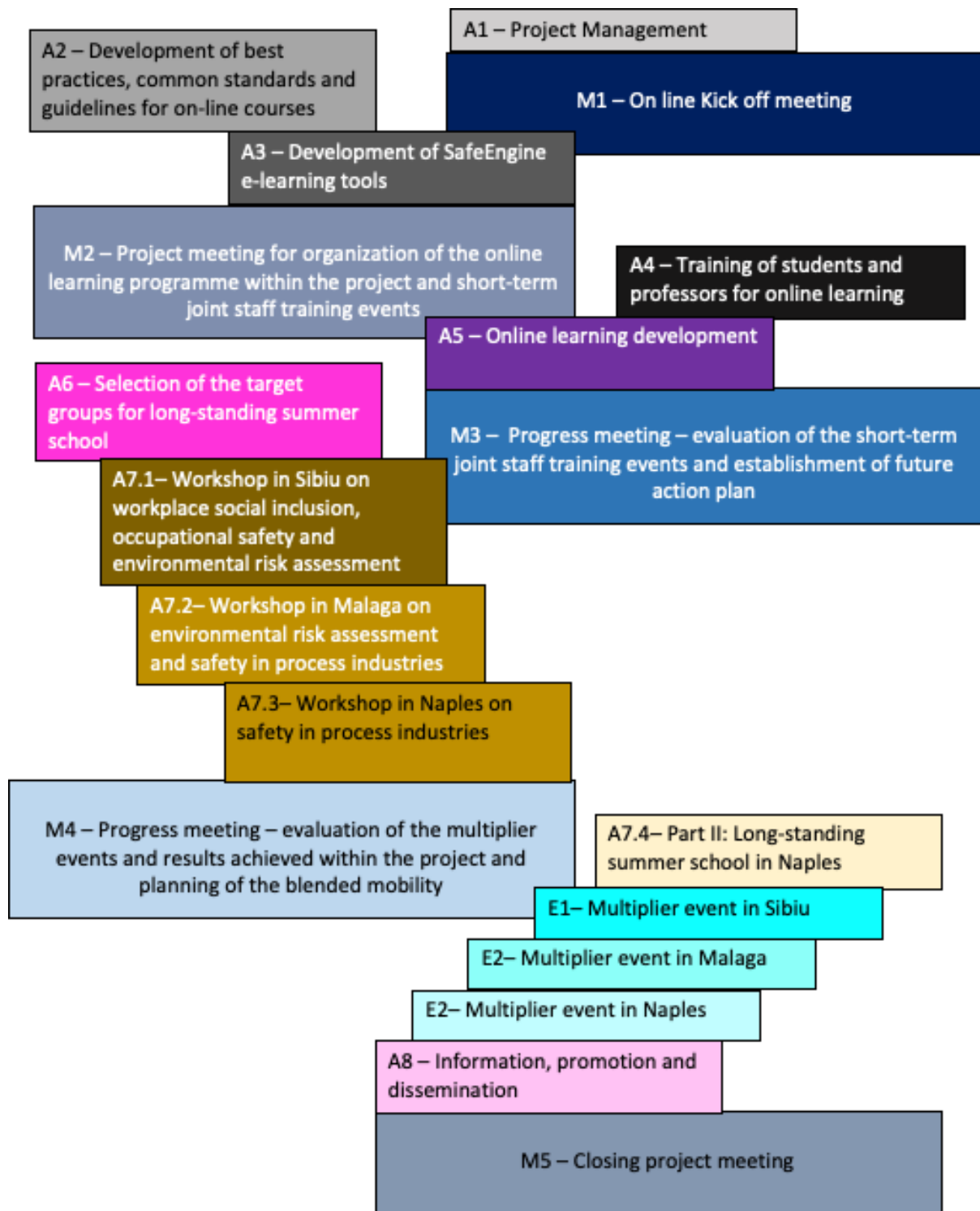


Figure 4 – ME scheduling respect to AE development



The main indicators for each AE are:

- A1 – Project management: timeliness and budget KPIs listed in Table 1; quantitative KPIs listed in Table 1.
- A2 – Development of best practices, common standards, and guidelines for on-line courses: level of satisfaction of teachers involved in the course preparation.
- A3 – Development of SafeEngine e-learning tools: production of the following IO: O3 – 4 Stackable Modular Open Online Courses; O4 – Four E-books; O5: Videos showing practical works correlated with the course modules.
- A4 – Training of students and professor for online learning: level of satisfaction of students and professors involved; production of IO: O2 – Training methodologies for on-line learning.
- A5 – Online learning development: level of satisfaction of students and professors involved; increased knowledge of students on occupational health and safety, environmental risk assessment, safety in process industries, and social inclusion of peoples with disabilities in the workplace.
- A6 – Selection of the target group for long-standing summer school: level of satisfaction.
- A7.1 – Short-term staff on social inclusion, occupational safety, and environmental risk assessment: level of satisfaction of participants.
- A7.2 – Short-term staff on environmental risk assessment and safety in process industry: level of satisfaction of participants.
- A7.3 – Short-term staff on workplace social inclusion, occupational safety and environmental risk assessment: level of satisfaction of participants.
- A7.4 – Long-standing winter school: level of satisfaction of participants; increased knowledge of students on occupational health and safety, environmental risk assessment, safety in process industries, and social inclusion of peoples with disabilities in the workplace; reaching of IO: O10- Evaluation method for Student's assessment in teaching and e-learning activities.
- E1 – Multiplier event in Sibiu: number of participants.
- E2 – Multiplier event in Malaga: number of participants.
- E3 – Multiplier event in Naples: number of participants.
- A8 – Information, promotion, and dissemination: number of people reached.

3.3 Management of the criticalities

Criticalities observed in any phase of the assessment process, concerning the performances of the different activities, or the deviations from the established plan, must be reported to the BE, who has the task to undertake corrective actions, establishing time and responsibilities for each of them.

Corrective actions are promptly communicated to all participants of SafeEngine, and immediately applied by the responsible. Results of corrective actions are analysed by the BE to verify their efficacy.

The main potential risks that may be involved in carrying out the project, along with the level of impact and the measures to reduce them are the following:



- Risk: Possible risks of not carrying out the mobility activities for teachers or students due to the mobility restrictions existing in Europe because of the existence of COVID 19 (especially in the first phase of project implementation).

- Risk level: High

To avoid this risk, the first Transnational meeting was proposed to be an online meeting. Secondly, the short-term staff training events for the professors were scheduled starting with the second year of the project. The second year was also dedicated to the online learning of the students, while the blended mobility of the students was foreseen at the end of the project. If during the period provided for the mobility for students or professors will be mobility restrictions online learnings and webinars will be made by using tools that will be available on the two e-learning platforms (Federica and EnvYJobs).

- Risk: Possible risks of not achieving the project objectives in force major conditions can be given by the failure of the tasks by the members involved either in the management team or in the implementation team, within the project coordinating institution or within the partner universities.

- Risk level: Low

This risk can be avoided by the partial or total take over by the other partners of the activities in question. In order to take into account the information of the guide specifying that the “Strategic Partnership is transnational and involves at least three organizations from three different Program Countries”, in case the project activities will be taken over by the other partners, the partner in the case will remain in the consortium as Silent Partner.

- Risk: Failure to comply with the implementation plan by the project management or implementation team

- Risk level: Low

If it will be required, proper solutions for the optimal recovery of delays, depending on the given context, will be established.

- Risk: The risk that one of the associated partners (national, local, and regional public authorities) that were foreseen that they will actively participate in the summer schools to decide for not being longer involved in these activities

- Risk level: Low

To minimize the occurrence of this risk, the co-operation agreements have already been signed between the project partners and the associated partners in case the financing will be obtained.

Table 2 Part I – Project Timetable

Name of the project:		Blended Learning through Innovative Tools for Sustainable and Safety Engineering and Social Inclusion/ SafeEngine																															
PROJECT TIMETABLE																																	
		2021												2022												2023							
	MON	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	Respo	Parteners
		dec	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar	apr	may	nsible	involved
Project activity*																																	
A1. Project management																																CO	CO (UPB)
M1. Online kick-off meeting for SafeEngine working group																																CO	CO, P1,P2,P3
A2. Development of the Training Methodology for Online Learning																																P3	CO, P1 (UMA), P2 (ULBS), P3 (UNINA)
O2/A2: Training Methodology for Online Learning																																P3	CO, P2,P3
A3. Development of SafeEngine e-learning tools																																CO	CO, P1, P2,P3
O3/A3: 4 Stackable Modular Open Online Courses																																CO	CO, P1, P2,P3
O4/A3: eBooks																																CO	CO, P1, P2,P3
O5/A3: Videos showing practical works correlated with the course modules																																CO	CO, P1, P2,P3
O10/A3: Evaluation method for Student's Assessment in Teaching and eLearning Activities																																P1	CO, P1, P2,P3
M2. Transnational meeting - (P1-UMA)																																P1	CO, P1, P2,P3
Short-term joint staff training event: Social Inclusion, Occupational Safety and Environmental Risk Assessment (P2-ULBS)																																P2	CO, P1, P2,P3
Short-term joint staff training event: Workshop on Environmental Risk Assessment and Safety in Process (P1-UMA)																																P1	CO, P1, P2,P3



3.4 Scheduling and reporting

All AE, IO and M envisaged in the present EP are scheduled as indicated in the project Timetable reported in Table 2 (Part I, II and III). The results of the assessment process are summarized in form of written report, prepared by the responsible of the assessment action, and transmitted to the BE no later than one week after the completion of the action. Mentioned criticalities are reported to the BE as soon as individuated, in order to mitigate their potential negative impact on the overall development of SafeEngine.

One Intermediary report will be delivered to the National Monitoring Agency by the project manager. Minutes of the Transnational Project Meetings will be prepared.





4 Conclusions

The present plan has been established to verify the correct development of the project, and the impact obtained by its realization, considering the strategic objective that have suggested its proposition. It is intended as a motivation for the continuous improving of the efficacy and effectiveness of the activities undertaken in the different phases of the project evolution, and as a tool for the optimization of future initiatives proposed by the participating institutions.



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Figure 1 – Association among SO and AE.

Figure 2 – Correspondence between AE and IO.

Figure 3 – LO for each AE and IO.

Figure 4 – ME scheduling respect to AE development.

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Table 1 – Key Performance Indicators.

Table 2 – Project Timetable.

List of acronyms

Acronyms	Definitions
AE	Activities to be Evaluated
AT	Assessment Tools
BE	Board of Evaluators
EP	Evaluation Plan
IP	Indicators of Performances
IO	Intellectual Outputs
LO	Leading Organization
MS	Master of Science
M	Meetings
SO	Strategic Objectives
SPO	Specific Objectives
ULBS	Universitatea Lucian Blaga din Sibiu
UMA	Universidad de Malaga
UNINA	Università degli Studi di Napoli Federico II
UPB	Universitatea POLITEHNICA din Bucuresti