

MISSIONE 4  
ISTRUZIONE  
RICERCA

# PROPOSTA PROGETTUALE

## ALLEGATO 1



Finanziato  
dall'Unione europea  
NextGenerationEU



Ministero  
dell'Università  
e della Ricerca



**Italiadomani**  
PIANO NAZIONALE  
DI RIPRESA E RESILIENZA

**AVVISO PER LA CONCESSIONE DI FINANZIAMENTI DESTINATI A  
INIZIATIVE EDUCATIVE TRANSNAZIONALI - TNE – D.D. n.167 del 3 ottobre 2023**

*Piano Nazionale di Ripresa e Resilienza (PNRR) – Missione 4 – Componente 1 “Potenziamento dell’offerta dei servizi all’istruzione: dagli asili nido all’università” – Investimento 3.4 “Didattica e competenze universitarie avanzate”, Sotto-investimento T4 “Iniziative Transnazionali in materia di istruzione”, finanziato dall’Unione europea – NextGenerationEU.*

**PROJECT PROPOSAL**  
(art. 8, par. 7 of the Notice)

**Structure of the Proposal**

As to the participation in the selection process the Project Proposal must be completed as follows.

The Proposal consists in:

**Part A: General and Administrative Information**

- General Information of the Project
- List of Participants

**Part B: Application Form**

- Objectives and expected results
- Concept and Methodology
- Work Plan
- Economic and Financial sustainability profile
- Characteristics of the Partners involved in the project

**Font required:** Times New Roman, 12

## PART A - GENERAL AND ADMINISTRATIVE INFORMATION

### 1. General Information of the Project

Project Title: <b><i>Innovation in Medical Education Digital transition sustainable development and Healthy Environment</i></b>
Acronym: <b>HEALTHMED</b>
Start date of the project: 01.09.24
Duration in months: 19
Project total amount (euro/€): 1.292.574,34
Project amount to be located in “Mezzogiorno” Regions: Sicilia, Calabria

### 2. List of Participants

List of participating members of the Partnership: private or public Universities.

Once filling in the information in the schedule below, the first row has to be filled by the coordinator of the project, in bold type

N.	University	University Acronym	Type Private or public University
1	<b>University of the Studies Enna Kore</b>	<b>UKE</b>	<b>Private</b>
2	University of the Studies Messina	UNIME	Public
3	University of the Studies Mediterranea di Reggio Calabria	UNIRC	Public
4	University of the Studies Magna Graecia di Catanzaro	UNICZ	Public

Please indicate the details of the possible foreign associate members (non-beneficiaries) of the Partnership below:

N.	Name of the associate member	Acronym of the associate member	Country
1	University of Belgrade – Faculty of Medicine	MFUB	Serbia
2	Università Mohammed V Rabat للخامس د معة	UM5	Marocco
3	Université Sidi Mohamed Ben Abdellah	USMBA	Marocco
4	L'Université de Tunis El Manar	UTM	Tunisia

## PART B - APPLICATION FORM

*In this section, please declare: the objectives and expected results of the project (see section 1), the planned activities, the description of Work packages (see section 2 and 3), and the financial and economic sustainability profile (section 4).*

### 1. Objectives and expected results

*Please, describe and motivate the objectives of the project and highlight the expected results in terms of innovation, internationalization, cooperation and promotion of academic programs. In addition, describe the overall project model in order to explain how this will enable to reach the project's objectives.*

*In particular, in the section below, describe the objectives of the project, which should be specific, measurable, achievable, realistic and time-based. Objectives should be consistent with the expected exploitation and impact of the project.*

*Please be specific and provide only information that applies to the proposal and its objectives. Wherever possible, use quantified indicators and targets.*

*(Max 5000 characters)*

#### *Objectives of the project*

HEALTHMED project, promoted by a partnership composed of four universities located in two regions of Southern Italy (Sicily and Calabria) and four university institutions situated in strategically important areas of the African continent (Tunisia and Morocco) and the Balkan Peninsula (Serbia), aims to create a space for high education and higher instruction. This will be achieved through the development of professionalizing academic training offerings, joint educational programs, and advanced training and research projects, fostering a process of extra-European integration with a long-term structural, sustainable, and systemic cooperation in the fields of education, research, and innovation at a transborder level. This objective will be realized through the initiation of intercultural exchanges and a program of physical and virtual mobility for students, Ph.D. candidates, researchers, and educators. Additionally, it will involve initiatives for advanced second-level training to support innovation and competitiveness by enhancing existing educational systems and experimenting with innovative training methodologies capable of addressing societal challenges in an innovative and multidisciplinary manner. The proposed model of higher education is based on the importance of an economy that combines growth and sustainability through the development of a broad spectrum of knowledge in the fields of science and technology. It also involves the transfer of experimental deep tech and technology-driven training practices into clinical and healthcare engineering practices. The focus is on interdisciplinary themes aimed at bringing about significant knowledge development, including applied knowledge, in the areas of interest of the National Recovery and Resilience Plan (PNRR):

- Training on healthy and safe ecosystems and environmental systems, adopting responsible practices through the use of new treatment and analysis technologies, defining specific safety plans for resource use and rational use, and improving the energy efficiency of treatments and environmental characterization processes.

- Training on digitally and technologically advanced instrumentation to ensure high safety standards in simulation techniques in clinical practice and to make multidisciplinary practical-exercise and research activities in the fields of Molecular Biology and Genetics, Histology-Embryology, and Human Anatomy more efficient.
- Multidisciplinary second-level training for the healthy city and the quality of the natural and urban environment through the design of public policies, city and urban planning, and design aimed at the ecological and digital transition of the resilient and sustainable city. This involves safeguarding natural ecosystems and resources, exploiting new technologies, promoting sustainable mobility for increased proximity and accessibility, and designing public spaces in relation to green and blue infrastructures.

Therefore, the predetermined project objectives can be outlined as follows:

- a. Promoting the exchange of best practices and introducing new training and research projects in the medical and engineering sectors, advocating for models of physical and virtual mobility among students, teaching staff, researchers, and administrative personnel.
- b. Implementing educational programs in the medical and engineering fields interconnected with the activated doctoral programs within the themes related to the digital and environmental transitions of individual partner universities, as listed in the attached partner profiles. The goal is to develop key skills of both Italian and foreign students through the use of innovative methodologies based on advanced technologies to be integrated into the curriculum. These programs will be carried out at (a) the *Simulation and Innovative Teaching Center (S.I.D.I)* of the University of Messina in collaboration with the newly established *Laboratory of the University of Enna* on simulation techniques in clinical practice in collaboration with the University of Catanzaro and the *Multifunctional Laboratory of Molecular Biology and Genetics, Histology-Embryology, and Human Anatomy* of the University of Enna, and at (b) the *Experimental Laboratory of Sustainable Environmental Urban Planning* of the University of Reggio Calabria in collaboration with the *Experimental Laboratory of Environmental Health Engineering (LISA)* of Enna, in its "Chemistry" and "Microbiology" sections.
- c. Increasing the dissemination of integrated training programs with those of foreign universities and institutions through the establishment of agreements for double degrees, joint degrees, and international doctoral programs.

The innovative training methodologies will be conveyed by a unique digital ecosystem, an integrated and interconnected environment of digital resources, applications, devices and technologies that will connect existing data resources, applications, devices and technologies of university institutions to facilitate teaching, learning, research and administration activities with the aim of training professionals able to use machine learning techniques, artificial intelligence, IT security and statistical techniques within IT companies and public and private administrations, including scientific and technological research bodies or institutes, in particular with regard to the acquisition, management, processing, analysis and use of large amounts of data in a secure and intelligent way.

**Expected results in terms of innovation, internationalization, cooperation and promotion of academic programs:**

The programme will make a significant contribution by stimulating the innovation of the countries involved in terms of knowledge, skills and competences through the **joint**

**promotion of academic programmes**, contributing to sustainable growth and ensuring equity, prosperity and social inclusion through the achievement of the following outcomes:

1. to increase **cooperation** and sharing of knowledge, experience and *peer learning* activities between higher education institutions in order to support their progressive strengthening in terms of operational capacities;
2. **innovation** of university courses, mutual-learning activities, interdisciplinary research in a common framework of collaboration between the parties for the development of two advanced training programs on topics related to digital and environmental transitions to provide knowledge, skills, competences and innovative models regarding efficient solutions to respond to global challenges for human and environmental health;
3. to bring together the education and training systems of the different European countries through a *double/joint degree* programme through cooperation between different training systems, allowing for the launch of a path involving students from different cultural, social and economic backgrounds;
4. providing the ability to cross-fertilize knowledge useful for understanding and managing the complexity of the urban environment and human health through transversal soft skills.

#### **General model of the project and achievement of objectives**

The proposed internationalization strategy is developed in a clear, sustainable and relevant way with respect to the set objectives, providing strategic indications to the partners on the actions to be taken to improve management processes, the quality of the offer and the training success and professional integration of learners.

**The programme will enable the achievement of the objectives set** (p. 5) by promoting the following **lines of action**:

1. **TNE STUDENTS**: a line of exchanges and mobility of Italian and foreign students will be activated that will allow them to spend a period at the university campuses: Kore University, University of Messina, Mediterranean University of Reggio Calabria and Magna Graecia University of Catanzaro and the Associated foreign higher education institutions;
2. **TNE TEACHERS**: a line of exchanges and mobility of teachers and administrative staff will be activated that will allow them to spend a period at the university campuses: Kore University, University of Messina, Mediterranean University of Reggio Calabria and Magna Graecia University of Catanzaro and associated foreign university institutions;
3. **TNE DOUBLE / JOINT DEGREE**: cooperation between universities aimed at the implementation of double/joint degree;
4. **SECOND LEVEL TRAINING (TNE ADVANCED SKILLS)**: on two interdisciplinary topics: **(I)** Medical training to ensure high safety standards with simulation techniques in clinical practice and multidisciplinary practical-exercise and research activities in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy; **(II)** Training on natural ecosystems and urban systems (services) to raise the quality of life and well-being of citizens, proper management of environmental resources and the maintenance of healthy and safe

ecosystems and environmental systems, adoption of responsible practices also through the use of new technologies to support decision-making systems for the design and implementation of public health policies characterized by a strong dimension and for the spatial analysis of supporting health data, characterization of urban planning tools on the principles of urban regeneration centered on the ecological and digital transition for the transition of cities aimed, also, at the reorganization of public services (health and non-health) in terms of proximity and accessibility and at sustainable and performing urban design/project, responsible planning for the exploitation of natural resources (e.g. for freshwater surface and groundwater for human consumption) including through the use of new efficient and energy-saving treatment technologies.

The training courses will be interconnected with the PhD courses activated in the field of topics related to digital and environmental transitions, as listed in the attached partner profile, especially: UNICZ Life Sciences A.Y. 2022/2023 (XXXVIII cycle), Measure PNRR DM 351/2022 Digital transitions Artificial Intelligence, Biomedical Engineering and Measure PNRR DM 118/23 Digital and Environmental Transitions Life Sciences, Biomarkers of chronic and complex diseases XXXVII cycle a.y. 21/22, Molecular and Translational Oncology and Medical-Surgical Technologies, and UNIME of UNIRC: PhD in Architecture XXXIX cycle (PNRR), PhD in Civil, Environmental and Industrial Engineering XXXIX cycle (PNRR Scholarships), Information Engineering XXXIX cycle (PNRR Scholarships) and the UNIME Ph.D. in "Ecological Transition" and Ph.D. in Intelligent Systems for Engineering of Kore University on the topics of AI for Health, Human-centric AI, Intelligent Systems for the Architectural Design of Eco-sustainable Structures.

*Measurability of the set targets:*

The 4 lines of intervention, focusing on the theme of *One Health, an integrated approach*, will make it possible to achieve the following targets, set on the specific objectives:

1. TNE STUDENTS: promote the dissemination of training best practices through the launch of n. 1 exchange and mobility program for n. 45 students of the Italian and foreign partner institutions within 12 months from the start of the project activities;
2. TNE TEACHERS: to promote the dissemination of training and administrative best practices through the launch of n. 1 exchange and mobility program for n. 20 teachers of the Italian and foreign partner institutions within 12 months from the start of the project activities
3. ADVANCED SKILLS: implementation of 2 training courses (on the topics identified above) to develop key skills through the use of innovative methodologies to be integrated into students' curricular paths within 12 months from the start of the project activities;
4. ADVANCED SKILLS: launch of 2 experimental innovation laboratories aimed at the development and transfer of educational and training practices within 12 months from the start of the project activities.
5. TNE DOUBLE / JOINT DEGREE stipulation of at least 1 agreement between the partners involved for the recognition of the double degree, joint degree or international doctorate within 19 months from the start of the project activities.



### 1.1. Scale and Significance baselines, benchmarks, and assumptions

*In this section, please indicate both the extension and dimension of the project in terms of budget, activities to be carried and where, numbers of students involved in the projects, to evaluate the impact that each action has on the project.*

<i>Scale &amp; Significance</i>
The project is structured in four actions:
<b>TNE DOCENTI</b>
<p>No.2 Professors of the University of Enna Kore, no. 2 Professors of the Mediterranean University of Reggio Calabria, n. 2 Professors of the University of Messina and n. 2 Professors of the University of Magna Graecia of Catanzaro will be able to spend a teaching period from a minimum of 5 days to a maximum of 3 months at the associated foreign university institutions: University of Belgrade – Faculty of Medicine, University Mohammed V Rabat, the Université de Tunis El Manar, Université de Sidi Mohamed Ben Abdellah. <b>Tot. 8 lecturers from the Italian Universities and partners.</b> The teaching activities will be carried out in "blended" training, identifying with this type of approach elements of face-to-face training with the most innovative online activities led by the teacher. This model seeks to leverage the benefits of digital resources and online platforms, integrating them with face-to-face interactions and traditional learning dynamics.</p> <p>1. n. 4 university professors from University of Belgrade – Faculty of Medicine, n. 4 university professors from University Mohammed V Rabat and n. 2 university professors from the Université de Tunis El Manar and n. 2 university professors from Université Sidi Mohamed Ben Abdellah will be able to spend a teaching period from a minimum of 5 days to a maximum of 3 months at the University of Enna Kore, the University of Messina, the University of Mediterranean Studies of Reggio Calabria and the University of Magna Graecia of Catanzaro. <b>Tot. 12 university professors Foreign Universities.</b></p> <p><u>TNE Objectives for Teachers:</u></p> <p>Acquisition of new contacts and professional and linguistic skills, activation of research and/or training programs, comparison of management procedures, study of new methodologies for the development and management of the educational offer and for the in-depth study of new teaching methods in particular referring to the use of new teaching technologies. The exchange of practices on inclusion will make it possible to develop a set of guidelines on the organization of facilities for the reception of students with disabilities.</p> <p>Activities and opportunities for the benefit of professors and researchers of the universities involved:</p> <ol style="list-style-type: none"> <li>Operational support for the development of courses that combine virtual exchanges and mobility;</li> <li>Mobility of teachers at partner universities with a view to developing new collaborations;</li> <li>Offer online courses on European topics with English subtitles/translation;</li> <li>Work on the research topics identified by the network and participate in in-depth workshops;</li> </ol>



- e. Propose research projects under European or international calls with partners;
- f. Propose a course on the methodology of scientific research;
- g. Propose online teaching methods that are also accessible to other students from other faculties.

*Types and characteristics of mobility*

The "courses with joint training activities" will be of three types:

- a) co-teaching between a lecturer from an Italian partner university and a lecturer from a foreign university;
- b) exclusive assignment to the professor of the foreign university;
- c) exclusive assignment to the lecturer of a partner university.

In the case of co-teaching, a specific agreement will be stipulated aimed at sharing the teaching staff. In this case, the responsibility for teaching can be entrusted indifferently to one of the two teachers. Each co-teaching course cannot be less than 3 credits. In the case of courses with joint co-teaching activities, there is the possibility of assigning a number of less than 3 credits to one of the two teachers. The assessment of this type of course is carried out in presence, in front of an examination commission, composed of both the partner university lecturer physically present and the partner university lecturer, connected remotely. The recognition of virtual activities carried out as part of courses with joint training activities is automatic as the aforementioned courses are an integral part of a specific course of study. These courses may be made accessible only to students enrolled in the degree programme that provides them, as well as to students of other partner universities.

**BUDGET € 149.000,00 FOR THE MOBILITY OF 20 TEACHERS.**

***TNE STUDY***

***MOBILITY OF INDIVIDUALS IN HIGHER EDUCATION***

N. 5 undergraduate and PhD students from the University of Enna Kore, 5 undergraduate and PhD students from the University of Messina, 3 undergraduate and PhD students from the Mediterranean University of Reggio Calabria and 4 undergraduate and PhD students from the Magna Graecia University of Catanzaro they will be able to spend a period of study from a minimum of 2 months to a maximum of 6 months at the University of Belgrade – Faculty of Medicine, University Mohammed V Rabat, the Université de Tunis El Manar, Université Sidi Mohamed Ben Abdellah.

Tot. **17** students from 4 Italian universities. Students will be able to earn academic credits that are recognizable by their home university.

N. 12 undergraduate and doctoral students of University of Belgrade – Faculty of Medicine, n. 7 undergraduate and doctoral students of University Mohammed V Rabat, n. 4 undergraduate and doctoral students of the Université de Tunis El and n. 5 Université Sidi Mohamed Ben Abdellah they will be able to spend a period of study from a minimum of 2 months to a maximum of 6 months at the University of Enna Kore, the University of Mediterranean Studies of Reggio Calabria, the University of Messina and the University of Magna Graecia of Catanzaro. Tot. **28** students.

The program gives access to the following training activities:

- Research for the preparation of the thesis;
- Attendance of courses (courses) and tests (exams);
- PhDs.

The main purpose of the program is to carry out a part of one's course of study at the partner university, replacing the training activities provided for in one's study plan with training activities of the host university compatible in terms of teaching load and educational objectives. It will be necessary to choose courses that are compatible with your study plan, attend classes and pass the relevant exams. It will be necessary to submit a study project with an indication of the courses to be followed in each location for which they are applying and the possible correspondences with the courses provided for in their study plan or in the teaching plan of the course of study in which they will be enrolled at the time of the exchange.

*Recognition of Educational Activities*

Before departure, the selected student proposes a Learning Agreement to his/her Degree Programme Board for approval. Upon return, the Degree Programme Board will deliberate on the recognition of the training activities carried out at the partner university according to the University Teaching Regulations.

*Evaluation of the study project*

A commission will be set up for the evaluation of the study projects, which will in turn be divided into sub-committees composed of expert professors from the universities that are included in it. The commissions will evaluate the projects submitted for the relevant locations. The evaluation of the project is expressed with a single judgment.

This assessment is comprehensive and takes into account several aspects, including:

- compatibility of the student's profile and his/her study project with the educational offer, specificities or limitations indicated by the partner university;
- congruity of the project and of the training activities identified in the partner university with the educational objectives of the course of study;
- added value represented by the study experience that the candidate could acquire in a given location with respect to his/her field of study.

**BUDGET € 540.000,00 FOR THE MOBILITY OF 45 STUDENTS.**

***TNE DOUBLE / JOINT DEGREE***

Collaboration between Italian and foreign universities aimed at the implementation of double/joint degree programs.

Offer of international training programs in collaboration with partner universities for the attendance of a part of the study course abroad. At the end of the course, the selected students will obtain a double degree (Double Degree: diploma from the Italian university and diploma from the partner university) or a joint degree (Joint Degree: a single diploma issued jointly by the universities of the partnership)

Given the articulated nature of this programme, the agreement signed between the Partner Universities will establish:

1. the Bachelor's/Master's Degree Courses involved in this program;
2. the structure of the mobility, with the related timing and requirements for participation;
3. the minimum number of credits to be passed in order to obtain the degree;
4. the courses that must be included in the Learning Agreement;
5. the methods of preparation and discussion of the thesis, the agreement also determines its value in credits.

### TNE ADVANCED SKILLS

Development of 2 advanced postgraduate training programs, managed by La Kore University, with the collaboration of the Mediterranean University of Reggio Calabria, the University of Messina, and the Magna Graecia University of Catanzaro, which will be aimed at teaching, non-teaching and research staff of the Italian partner universities and Associated foreign higher education institutions.

The programmes will be in line with the objectives of the European Innovation Agenda to foster the development of talent with a view to boosting Europe's innovation capacity, the development of digital skills and competences and skills in future-oriented areas, such as the fight against climate change, clean energy, artificial intelligence, robotics, big data analytics is essential for Europe's future sustainable growth and cohesion.

The programmes will focus on two interdisciplinary themes:

1. Medical training to ensure high safety standards in simulation techniques in clinical practice and multidisciplinary practical-exercise and research activities in the field of Molecular and Genetic Biology, Histology-Embryology and Human Anatomy;
2. Training on improving the quality of life and well-being of the city through training on natural ecosystems and urban services.

The courses will be implemented at (a) the Center for Simulation and Innovative Teaching (S.I.D.I) of the University of Messina; (b) the Multifunctional Laboratory of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy of the University of Enna and (c) the newly established Laboratory of the University of Enna on simulation techniques in clinical practice involving the University of Catanzaro; d) the Experimental Laboratory in the Field of Sustainable Urban Environmental Engineering of the University of Reggio Calabria, and the Experimental Laboratory of Environmental Health Engineering (LISA) of Enna.

Budget: € 330.911,00 for equipment, materials and digital infrastructures functional to the project and € 108.748,75 for training, production, distribution, digitization and publications. **Total € 439.659,75.**

## 2. Concept and Methodology

*Describe and explain the general concept behind the project. Describe the main ideas, models, or hypotheses involved;*

*Describe and explain the overall approach, distinguishing, where appropriate, coordination and support activities;*

*Describe the activities related to the project and provide evidence on the impact of the activities on the countries involved. (Max 5000 characters)*

### General Concept

The **HEALTHMED** project aims to provide knowledge, skills, competences and innovative models on the theme of **One Health, an integrated approach**, i.e. an educational model based on the integration of different disciplines that is based on the recognition that human health and ecosystem health are inextricably linked. An integrated approach officially recognized by the Italian Ministry of Health and the European Commission (through national and European Action Plans), which addresses the needs of populations on the basis of the intimate relationship between their health and the environment in which they live, considering the wide spectrum of determinants that emerges

from this relationship. The project is consistent with the commitments made by the Istituto Superiore di Sanità in its 2021-2023 Strategic Plan, to promote the growth of multidisciplinary capacity necessary for complex health challenges at national and international level, addressing gaps in research, networking, integration and training through the enhancement of all sectors involved, including the environment and socio-economic sectors and the participation of citizens and communities among the stakeholders in order to ensure the full impact of One Health.

The achievement of the set objectives will be guaranteed through a common growth strategy agreed between university systems, which identifies the green and digital transition of the countries involved as a driver of transformation through the dissemination of training and administrative best practices focused on two interdisciplinary areas:

1. Safety in simulation techniques in clinical practice and multidisciplinary practical-exercise activities and research in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy.
2. Training on natural ecosystems and urban systems to raise the quality of life and well-being of citizens, adoption of responsible practices.

The models and activities proposed included in the overall approach and the interdisciplinary nature of the initiatives envisaged between the two thematic areas, distinguishing between coordination and support activities.

1. Safety in simulation techniques in clinical practice and multidisciplinary practical-exercise and research activities in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy. The innovation of the models proposed in the project respond to the need for the application of new teaching and learning methods of the training offer of the medical area that aim to promote new skills and will be based on four main drivers of development based on on IT support for the learning of basic medical sciences, on computer simulation systems for training and verification of clinical skills, on IT systems and IT systems for data management and quality assurance. The project aims to improve the teaching standards of the universities involved by developing an innovative and high-profile educational offer for medical courses that is complementary to the skills of the partners and encourages interdisciplinary collaborative research programs in order to promote the Italian higher education model as a best practice for the associated foreign countries. To respond to these challenges, the program foresees that the preparation of the students involved also includes the use of new technologies and therefore, in addition to formal knowledge and clinical experience, the integration of innovation strategies is considered necessary that will allow students to develop multi-institutional skills on the best processes and best practices.

#### **1.1 - Safety in Simulation Techniques in Clinical Practice**

The proposed teaching model is that of simulation to be incorporated into medical study courses. Simulation-based education is a rapidly developing discipline, already included in the training curricula of several foreign countries that can provide a safe and effective learning environment for students, lead to improvements in the understanding of the basic concepts of medical sciences (pharmacology, physiology), improvement of medical knowledge, familiarity with procedures, improvements in performance and clinical skills during repetition of tests in simulated scenarios (diagnosis, treatment, resuscitation, etc.) and a reduction in medical errors, to the benefit of patient safety (Khan et al. 2011, *McCoy et al. 2017*).

The simulation allows the student to experience a clinical setting that can be superimposed on reality in which it is possible to deal with pathological situations by coordinating the different professional figures. Continuous exercise on a simulator will make it possible to minimize the risk of medical errors through a gradual learning path of complications such as to guarantee, to the trainee personnel, the full mastery of all the necessary practical, applicative and behavioral skills for the exercise of the profession. The learning and supports for the teaching of surgical technique cannot be limited to the mere observation of the actions on the operating table. Technical skill actually grows with the repeatability of the practical action, which takes on a fundamental aspect in the training of a surgeon in training.

It is intended to create n. 1 Experimental Laboratory of Advanced Medical Simulation at the University of Enna in scientific agreement with the Center for Simulation and Innovative Teaching (S.I.D.I) located in Pavilion F of the AOU "G. Martino" of the Polyclinic of the University of Messina and in collaboration with the School of Medicine and Surgery of the University of Catanzaro to be allocated to joint training activities with university institutions that will ensure the long-term sustainability of relationships.

As reported by the authoritative US "*Agency for Healthcare Research and Quality*", there is a lot of scientific evidence that certifies the effectiveness of training through simulation (<https://psnet.ahrq.gov/primer/simulation-training>).

The procedural memory is acquired, which forever establishes in each learner the ability to proceed correctly in the different medical and surgical scenarios that arise. The result is attitudinal improvements that drastically reduce errors through the acquisition of new knowledge and skills, then in applying them to be able to make quick and confident decisions and finally, in maintaining and increasing one's skills through a continuous learning process.

Currently, clinical risk can only be controlled through Risk Management initiatives, implementing particular work paths, such as simulated reality training of healthcare professionals, capable of improving performance and ensuring patient safety.

The possibility of technical error, especially in the first period of the learning curve relating to any surgical act, resuscitation procedures and cardio-respiratory assistance, is inversely proportional to the practice carried out. The highly innovative techniques and technologies introduced in recent years in surgery have created an indispensable training need for all categories of healthcare professionals. Education, training and the accurate assessment of acquired skills therefore represent the most important challenge of the near future for all academic and clinical environments.

The Laboratory will be structured as a learning and training context within which students will acquire clinical skills and competencies in a protected environment, with the help of mannequins, patient simulators and virtual reality/augmented reality, which offer the opportunity to practice in a realistic setting, without risk and without involving patients. Inside the Laboratory it is possible to reproduce an operating room, an intensive care bed or an environment in which first aid maneuvers, advanced resuscitation maneuvers, diagnostic tests, check-ups and surgical procedures can be carried out thanks to extremely realistic and interactive simulator "mannequins" with practical and immersive experiences alongside traditional lessons and study. The motto of the simulation is '*never the first time on the patient*': every medical-nursing act must be learned and carried out first in a simulated context and only then on the patient. The technique to be learned is tested in a safe context,



without excessive anxiety about making mistakes or causing pain, without any risk for the patient.

The Laboratory will be equipped with a control room with a state-of-the-art high-resolution audio/video recording system, which allows you to film and record the simulation sessions, broadcast them in real time or watch them in streaming, and debrief by saving the students' performance to monitor their progress over time.

Hi-tech mannequins managed by simulation software, capable of modulating the different complexities of the clinical scenario to demonstrate, for example, the management of childbirth (in all its facets, from simple to complicated due to fetal or maternal suffering); ultra-sophisticated simulators that allow you to learn laparoscopic techniques in a completely realistic way; virtual patients, set in a hyper-realistic script, thanks to which complex clinical cases can be simulated, managed and solved in real time; mannequins used to learn how to handle emergencies (e.g. simulate intubation or tracheostomy of a patient). Inside the facility are hyper-realistic "human patient simulators" that mimic the human body in a natural way with realistic details, including reproductions of veins and underlying structures, hair and anatomical airways; An ultra-sophisticated childbirth simulator that faithfully represents a woman's body in its entirety and life-size, and possesses all the features and functions necessary to teach childbirth-related methods and prepare students in the best possible conditions.

The Laboratory will be equipped with excellent simulation systems, highly complex technological mannequins that recreate the adult and paediatric patient and the most innovative multimedia systems. Three classrooms provide students and residents with numerous high-fidelity simulators, including virtual simulators for arthroscopy and laparoscopy of the latest generation that allow the acquisition and improvement of minimally invasive surgical techniques. A simulation room, set up as a critical area department and equipped with the most advanced mannequins on the market, allows learners to perform simulated medical procedures in high fidelity, managed and monitored by a control room connected by one-way glass and cameras and environmental audio systems. Finally, a plenary meeting room allows the planning and then review of the activities carried out in simulation.

The Laboratory will be built in agreement with the Center for Simulation and Innovative Teaching (S.I.D.I) of the Polyclinic of Messina, which also houses the most advanced anatomical table for the virtual dissection of the human body, already used by many of the most important schools and institutions in the world.

This tool will allow students to visualize anatomy exactly as if it were a real cadaver, with the advantage of an interactive touch-screen experience that allows for a higher level of exploration and learning of human anatomy than any other traditional system available.

## **L2 - Multidisciplinary training and research activities in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy**

The proposed teaching model includes multidisciplinary training and research activities for students and teachers to be carried out at the Multifunctional Laboratory of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy, a university teaching and research facility located at the Santa Pansia Scientific Center of the University of Enna. This laboratory service operates in a multifunctional way to ensure maximum use and to

promote multidisciplinary practical-exercise and research activities in the field of Molecular and Genetic Biology, Histology-Embryology and Human Anatomy.

The laboratory includes three sections equipped to allow empirical teaching and research in the field of the three courses Biology and Genetics, Histology-Embryology and Human Anatomy. The Biology section is equipped with instrumentation for the construction of molecular models through which it is possible to understand and study the biological characteristics and functioning of the molecules at the basis of life (nucleic acids and proteins). Molecular biology instrumentation includes thermal cyclers for PCR, standard instruments for the extraction and analysis of DNA, RNA and proteins, nucleic acid purification, vertical and horizontal electrophoresis chambers, light microscope, centrifuges, thermostated water baths, laminar flow and chemical hoods, benchtop trans-illuminator, analytical and precision balance, +4°C and -20°C refrigerators and other small laboratory instrumentation. The laboratory will also be used to host the curricular practical activities of the courses of Histology-Embryology and Human Anatomy. In this regard, the laboratory facility is also equipped with multimedia supports associated with binocular optical microscope for microscopic observation and recognition of slide kits of histological sections of all human and non-human tissues. There are also anatomical models of the human skeleton, decomposable anatomical models of all the systems of the human body, individual bones and organs.

The integrated training approach will allow students to go beyond the old disciplinary sectors and to enter new areas of research, often in the border areas between fields of investigation that for too many years have remained didactically separate and independent. The student will therefore have the opportunity to deal with the biological reality on several fronts, with a multidisciplinary approach, through the knowledge of cutting-edge issues and methodologies. This approach is essential and timely in our globalized society in search of specialists capable of carrying out high-level biomolecular research, in a context of very rapid change in knowledge and technologies.

The activities of the collaboration and joint research activities will focus on operational clinical research in the field of infectious diseases and emerging infections. The program includes the exchange of faculty and technical-administrative staff for research and clinical supervision activities and joint analysis from observational data.

The partner universities will require technical staff from the foreign associated universities for the local coordination of the programs.

## **II. Training on natural ecosystems and urban systems**

Multidisciplinary second-level training for the healthy city and the quality of the natural and urban environment through public policies design, city and urban planning and design aimed at the ecological and digital transition of the resilient and sustainable city through natural ecosystems and resources safeguarding, exploitation of new technologies, sustainable mobility to increase proximity and accessibility, and the design of public spaces in relationship with green and blue infrastructures. Such activity will be guest to the already existing StUTeP (Strategie Urbane e Territoriali per la Pianificazione) Research Laboratory, which is particularly active on the topic of planning cities' transition. The training of students will be integrated into the ongoing research and teaching activities at the StUTeP Lab, focusing on sustainability and ensuring the psycho-physical well-being of citizens. Among these, city-wide level comprehensive plans have been developed for the city of



Reggio Calabria and for small municipalities – such as Acri, CS - in which the planning process has placed at its core the value of safeguarding and enhancing ecosystem services through a regeneration activity centered on the green and blue networks already present in the urban area but currently limited in their regeneration function due to fragmentation caused by oversized interventions in widespread urbanization and excessive soil consumption. The recently StUTeP Lab NRRP research activities, clearly related to the main urban challenges (climate change and degradation of ecosystem services) are strictly connected to the “health” for cities and their citizens. In its research activities, the laboratory has initiated strong interdisciplinary collaborations that allow for the experimentation of innovative technologies contributing to the concrete identification of optimal methodologies for solving complex problems, including the use of urban digital twins and advanced surveying systems (Copernicus and others).

Thanks to the recent NRRP projects, the Laboratory has activated internal synergies with other Research Laboratories (TCL Lab, Geomatic Lab), which activities are aligned with the theme of the healthy city and healthy environment. Specifically, this Unirc Laboratories’ network merge knowledge and skills on the topics of city/urban planning, spatial data analysis, and responsiveness of the urban environment to extreme climate changes.

In light of its expertise, the laboratory intends to propose both specific teaching courses that contribute to the sharing of its research results and the integration of students in internships within various working groups operating within the laboratory.

City and urban planning play a pivotal role in creating a healthy urban environment, crucial for the well-being of its inhabitants and for creating sustainable and resilient cities.

Today, urban planning strategies, policies, and initiatives have a more significant impact on public health, social well-being, and environmental sustainability in urban areas than in the past. Indeed, addressing the challenges that cities face contributes to enhancing their "health." Measures for mitigating and adapting to climate change, reducing emissions, safeguarding biodiversity, saving energy, promoting sustainable agriculture, sustainable mobility, and implementing a circular economy are just a few of the challenges that city and urban planning can address with a holistic and integrated approach, impacting the quality of life in cities.

Fostering sustainability and resilience in cities mitigates the negative impacts of urbanization on public health. This can involve mapping, quantifying, and assessing vulnerabilities and understanding their interactions with urban structures.

In this direction, key enabling technologies are essential tools in this transition. They can optimize resource allocation, enhance connectivity, and facilitate data-driven decision-making. Investigating the role of AI, IoT, and data analytics in enhancing city planning and service delivery is a promising research trajectory to explore. This includes developing data-driven models for more sustainable and resilient urban systems. Also, data analytics can enable the efficient reorganization of public services, including health-related facilities.

By exploiting these technologies, cities can enhance people's quality of life. First, by reducing pressures on natural ecosystems. Second, by improving healthcare accessibility, enhancing disease surveillance, and creating an agile, responsive healthcare infrastructure that adapts to the evolving needs of urban populations. In sum, effective planning, supported by ecosystem services and cutting-edge technologies, is the cornerstone for the transformation of cities into healthier, more livable environments.

Finally, evaluating the social, economic, and environmental impacts of these integrated approaches on public health will be crucial for assessing the efficacy of data-driven planning for urban sustainability and resilience. This research agenda will facilitate a holistic understanding of how cities can leverage ecosystem services and technology to create healthier, more resilient urban environments.

An urban design that is attentive to the role of ecosystem services, through the enhancement of green and blue networks in urban areas, also indirectly ensures the health of citizens, as it determines sustainable living conditions that naturally predispose them to a healthy lifestyle (focused on physical activity), thus reducing the risk of many diseases that have now become chronic in contemporary society, such as obesity and diabetes. Urban planning focused on green and blue networks, by ensuring a decrease in physical contiguity between people and contribute for a healthy city and its natural and urban environment.

The ecological, digital, and inclusive transition of cities is strictly related to the quality of the urban environment and the well-being of citizens. Therefore, such a planning perspective would also lead, in turn, to healthier populations, lower rates of chronic diseases, and an improved overall quality of life for urban residents. Understanding the principles of urban planning is essential for medical students as it allows them to appreciate the complex interplay between the built environment and public health, ultimately contributing to more effective patient care and disease prevention strategies in urban settings.

The knowledge transfer from the current research activities related to the “Healthy Environment” topic could target professors/students following a twofold thematic trajectory. The first one focuses on the urban planning/engineering/architecture area. This trajectory benefits from the knowledge gained through research activities in terms of planning the transition of cities by understanding the principles of transition and resilience and approaches to translate them into city and urban planning systems. The ecological transition centered on ecosystem services contributes to the well-being of citizens. The digital transition centered on key enabling technologies can facilitate innovative interactions between public administrations and citizens. The inclusive transition involves also public services in terms of proximity and accessibility to services (also health facilities).

The second focuses on the medicine area. The implementation of health-related public policies implies territorialization of health-related public services delivery. Understanding the demand is a crucial step in the implementation of public policies. Therefore, the knowledge gained in terms of research activities conducted by the research group can contribute to the medicine area by transferring knowledge on the analysis of local demand and context conditions from the welfare and healthcare perspective.

The educational offer will be aimed at the acquisition of innovative skills and models with reference to the way in which the challenges of digital and environmental innovation are faced, interconnecting with existing digital and environmental doctoral courses, promoting the creation and consolidation of experimental innovation laboratories aimed at the development and transfer of experimental educational and training practices between Italian universities and university institutions of different countries. non-EU.

*Impact of the activities on the countries involved*

The impact of the activities on the associated countries will be ensured by guaranteeing the students benefiting from the exchange paths a learning and training path within which they will acquire clinical skills and competences that can be integrated with traditional training methods and at the same time, improve medical performance by ensuring greater safety for the health of future patients, guaranteeing care and diagnostic pathways for fragile populations residing in partner and associated countries according to principles of solidarity for free and universal access to treatment of infectious diseases and pathologies.

These impacts will be analyzed by a steering committee that will evaluate the results of the training activities in the context of the activities carried out at the medical simulation centers and in the areas of clinical research and common activity and care and diagnostic pathways for fragile populations residing in partner and associated countries according to principles of solidarity for free and universal access to treatment of emerging infectious diseases and pathologies at a global level with the common goal of improving the health and well-being of patients.

**The impact of the project will be measured** using various evaluation tools from time to time during the partners' meetings and, above all, during the synthesis meeting.

These are: – financial reports – comparison of the planned budget with its current status, – analysis of documents, – report on the implementation of the activities of the three partner universities on the basis of partial reports, presented by the project coordinator at each project meeting, – introduction of SWOT/TOWS analysis for the project, – survey: participants and students taking part in a scientific and research project (will allow you to find out what the participants think participants of the project themselves, will allow you to know the opinions about the implemented activities among target groups and potential stakeholders, – interview: individual and group of students and staff participating in the project (knowledge and experience gained by students or staff). Inclusion of recipients in the development and testing process, – number of conference participants, Job and education fairs, – feedback from the local, regional, national and international medical community.

**Coordination and support activities and quality assurance procedures and internal evaluation mechanisms**

Coordination and support activities will be ensured by a technical-administrative structure composed of staff from the departments involved of the partner universities with the involvement of quality assurance procedures and internal evaluation mechanisms that will be responsible for monitoring and controlling all procedures related to the development of the Project. The structure will be responsible for the coordination of the entire program, approves the General Start-up Plan of the Program and subsequent amendments and will take care of the issuance of the technical and administrative measures necessary for the start and management of the project, approves the procedures and standards necessary for the management of the project and all the start, intermediate and final reports. It creates the operational connection with the associated foreign universities with the support of external expertise for highly qualifying professional services of specific consultancy. A Project Manager will be identified for the Universities of Enna, Messina, Reggio Calabria and Catanzaro, each responsible for the implementation of the part of the Program that has been the responsibility of the University that has indicated him/her.

The Project Manager will report to the General Management of Kore University and is responsible for achieving the objectives of the Program in compliance with the budgeted times and costs. It is responsible for defining the operational structure of the management structure, defining standards and procedures for managing and monitoring the implementation of the Programme - Reporting

system; planning and control of the Project, organization of an internal information system for program management, coordination and integration of the various initiatives; resolution of internal conflicts through meetings with the scientific project managers, verification and approval of internal project reports and internal procedures proposed by the Administrative Manager, verification and approval of proposals for internal replanning of the activities managed by the initiative managers. The Administrative Manager identified, among the internal management staff of the partner universities, answers to the Project Manager and to the General Management for the correctness of the administrative procedures activated for the purpose of the Implementation of the project. He/she will be assigned the following functions: definition, in collaboration with the Project Manager, of the administrative standards to be adopted in the management of the program and in the reporting system; administrative and economic and financial monitoring of the implementation of the project; preparation and integration with the technical documents, tender specifications, contract templates and what is necessary for the development of the program; verification and approval of administrative acts prepared by the initiative managers or by the technical-administrative staff; preparation of all acts and measures of an administrative nature necessary for the activities of the programme and which cannot be prepared by the initiative managers; preparation of the acts and measures related to the management of the financing by the MUR. The Scientific Coordinators, acting as staff to the Project Manager, will have the task of managing the integration of the results of the various initiatives and the coordination between them. It is responsible for the coordination and technical-scientific monitoring of the various initiatives; definition of proposals for overcoming critical issues or for improving technical planning.

For each initiative included in the Programme (TNE, ADVANCED TRAINING AND TNE DOUBLE/JOINT DEGREE), the General Management identifies an Initiative Manager who reports to the Project Manager on the achievement of the objectives of the Initiative itself within the planned time and costs, establishes and organizes the resources necessary to carry out the planned activities, proposes to the Project Manager variations and changes to the planning, produces the reports relating to the progress of the work and the necessary technical and economic reports, activates the technical tools necessary for the completion of tenders for the acquisition of goods and services and for the formation of contracts, prepares the acts within its competence in the context of the administrative procedures activated, collaborates with the scientific coordinator in order to integrate the results and activities of its initiative with those of the others Initiatives envisaged in the Project. The Technical and Administrative Staff aims to assist the Project Manager, the Scientific Coordinator, and the Administrative Manager in the management of the program will be made up of internal staff of the partner universities with high professional qualifications, integrated by external contributions, who will have the task of monitoring the technical, economic and financial development of the program in relation to the planning already approved by the Project Manager, to take care of the management of the program budget and the planning of financial resources, to report anomalous or risky situations in order to activate the necessary corrective actions, to propose scenarios for the replanning of activities in the short and medium term in order to resolve anomalous situations or to make the development of the program more efficient, to assist the Initiative managers in the drafting of project reports and in the initiation of administrative procedures related to the Implementation of the program, constantly verifying compliance with the procedural and documentation standards defined for the development of the program, proposing changes to the standards adopted or new tools useful to facilitate the development of the program, maintaining and managing the Project Archive, performing secretarial functions in the meetings of the General Management, the Management Committee and the

Technical-Scientific and Coordination Committee. The Technical-Scientific and Coordination Committee, composed of the Project Manager acting as chairman, the Administrative Manager, the Scientific Coordinator, and the Initiative Managers, represents the moment of discussion and joint evaluation on the development of the Program and aims to allow a continuous verification of the progress of the program in a participatory manner shared by all the actors involved in its implementation.

The committee has propositional and advisory functions towards the Project Manager regarding the methods of coordination and integration of the initiatives envisaged in the project. Procedures for the control of the Project: to track the development of the entire program and to allow its monitoring by the MUR, it is proposed to adopt a reporting system of the activities carried out and the results achieved based on a structured set of reports (reporting system. The following are the methods that will be adopted to allow both the External Monitoring by the MUR and the internal one, oriented to the management structure of the Operational Program. External monitoring of the programme: in order to allow the external monitoring of the programme by the MURST, it is proposed to adopt a reporting system based on three types of reports: the Project Initiation Report, the Periodic Progress Reports, the Final Report These documents are intended to keep consistent and clear, during the 24 months of project development, the path taken from the first planning to the end of the program. They will be drawn up in accordance with a format standard that will be defined in the early stages of the launch of the programme and the establishment of the management structure. Internal monitoring: the entire execution of the Operational Program will be constantly monitored by the Project Manager assisted by the Technical-Administrative Staff of the project. To this end, an internal reporting system will be activated structured according to the guidelines and procedures already identified for external relations and described above. The system will be enriched by concise bi-monthly reports that the initiative managers will have to produce to the Project Manager. These reports will contain a set of physical indicators related to the state of implementation of the Initiative. Together with the internal reports, the tool of periodic evaluation sessions of the results achieved will be used. In particular, in addition to the usual management requirements, a calendar of periodic meetings of the Technical-Scientific and Coordination Committee will be planned on a six-monthly basis in order to carry out a joint assessment of the progress of the Programme. Periodic semi-annual reports will form the basis of the committee's meetings. All Program meetings will be documented by special minutes (meeting reports) that will be included in the Program documentation and, if necessary, disclosed to all members of the management structure.

***Evaluation of the achievement of the learning objectives***

This activity will be the subject of specific evaluation forms to verify the results obtained by the learners. The quality control of each university will monitor the ability of the universities to evaluate the quality of teaching, research, and exchange and mobility activities. The implementation of the policies, strategies and strategic and operational objectives listed above will be ensured through the implementation of a governance and quality assurance system that will be examined as well as quality assurance procedures and internal evaluation mechanisms specific to each university, as listed in the attached partner profile. UKE, through the University's Quality Assurance Committee (PQA), will preside over the overall functioning by recording the quality of training and research processes, monitoring the results on the basis of the approved strategic objectives, and will control the overall functioning of the internal evaluation system, providing the governing bodies and the Public Prosecutor with aggregate data useful for political decisions within their competence, ensures the regular and systematic verification of the quality of the training



programmes declared and implemented by the degree programmes involved in the exchange programmes and will support the Programme Manager or in the self-assessment and review processes, taking into account the recommendations from teachers, students and support staff for the same Advanced Training Courses and Programmes, evaluating the effectiveness of the improvement interventions implemented by the training structures and their actual results. The aim will be to guide all activities towards the pursuit of the highest possible balance between the satisfaction of predetermined requirements and the ability to set training objectives that are constantly updated and calibrated on the best practices developed in this regard at national and international level, as a commitment to continuous quality improvement.

### 3. Work Plan

*Please provide the following:*

- *brief presentation of the overall structure of the work plan (3.1);*
- *detailed work description: a list of work packages (table 3.2 A), a description of each work package (table 3.2 B), and a list of major deliverables;*
- *timing of the different work packages and their components (Gantt chart or similar, see section 3.3).*

#### 3.1. Work Packages

*In the description of the proposal, give full details. Base your account on the logical structure of the project and the stages in which it has to be carried out. The number of work packages should be proportional to the scale and complexity of the project.*

*You should give enough detail in each work package to justify the proposed resources to be allocated and also quantified information so that progresses can be monitored.*

*nella descrizione della proposta, fornisci tutti i dettagli. Basa il tuo resoconto sulla struttura logica del progetto e sulle fasi in cui deve essere realizzato. Il numero di pacchetti di lavoro deve essere proporzionale alla portata e alla complessità del progetto.*

*In ogni pacchetto di lavoro è necessario fornire informazioni sufficientemente dettagliate da giustificare le risorse proposte da assegnare, nonché informazioni quantificate in modo da poter monitorare i progressi.*

***(Max. 5000 characters)***

Description of the proposal

The programme will allow the achievement of the set objectives by promoting the following lines of intervention:

1. TNE STUDENTS: The action provides for the provision of a scholarship that will allow students to attend courses, take exams, curricular internship activities to supplement a period of study, carry out research for theses, and to take advantage of the facilities available and specific services at the host institution without additional registration fees. The recognition of the period of study abroad will be guaranteed through the transfer of credits, on the basis of what has been agreed in advance with the course of study to which they belong through a Learning Agreement (study plan for the mobility period).

2. TNE TEACHERS: the goal is to make the most of one's skills and to acquire others, with positive effects on the professionalism of the individual and for the benefit of the entire organization both of origin and destination. The mobility must take place for a period of no more than three months and not less than two days, with a minimum of 8 hours of lessons per week in the case of mobility for teaching only and 4 hours per week in the case of mobility for

teaching and training. At the end of the mobility period, the host institution certifies, with a certificate, the start and end dates of the mobility period as well as the total number of teaching hours carried out, specifying whether there has also been any training activity. The training can also take place remotely in mixed mode.

**TNE DOUBLE / JOINT DEGREE:** Collaboration between universities aimed at the implementation of double/joint degree programs.

**SECOND-LEVEL TRAINING (TNE ADVANCED SKILLS).**

An international team composed of academic teachers and researchers from Italy, Morocco, Tunisia, Serbia will develop a common database of simulation scenarios that will allow the student to deal with training contents in the field of medicine and engineering: communication in a therapeutic team, taking into account the multiculturalism of patients, responding appropriately and correctly performing standard procedures in unusual and difficult situations. The proposed higher education model is based on the concept of evolution towards an economy capable of combining growth and sustainability, an integrated system that is based on the management of the environment and data by focusing on two interdisciplinary themes aimed at bringing a significant development of knowledge.

The training offer will be aimed at the acquisition of innovative skills and models with reference to the way in which the challenges of digital and environmental innovation are faced, promoting the creation and consolidation of n. 2 experimental innovation laboratories aimed at the development and transfer of experimental educational and training practices between Italian universities and university institutions of the associated foreign countries.

**TARGET GROUPS:** The project is aimed at a large group of students and partners pursuing training in the field of medical and health sciences and environmental engineering and architecture. In addition, the project is dedicated to teaching staff conducting courses in the above-mentioned areas (in order to acquire, improve and expand knowledge in the field of skills and executive procedures in the field of health sciences and under simulated conditions). By default, the transparency of the intellectual results obtained is to support every individual interested in the topic of interdisciplinarity and multiculturalism in working with students.

### 3.2. Work Package Description

*This section contains a list of Work Packages in which the activities are declined.*

*A Work Package (WP) is identified as a set of activities aimed at achieving a specific objective of the project. Each WP is composed of one or more activity(ies).*

*List of Work Packages*

<i>WP N.</i>	<i>WP title</i>	<i>Participant(s) Institutions</i>	<i>Operational headquarter (Regional Area in which the activity will be carried out)</i>	<i>Start month</i>	<i>End month</i>
1	Needs and competencies Analysis	UKE UNIME UNIRC UNICZ MFUB UM5	Serbia, Tunisia Marocco	01.09.24	31.03.26



		UTM		
2	Teaching and research activities	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA	Serbia, Tunisia Marocco	30.01.25        31.03.26
3	Dissemination and sustainability	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA	Serbia, Tunisia Marocco	31.10.24        31.03.26
4	WP4 - Overall and distributed project management and quality Plan	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA	Serbia, Tunisia Marocco	31.10.24        31.03.26

*B. For each work package:*

Work Package number	1
Work Package Title	Needs and competencies Analysis
Participants involved in this WP	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA
Duration of the WP	4 MESI
*Task Leader	UKE
*Task Supporter(s)	UNIME UNIRC UNICZ MFUB UM5

	UTM USMBA
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\*In case of Consortium or Foundation, please specify also the Task Leader and the Task Supporter

*(Max 2000 characters for each work package)*

**WP objectives and description** (where appropriate, divided into tasks). Indicate the foreign countries involved in the project, the objectives and the topic developed in the activities. Describe the ability to monitor the progress of the project and measure the achievement of the expected impacts of the different activities)

### **WP. 1 Needs and competencies Analysis**

The aim of this WP is to define and analyse the main aspects of the project's other WPs. More specifically, outcome 1.1 of WP1 will be important for obtaining the outcomes of the other WPs outcomes on time and for realization of arrangements of activities. This outcome will be obtained in the kick off meeting involving all participating academic partner and associated universities of Marocco, Tunisia, Serbia.

*Monitor the progress and measure the achievement of the expected impacts of the different activities of the project*

During the kick-off meeting will be defined to monitor and control project work plan activities implementation via special report templates and report events, it will be comprised of one partner –and one representatives of each partner country.

At the kick-off meeting a Steering Committee will be confirmed. At the same time, the project management strategies and monitoring arrangements will be presented and all the defined tasks will be approved by the project team. Confirmed Steering Committee will organize a short time discussion meeting during the meetings for discussion the quality assurance, monitoring and management. In the kick off meeting will make a presentation on process to all participants so, they can share their knowledge in their home universities. Moreover, purchasing of the equipment for the running administrative and teaching tasks in master program will be discussed and presented in this meeting too.

**Outcome 1.1** will be developed by all partners in the first six months for easy monitoring and managing.

**Outcome1.2** of the current work package is devoted to obtain the analysis of the interdisciplinary international program of exchange and advanced skill on MEDICINE AND ENGINEERING which the further outcomes will be laid down. Especially, task 2.2 of WP2 relay on the outcome 1.2. Until the project`s third month, partners' project team will analyse the methodology and approaches of the teaching and the contents of programme exchange and master program in order to give instructions for the curriculum development and program.

**Within the WP2 and WP3** the competence building of academic staff on the development of the TNE tools for English and French languages and using tools in teaching via blended learning will be executed in English. So, main resource for the academic staff will be English in the trainings for executing of the activity. Introducing the tools in training will be explained with English language.

In the project realization the specific hardware and software is required. All the partners are supposed to purchase the same amount and type of the equipment. The equipment cost developed in an optimal and effective way under the discussion of all partners. The most significant and reasonable items were included in the equipment list.

**Tasks:**

1.1 Mobility to university for the kick off meeting and conduct a round table with the involvement of target groups and work out a international roadmap for changes in vocational teacher education governance;

1.2 Developing an action plan of vocational teacher education in associated countries and reliable instruments for needs analysis of targets groups;

1.3 Analysing the content of international educational TNE programs;

1.4 Teaching and instructing academic staff in contents of the exchange progrs;

1.5 Process collected data.

**Deliverables** (*Brief description and month of delivery*)

1.1 Action plan on developing Interdisciplinary program.

1.2 Analysed international master programs.

1.3 Competence building.

1.4 Report on work package.

Work Package number	2
Work Package Title	<b>Teaching and research activities</b>
Participants involved in this WP	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA
Duration of the WP	19 MESI
*Task Leader	UKE
*Task Supporter(s)	UNIME UNIRC UNICZ MFUB UM5 UTM USMBA

**WP. 2 - Teaching and research activities**

WP is crucial for the effective implementation of the project and for achieving the specific objectives of the project on time and successfully. WP provides for the development of exchange programs for teachers and students and advanced training activities. WP1 analyses the content of the exchange and training programs, and provides all partners with the necessary information and reports on the requirements and needs for the development of the activities. On the basis of these reports and instructions, all partners will compose the description of the competency model of students and teachers to be involved. The curriculum of the educational program will be developed appropriately in English, French and Italian.

*Monitor the progress and measure the achievement of the expected impacts of the different activities of the project*

A line of exchanges and mobility of Italian and foreign students and mobility of teachers and administrative staff will be activated to spend a period at the partner universities Kore University, Mediterranean University of Reggio Calabria and Magna Graecia University of Catanzaro, University of Messina and associated foreign university institutions. Memoranda of Understanding will be signed for the TNE DOUBLE / JOINT DEGREE: Collaboration between the Universities aimed at the implementation of double/joint degree programs and SECOND LEVEL TRAINING (TNE ADVANCED SKILLS) will be launched on two interdisciplinary topics: (I) Medical training to ensure high safety standards in simulation techniques in clinical practice and multidisciplinary practical-exercise and research activities in the field Molecular Biology and Genetics, Histology-Embryology and Human Anatomy; (II) Training on healthy and safe ecosystems and environmental systems, adoption of responsible practices also through the use of new technologies, rational use of natural resources, energy efficiency, bio-architecture.

These lines of action will make it possible to achieve the following tasks

- n. 2 training courses (ADVANCED SKILLS) on the topics identified to develop key competences through the use of innovative methodologies to be integrated into the students' curricular paths within 12 months from the start of the project activities;
- n. 2 experimental innovation laboratories aimed at the development and transfer of educational and training practices within 12 months from the start of the project activities;

The developed curriculum and the description of the qualifications will be approved by all partners during the first semi-annual meeting to be held in ENNA. The higher education program also involves blended learning technology in teaching and supervision in the education system. It obviously requires academic staff to have enough knowledge, experience, and skills to use blended learning technology together while delivering advanced skill course content to students. Since the master's program will have a close relationship with existing training tools, academic staff should also know how to use these tools directly in the teaching process. This is why this WP requires the training of teaching staff in teaching with blended learning methodology using already existing and developed open source tools that play a crucial role in the program. Members and lecturers from each partner university will be sent for the implementation of this training. Subsequently, this staff will participate in the development of the content of the course materials. The development of programs and activities related to teaching materials will be the responsibility of the partner universities.

Following the completion of the curriculum accreditation process in all partner universities, the enrolment procedure will be carried out for students selected in the outgoing and incoming exchange programs. The number of students and lecturers of program exchange

and the master's degree will be: Total n. 45 according to the estimate provided to each partner university. During the development of the project, this number was identified by the project partners on the basis of each university's average annual fee to date. The students involved in the exchange and training program provide the sustainability of the program after the life time of the project as they could be the next specialists and researchers and continue their study.

Tasks:

- 2.1 Developing curriculum and qualification description;
- 2.2 Developing program content materials of two training courses
- 2.3 Enhancing academic staff in blended learning;
- 2.4 Enrolling 45 students in exchange programme;
- 2.5 Enrolled 20 professor in partner universities

**Deliverables** (*Brief description and month of delivery*)

- 2.1 Developed curriculum and qualification description
- 2.2 Developed content materials
- 2.3 Enhanced staff capacity in teaching using blended learning
- 2.4 Enrolled 45 master students in partner universities
- 2.5 2.5 Enrolled 20 professors in partner universities
- 2.5 n. 2 Experimental laboratories
- 2.6 3 Memorandum of Understanding for double degree

Work Package number	3
Work Package Title	<b>Dissemination and sustainability</b>
Participants involved in this WP	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA
Duration of the WP	19 MESI
*Task Leader	UKE
*Task Supporter(s)	UNIME UNIRC UNICZ MFUB UM5 UTM USMBA

### **W.P. 3 - Dissemination and sustainability**

Within this WP each partner university will lead the dissemination activities of the developed program. The dissemination sources will be associate partners, project website, video promotional materials, online courses, web site of the project and conference which held in the last semester meeting, etc. The dissemination will be at regional, national and international level.

Establishing dissemination plan and defining sustainability aspects will be realized by University KORE.

The web site is important for disseminating the project, presenting the executed activities of the project and demonstrating the obtained outcomes. For constructing the website of the project and management during the project lifetime will be responsible University of Enna that is also responsible for creating video rollers on the implementation of the project and master program in Marocco, Tunisia and Serbia.

For effective teaching using online courses and sharing the experience and knowledge, video rollers about the program courses and the project will be created by partner universities too. These video rollers will be created in English, French and Italian languages. These resources can be uploaded to the web sites of the project and partner universities, together with the national educational portals

All partner universities will be involved in the activities of developing e-books and methodological books on specialty courses, English languages for prospective students distributed equally among the partners. It is mentioned in development package that partners will be responsible in developing the content materials.

Together with these, in the first semester meeting a conference will be organised that is a great opportunity to involve the interested researchers and staff to discuss the challenges they face in the development of the new software tools, and to do joint research works.

Moreover, for promoting the course local television programs will be used publishing the project. The trained teaching staff will organize seminars and trainings in order to present and share the obtained experience and introduce the developed course. Therefore, the realization of the current WP activities is related to the WP2 and WP3 outcomes.

As one of the outcomes of implemented program will be master students and developed teaching materials in three different languages, which support the sustainability of the project. They also provide with the final projects and the consultations in their research field.

All over management of dissemination and providing the quality of the sustainability of WP4 will be controlled by UKE they are the base national universities respectively.

Tasks:

- 3.1 Establishing dissemination plan and defining sustainability aspects;
- 3.2 Creating and maintaining web site of the project;
- 3.3 Creating 2 video rollers
- 3.4 Introducing developed master program
- 3.5 Organizing conference

Deliverables

- 3.1 Dissemination plan and sustainability strategies  
3.2 Developed sources and materials for sharing and extending knowledge  
4.3 Organized final conference

Work Package number	4
Work Package Title	<b>Overall and distributed project management and quality Plan</b>
Participants involved in this WP	UKE UNIME UNIRC UNICZ MFUB UM5 UTM USMBA
Duration of the WP	19 MESI
*Task Leader	UKE
*Task Supporter(s)	UNIME UNIRC UNICZ MFUB UM5 UTM USMBA

**WP4 - Overall and distributed project management and quality Plan**

Installing internal quality monitoring procedures as well as the external monitoring via involving external experts during the project lifecycle. Three deliverables will be obtained within this WP. The coordinating organization will handle the whole project management and financial administration with the constant support of other beneficiary institutions. KORE will also be responsible for reporting and accounting

Criteria and strategies of the whole project management will be presented to all partner universities in the first kick off meeting. The kick-off meeting will also deal with establishing Steering Committee developing action plan, quality assurance procedures and general sustainability and dissemination policies. In the project management, Steering Committee containing from local coordinators plays main role as all partners will be equal in the project. In order to collaborate effectively and to reach the expected outcomes successfully by all partners, overall three annual meetings in partners for annual reports and three semester meetings in partners for the reports on quality assurance of the project will be organized during project lifetime. The meetings will involve the project team members. In each meeting the action plan for the next six months will be developed and approved by SC.

The administrative management will be obtained in terms of regional and local lev. The regional administrative management will be carried by coordinators respectively that will



take care of the project management, relevant to supervising the monitoring and regular communication activities within proper region. They will be also responsible for organizing the semester meetings, arranging information and formal communications to discuss the quality assurance of the project implementation in region. The scientific coordinators will manage the dissemination activities and the distributed appointed tasks and its monitoring. They will give local management reports individually to the proper regional coordinators. For providing the management performance it is also planned to provide the project documents and information regularly in the web-site of the project.

For operative management need to appoint exact partner universities for each WP of the project.

Tasks:

- 4.1 Managing administrative and financial issues of the project
- 4.2 Defining local coordinators and project team.
- 4.3 Organizing annual meetings for project management
- 4.4 Managing of each work package activities.

### Deliverables

- 4.1 Financial and administrative management.
- 4.2 Regional and local management.
- 4.3 Management of each work package activities.

### 3.3. Activity timeframe

*This section includes a section relating to the implementation time and monitoring of the activities.*

*Please provide a timeframe (Gantt or similar) to better explain how the project would be developed.*

CRONOPROGRAMMA																											
SEMESTRE	1			2			3			4																	
	MESI	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
Wp1	Needs and competencies Analysis	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Wp2	Teaching and research activities	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Wp3	Dissemination and sustainability	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Wp4	Overall and distributed proje management and quality Plan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

#### 4. Economic and Financial sustainability profile

Please, indicate the Economic-Financial sustainability profile of the initiative in terms of implementation and feasibility of the interventions, focusing on the adequacy of financed interventions to guarantee the continuity of the project.

(Max 5000 characters)

<b>A. EXPENSES PERSONNEL HIRED AD HOC</b>				
category	description	Number	Hourly cost (MEF RGS circular no. 4 of 18.01.2022)	Total grant
A1. Employees (or equivalent) person months	Technical Staff,	3		45.000,00
				45.000,00

<b>B. TEACHING AND RESEARCH ACTIVITIES</b>				
Activity category	Incoming/outgoing	Number of participants	cost	Total grant
Staff mobility for Teaching — scholarship for study, research and academic mobility including travel, board and lodging expenses in the country of destination	Outgoing	8	7.375,00 50% blended (for 3 months)	59.000,00
Staff mobility for Teaching- scholarship for study, research and academic mobility including travel, board and lodging expenses in the country of destination	Incoming	12	7.500,00 50% blended (for 3 months)	90.000,00
Student mobility for studies- scholarship for study, research and academic mobility including travel, board and lodging expenses in the country of destination	Incoming	28	12.000,00 (for 6 months)	336.000,00
Student mobility for studies- scholarship for study, research and academic mobility including travel, board and lodging expenses in the country of destination	Outgoing	17	12.000,00 (from 2 to 6 months)	204.000,00
Total Incoming		40		
Total Outgoing		25		
<b>Under totals 2</b>				<b>689.000,00</b>

<b>C. TRAINING ACTIVITIES, IMPLEMENTATION OF PROMOTION, COMMUNICATION, DISSEMINATION AND AWARENESS-RAISING CAMPAIGN</b>		
Activity category	category	description
Multidisciplinary second-level training to ensure high safety standards in simulation techniques in clinical practice, multidisciplinary practical-exercise activities and research in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy (UKE)	Promotion, communication, dissemination and awareness-raising campaign	12.000,00
Multidisciplinary second-level training to ensure high safety standards in simulation techniques in clinical practice, multidisciplinary practical-exercise activities and research in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy (UNIME)	Promotion, communication, dissemination and awareness-raising campaign	15.010,50
Multidisciplinary second-level training to ensure high safety standards in simulation techniques in clinical practice, multidisciplinary practical-exercise activities and research in the field of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy (UNICZ)	Promotion, communication, dissemination and awareness-raising campaign	13.638,25
Multidisciplinary second-level training for the healthy city and the quality of the natural and urban environment (UNIRC)	Digitization and publications, higher education activities	68.100,00
<b>Under totals 3</b>		<b>108.748,75</b>

<b>D. TRAVEL AND SUBSISTENCES EXPENSES</b>		
category	description	Total grant

Missioni all'estero	Promotion, communication in Tunisia, Marocco and Serbia	15.000,00
Missioni all'estero		
Missioni all'estero		
Missioni all'estero		
Visiting professor		
<b>Under totals 4</b>		<b>15.000,00</b>

**E. OTHER CONSUMABLES, CONSULTANCY SERVICES, materiali di consumo, missioni all'estero, servizi di consulenza, forniture di servizi**

category	description	Total grant
Servizi di consulenza	Activities aimed at research and design, specialist consultancy functional to the implementation and completion of project activities	6.500,00
<b>Under totals 5</b>		

**E. FURNITURE, EQUIPMENT, MATERIALS AND DIGITAL INFRASTRUCTURES FUNCTIONAL TO THE PROJECT**

DESCRIPTION	UNIT PRICE	QUANTITY	TOTAL
ALSSM-001 - Hyperrealistic BLS and ALS Lifecast Body Simulation Adult Man/Female Mannequin (with Bluetooth Speaker BS-001)		1	17.800,00
Laparoscopic Surgery Simulator	<b>160.000,00</b>	1	160.000,00
SAM III@ Self-Auscultation @Training Manikin	<b>14.234,00</b>	1	14.234,00
124-01050 Little Anne QCPR 4 Pack.	<b>1.195,00</b>	2	2.390,00
Baby Anne Manikin 4-Pack	<b>994,00</b>	2	1.988,00
Baby Anne Manikin 4-Pack. Dark.	<b>994,00</b>	2	1.988,00
270-00001 Men's Multi-Venous IV Training Arm Kit.	<b>1.300,00</b>	2	2.600
Men's Multi-Venous IV Training Arm Kit. Dark	<b>1.300,00</b>	2	2.600
Educational Defibrillator XFT-120C+ AED Trainer PRO	<b>150,00</b>	16	2.400,00
Control room, technical equipment video system and complete debriefing projection system, simulatore di training anatomico e chirurgico multimodale			137.125,00
<b>Under totals 6</b>			<b>343.125,00</b>

## BUDGET PROGETTO

		<i>TOTAL GRANT</i>
A U1	Expenses personnel hired ad hoc	45.000,00
B U2	Teaching and research activities	689.000,00
C U3	Training activities, implementation of promotion, communication, dissemination and awareness-raising campaigns	108.748,75
D	Travel and Subsistancens expense	15.000,00
E U4	Costs of furniture, equipment, materials and digital infrastructures functional to the project	343.125,00
E U5	Other consumables, consultancy services	7.139,65
	<b>DIRECT COSTS</b>	<b>1.208.013,40</b>
	<b>OVERHEADS</b>	<b>84.560,94</b>
<b>TOTALE</b>		<b>1.292.574,34</b>

n. 30 STUDENTS INCOMING  
TEACHING AND RESEARCH...  
TRAINING ACTIVITIES,....  
EXPENSES PERSONNEL HIRED...  
OTHER (TRAVEL AND VISITING...  
OTHER (CONSUMABLES)....  
FURNITURE, EQUIPMENT ,...  
TOT . DIRECT COSTS  
OVERHEADS

## SUMMARY FINANCIAL FRAMEWORK

### 5. Characteristics of the Partners involved in the project

*In this section, please provide information about the implementation of the initiative, with a precise description of the Partnership/Consortium/Foundation scope and quality: (i) quality and complementarity of the Partnership/Consortium/Foundation; (ii) capacity and organizational experience of the host institutions.*

*Please, describe the partnership organization features as foreseen in the following subsections.*

- (i) *Please, describe the Partnership/Consortium/Foundation in terms of quality and complementarity. In addition, describe the organization model in terms of human resources; relevant professional experiences and competences of the personnel involved in the implementation of the project. (Max. 3000 characters)*

**HEALTHMED** is a project promoted by a partnership composed of the University of Enna Kore, the University of Messina, the University of Reggio Calabria and the University of Catanzaro and four university institutions located in areas of strategic interest in the **African region** (Tunisia and Morocco) and the **Balkan peninsula (Serbia)**. In order to support university institutions in competing with the world market of higher education and at the same time to expand the range of destination of Italian students and teachers to two universities in North African countries.

**Kore University of Enna (UKE)** proposes itself as the lead institution in terms of the coordination of project activities and the implementation of the project and all the financial responsibilities related to it. (UKE), the youngest university established in Sicily, enters for the first time in the prestigious *world university Ranking* of Times, directly in the range between 601st and 800th place, conquering the third position in Sicily. In the ranking of international citations of its professors and researchers, it conquers, as soon as it enters, the 5th place in Italy after the Lombard universities Humanitas, San Raffaele, Brescia and Milan Bicocca. Worldwide, Kore's performance in scientific citations reaches 213th place (Elsevier-Scopus).

**The University of Messina, in 2023** (QS Ranking by Subject 2023) confirms its positioning among the top 400 universities in the world for medicine, and among the best 500 universities globally for all medical disciplines in general (Life Sciences & Medicine), and is confirmed as 28th on a national scale.

**The University of Reggio Calabria** ranks third in the CENSIS 2022 ranking among universities with up to 10,000 students with results related to the employability of its graduates, communication, digital services, moving from sixth to third position overall. This year a new prestigious position in a fifth discipline in which the University ranks for the first time, Physics & Astronomy, for which it enters the 601-620 range. The university also consolidates the results of previous years for Biological Sciences (601-640 range in the world) and for the macro-area of natural sciences the 551-600 range for Chemistry.

**The Magna Graecia University of Catanzaro** is confirmed in first place among the Southern Universities in the ranking, published by the Via-Academy, which classifies Italian universities on the basis of the number of researchers with H-Index above 30 (Top Italian Scientists). This evaluation, based on the H-Index, a parameter that takes into account the number of publications in international scientific journals and the number of citations on them, rewards the University, which is first in the South and second in Italy immediately behind the University of Ferrara. At the University of Catanzaro, the "Top Scientists" identified are 15 out of 233 total professors (6.44%) The ratio reached by the high density of "TIS" present compared to the total number of professors (equal to 6.44%) is, in fact, double the national average.

The associated foreign universities: Université **Mohammed V de Rabat** is one of the top public universities in Rabat, Morocco, it is ranked #1201-1400 in QS World University Rankings 2024, **L'Université Sidi Mohamed Ben Abdellah** ranked is first in Morocco (World University Ranking) and both therefore rank both among the top 5 prominent universities in the North African region according to the following rankings (QS World University Rankings, Times Higher Education World University Rankings, Academic Ranking of World Universities (ARWU), U.S. News & World Report Best Global Universities). **L'Université de Tunis El Manar** is one of the top public universities in Tunis,



Tunisia and it is ranked #951-1000 in QS World University Rankings 2024. The University of **Belgrade** is recognized as the second best university in the area of Eastern Europe and Russia, 384th globally according to the 2022/23 edition of the World University Ranking Center (CWUR).

The partnership was born in the name of multidisciplinary and partnership between universities on the basis of a comparison between academic programs and is based on the promotion of diversity as a transversal pedagogical paradigm in all areas of learning by encouraging inclusion through the progressive integration of different cultures, supported by key actions such as mobility and international cooperation. The complementarity of educational offerings is oriented towards a perspective of harmonization of educational systems that pertain to different disciplinary areas of universities, creating a common area for cultural exchanges and university training in order to support a global dimension of the common area of education, facilitating a process of extra-European integration in the long term.

The partnership aims to develop joint research and teaching activities by enhancing the skills of university systems in adapting to digital and environmental transformations through the definition of common tools to encourage the acquisition of transversal skills, aligning students' skills with the needs of the labor market. In particular, the project aims to promote among the partner countries a training offer on *deep tech* and *technology-driven* innovations with the use and development of advanced technologies in clinical-health and engineering practice. The innovations resulting from these technologies and from scientific, medical and engineering discoveries will allow students to access a higher educational offer by adhering to the highest values and principles in research and development, as set out in the "*European Agenda for Research and Innovation*", COM 2(2018) 306 final and the *Conclusions of the Council of the EU on the New European Innovation Agenda 14705/22*. Among the partners, the exchange of good practices will be promoted to introduce new training and research projects in the medical and engineering sector, promoting models of physical and virtual mobility between students, teaching, research and administrative staff and stimulating joint research projects in the medical and engineering fields to address the challenges of society in an innovative and multidisciplinary way by defining a common growth strategy among all partners, based on sustainability, identifying the green and digital transition as a driver of transformation.

The integrated courses will be divided into multiple types from the point of view of the provision of training activities, the locations involved, the methods of integration and will lead both to the recognition and issue of "joint degrees", "double degrees" and academic credits recognizable by the university of origin. The learning outcomes will be defined jointly by the universities offering the training course and will result from a combination and verification of the compatibility of the results defined by the individual locations. In a similar way, the training activities will be offered by the professors of the partner universities in order to build a truly integrated training path and will be able to be combined in an appropriate way in the student's curriculum. The advanced training courses will take place at (a) the Center for Simulation and Innovative Teaching (S.I.D.I) of the University of Messina, which will operate in agreement with the newly established Laboratory of the University of Enna on simulation techniques in clinical practice, involving the University of Catanzaro and the University of Messina, the Multifunctional Laboratory of Molecular Biology and Genetics, Histology-Embryology and Human Anatomy of the University of

Enna; (b) the Experimental Laboratory in the Field of Sustainable Environmental Urban Engineering of the University of Reggio Calabria, which will operate in agreement with the Experimental Institute of Environmental Health Engineering (LISA) of Enna.

The following agreements will be entered into between the partners:

**Specific Academic Cooperation Agreement for Student Mobility:** agreement to regulate the modalities of student exchange between departments or degree courses of the partner university.

**Specific agreement for academic cooperation for the mobility of professors/researchers:** agreement to regulate the modalities of exchange between professors and researchers (between departments, schools or research centers of the partner universities).

**Agreement for structured mobility for student exchange with the issue of a double degree:** an agreement that offers students the opportunity to follow, through integrated training and alternating attendance in the institutions involved, a course of study aimed at obtaining two or more academic qualifications (at bachelor's, master's, single-cycle degree). The joint activities aim to strengthen cultural and scientific relations between universities and lay the foundations for subsequent cooperation agreements in order to promote collaborations in a given scientific/disciplinary field.

*Relevant professional experiences and competences of the personnel involved in the implementation of the project.*

The selection of the human resources involved in the implementation of the project activities was based on skills and was based on some necessary steps: 1. identification of the activities; identification of the related processes; identification of the professional roles necessary to manage the processes; identification of the skills necessary to cover the roles. The administrative and scientific managers of the 4 partner universities have significant administrative and academic experience in the subjects covered by the training activities. KORE University has identified Prof. Giovanni La Valle as the Head of the Teaching and Research Services Area with solid experience in the administrative management of study courses, research projects and student careers and in the logistical organization of teaching activities. The scientific director is the surgeon P. Scollo, director of the Department of Obstetrics and Gynecology of the Cannizzaro Hospital in Catania, a complex clinical operating unit of the Kore University of Enna, author of the first uterus transplant in Italy, among the first in Europe. The University of Reggio Calabria as scientific director prof. A. Barresi -Belonging to the Department of Architecture and Territory (dArTe) of the Mediterranean University of Reggio Calabria, Associate Professor of Urban Planning at the dArTe, member of the Scientific Coordination Group (Referent of Action 1 - Green and blue infrastructures as mitigation and offset ecosystem services) of goal 4.6 and of the Pilot Project "Climate adaptation plans for the reduction of the ecological footprint and ecological debt aimed at improving the conservation" (head F-Moraci) within SPOKE 4 of the Research Project TECH4YOU "Technologies for adaptation to climate change and improvement of quality of life", holder of the Course of Urban Design for Territories and Cities between Sustainability and Innovation at the Master's Degree Course in Architecture of the Mediterranean University of Reggio Calabria. UNICZ has appointed as scientific coordinator prof. Paola Roncada full professor of Microbiology and Animal Infectious disease, Head of Proteomics Group, Istituto Sperimentale Italiano L. Spallanzani, Milan, President of master's degree 'Biotechnology for One Health Approach', University of Magna Græcia of Catanzaro and Responsible of Curriculum- Endocrine-Metabolic Sciences and

Molecular Profiles Associated with the Intestinal Microbiome on PhD Course of Experimental, Biomedical and Clinical Sciences. The Laboratory on simulation techniques in clinical practice will also involve Prof. Domenico La Torre, Associate Professor of Neurosurgery at the UOC of Neurosurgery and Regional Reference Center for Functional and Stereotactic Neurosurgery, UNIME has indicated as scientific director Prof. Rosario Fodale, Associate Professor of Anesthesiology and Resuscitation – and Head of the Structure " Center for Simulation and Innovative Teaching (S.I.D.I) of the University of Messina.

- (ii) *Please, describe the organizational experience of the host institutions, the capacity to improve the international organization/collaboration and highlight the importance of geographic coverage. (Max. 2000 characters)*

*The capacity and organizational experience of UKE: the University* supports and encourages collaboration with universities and research institutions around the world with the aim of promoting cultural and scientific internationalization, the University, through its academic structures, favors the hospitality of highly qualified teachers, researchers and scholars and foreign students. The International Relations Office (KIRO) manages the processes related to the internationalization of the University and provides information and administrative support to students selected as part of International Mobility programs (Erasmus+ study, Erasmus+ Traineeship), dealing with the stipulation and renewal of international agreements and conventions for the exchange of teachers, students and technical-administrative staff, or the development of internationalization projects. It also provides accommodation for students and international guests. Currently, there are about 200 agreements in force that formalize collaboration activities of various kinds, including in the Balkans and North Africa area with the University of Maribor in Slovenia, with Bursa Technical University, Izmir Demokrasi University and Pamukkale University in Turkey, with the University of Ljubljana in Slovenia, with the Universum College in Pristina and the University of Monastir in Tunisia (see attached sheet).

*The capacity and organizational experience of UNIME* is demonstrated by the management of 21 existing international collaboration agreements with the countries of the Balkans and North Africa, as shown in the attached sheet.

*The capacity and organizational experience of UNIRC* is demonstrated by the management of existing international collaboration agreements with the countries of the Balkans and North Africa, as shown in the attached sheet.

*The capacity and organizational experience of UNICZ CZ* is demonstrated by the management of existing international collaboration agreements with the countries of the Balkans and North Africa, as shown in the attached sheet.

Enna, 11.07.2024

The Legal Representative of the Lead  
Institution of the Partnership  
Università degli Studi di Enna "Kore"  
Prof. Cataldo Salvatore Salerno, Presidente