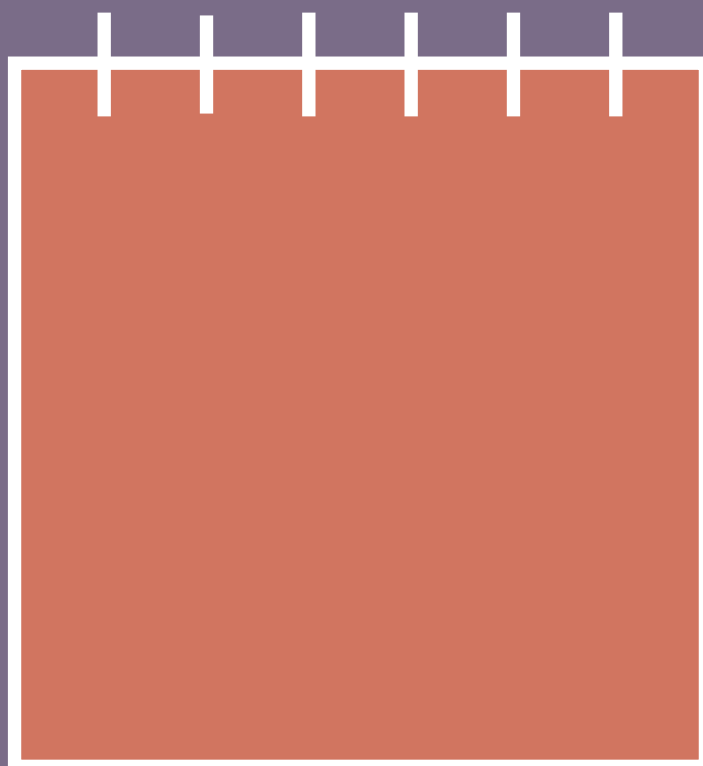


COURSE PLAN



Multidisciplinary Projects
in an International Context



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Multidisciplinary Projects in an International Context, MUPIC (5ects) CURRICULUM

This multimodal course is focused on the support of international students' cooperation in the field of technical and other universities using innovative online methods in a virtual multidisciplinary project management team.

The course follows a multidisciplinary students' team learning model where the representative students from several European universities will be involved. The students will be given an assignment from an external company and they will have to find or create a final product/solution working together with their team online. The students' project teams will consist of experts from the field of engineering (industrial design), project management, marketing and arts. The students will be taught in several fields such as intercultural awareness, language and social skills and project management in virtual teams. The team will use online communication and apply diverse innovative (e.g. agile methods) methods, which are currently used all over the world, in project management as well as in sharing and creating knowledge.

The aim of the learning/teaching activities is to give the students, teachers and company representatives an opportunity to meet, set and clarify the team work assignments. During the teaching/ learning activity students will be introduced to project concept, they will be divided into teams in which they will divide the roles between themselves and plan the product development. They will also meet the company representatives who will introduce the task to them and gives them support. There will be two teaching/learning activities for the students during each phase of the piloting. During the second teaching/learning activity, students will present the results of their work, get feedback from the company representative and teachers from the partner institutions.

This multimodal online course will contain 6 modules.

- M1: Intercultural and Virtual Communication
- M2: Language
- M3: Project Management
- M4: Engineering Design
- M5: Business and strategy
- M6: Industrial Design

These multimodal course modules will be focused on the core skill the students should achieve, i.e. improve their language skills in order to communicate effectively in the working environment; improve/gain intercultural competences that are very important for working in international teams; learn how to communicate online properly using formal language in synchronous as well as asynchronous learning/working environments; learn how to work in virtual teams effectively. The online course will also provide students with guidelines and methods on how they should work together from the project management point of view and give them some guidelines/steps (they will follow) on Engineering Design.

English B2 level is required from the students.

The course will follow EQF Level 7:

Table 1 Source <https://ec.europa.eu/ploteus/content/descriptors-page>

	Knowledge	Skills	Responsibility & autonomy
Level 7 The learning outcomes relevant to Level 7 are	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

Competences (pedagogical objectives) - learning outcomes

M1 Intercultural and Virtual Communication

The student can

- recognize the need and importance of learning and exploring intercultural communication in the context of the MUPIC project (international teams, dynamics within teams, dealing with companies, orientation week abroad)
- become aware of their own cultural identities and build an appreciation for others (personal, social and cultural identities)
- understand and formulate ways how culture affects communications (Edward T. Hall’s High-Low Context dimension, perceptions of space, approaches to time)
- identify specifics of online intercultural communication
- understand the meaning and applications of the Individualism vs. Collectivism concept as the most widely-used terms in comparing cultures; recognize the constraints of the concept
- build an overall comprehension of the major cultural values underlying different behaviors and understand leading values dimensions (Hofstede’s Values Orientation Model, brief overview of other models); using the

acquired knowledge, formulate their experience from working in the international group

- come up with tips for effective cross-cultural communications: how to become adaptable in intercultural interactions (include experience from the course and suggest practical solutions) ·
- share data, information and digital content with others through appropriate digital communication technologies.
- understand the differences between face-to-face and virtual communication and apply appropriate code of conduct
- adapt behavioral norms and netiquette of the employer while using digital technologies and interacting in digital environments.
- understand how to build and lead an effective virtual team

M2 Language

The student can

- recognise the difference between various levels of formality in language, and be able to use
- recognise different levels of formality in the English language and use the proper means of communication in various working environments
- write a report
- recognise the commonly made mistakes in reports

M3 Project management

The student can

- understand general project management concepts especially from product development viewpoint: Have a good overall view of development project life-cycle and project phases
- understand the importance of project communication and stakeholder management
- understand special characteristics of requirements management in the product development context
- have an overall comprehension of the basics of development project planning. Be able to describe how the WBS (Work Breakdown Structures) are used as a basis for the planning
- use project risk management tools and understand the risk management principles
- understand importance of quality management in development projects
- write out and compile a basic development project management documentation

M4 Engineering design

The student can

- have an overall comprehension of a product life cycle and the engineering design process (and its interaction with overall project management for product development, with economic, marketing, communication issues)
- write a list of requirements with quantitative technical specifications
- develop their creativity and innovation and apply related implementation techniques
- recognize the constraints linked to standards, patents, utility models

The engineering students of MUPIC will be able to:

- understand and synthesize the functional principles of a mechanical system;
- justify the selection of machine elements;
- produce an overall drawing under the formal conventions of technical drawing;
- evaluate quantitatively the performance of the designed mechanical system and locate the proposition with respect to the state-of-the-art
- write a synthetic report with computation and design notes;
- respect the standards and safety constraints;
- develop his/her criticism with regard his/her own design process;
- be aware of socio-economical, environmental and ethical constraints.

M5 Business & Strategy

The student can

- Review the analysis and existing tools within the discipline of Strategic Management.
- Carry out the strategic diagnosis of an organization and its summarized presentation in the SWOT matrix.
- Suggest strategies to correct weaknesses, face threats, maintain strengths and exploit opportunities (CAME Matrix).
- Review the CANVAS model and the bases for generating a new business.
- Understand the importance of incorporating social objectives into the business model.
- Learn how to make a company more socially responsible.

M6 Industrial design

The student can

- understand the iterative nature of an engineering design process of a technical system subject to economical, technological, societal and environmental constraints
- establish product requirements specifications
- refer to standards, regulations, etc.
- establish a state-of-the art including patents search
- predict the performance, quality and competitiveness of an engineering design proposal with objective property indicators
- perform a multidisciplinary engineering project in a structured framework, with innovation-driven contribution

Pedagogical approach & Implementation

Approach is problem based emphasizing self-directed learning and collaborative innovation in teams. Implementation is working life oriented and the task is given by the partner companies. teams are coached by the representatives of the companies, team coaches and MUPIC experts

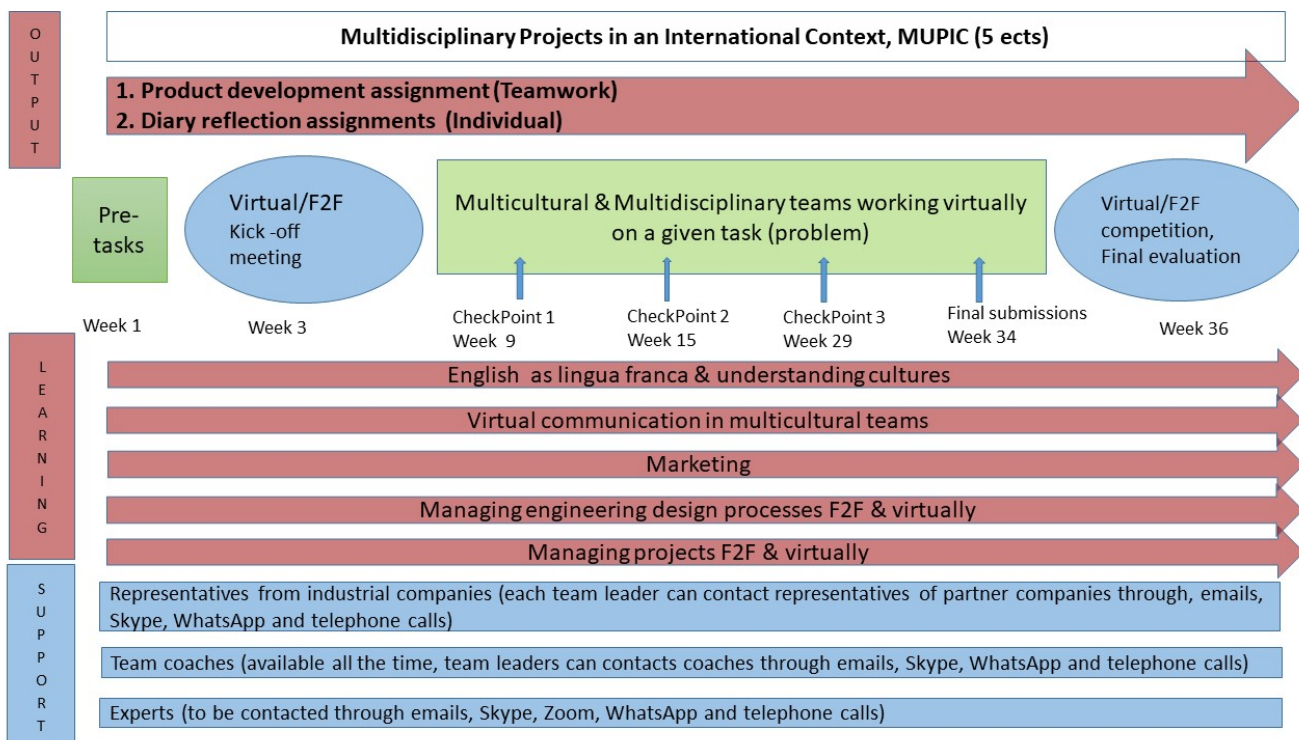


Figure 1 MUPIC course implementation

The course will start with pre-tasks. Collaborative tasks encourage the students to have informal discussions in order to get to know each other and build trust within their team. Individual tasks' purpose is to orientate students to the themes of this course.

Both virtual or hybrid approaches are possible: the students will meet only virtually or the students will meet the team face-to-face at a kick off meeting and again at the end of the project.

There will be 3 checkpoints (CP):

- student teams will return their project progress reports to the coaches and company representatives for every CP
- students will do individual self-reflection after each CP. Experts will monitor and give feedback on the diaries.

At the end of the course teams will present their solutions for the companies (virtually or F2F) and the teams will compete.

The suggested timeframe starting from the pre-tasks (week 1) and ending with competition (week 36) is presented in the figure 1.

Materials

All materials and suggested reading are provided through learning environment

- articles
- studies and reports
- materials and presentation from the coaches and experts
- materials from the companies

Evaluation

Both learning process and final output will be evaluated.

- Before the course starts:
 - assessment of the language level in the beginning of the course and at the end of the course
 - self- assessment of the Communication competence <https://europass.cedefop.europa.eu/sites/default/files/dc-en.pdf>
- During the course: continuing informative assessment of the learning process
 - self-reflection in diaries (what went well? what can we improve? what did we learn? what can we put in action? In addition, thematic questions to be discussed) after each checkpoint
 - reflection within the teams as part of project progress report
 - evaluation by the coach
- At the end of the course: formal assessment of the output will be internal (coaches, experts, students) and external (companies)

The final grade is appraised as follows:

- FR: Final Report: 35%. Evaluation carried out by the representatives of the universities as well as of the partner companies, based on the Rubric of Written Work and on the four areas of knowledge.
- PP: Project Presentation: 15%. Evaluation made by team coaches and representatives of partner companies based on Rubric of Presentation and Oral Communication.
- ILPE: Individual Learning Process Evaluation: 20%. Evaluation based on all the evidence gathered in the project development process (attendance to training, meeting minutes, attendance and participation in virtual classes, attendance and participation in the sessions in Mons and interaction with partner companies) and the self-reflective learning diaries.
- CE: Cross Evaluation among students: 10%. Evaluation carried out by the members of each team based on the Cross-Evaluation Rubric.

Assessment tool the Cross-Evaluation Rubric is available at Mupic.eu.

