



Academic institution role in innovative teaching methods, best practices and use digital technologies in environment and water related Issues

*International educational event, Series Workshops
from 3.10.2022 to 7.10.2022*

Geoengineering Department, NATIONAL TECHNICAL UNIVERSITY OF UKRAINE

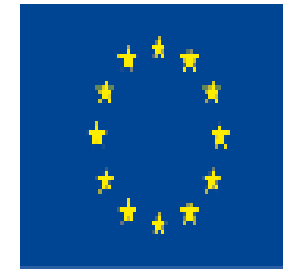
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Developing e-Master program in Water Resources Engineering

Project number: 610004-EPP-1-2019-BE-EPPKA2-CBHEJP, from 1/2019 to 1/2023



Co-funded by the
Erasmus+ Programme
of the European Union

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eMaster in Water Resources Engineering



- Create a new generation of decision makers on water resources engineering and management
- Focus on capacity development to create local experts
- Develop a blended learning (online & in-person) MSc program with real-world case
- Use **Free and Open-Source Software “FOSS”** to analyze and solve problems
- Connect local students and researchers with regional and the European Union experts



Project Partners:

Regional Partners:

- Islamic University of Gaza, *Palestine*
- Al-Quds University, *Palestine*
- Mutah University, *Jordan*
- University of Jordan, *Jordan*

European Partners:

- Free University of Brussels, *Belgium*
- IHE Delft Institute for Water Education, *The Netherlands*
- Eummena, *Belgium, UAE, Saudi Arabia, & Greece*



eummena

Funders:

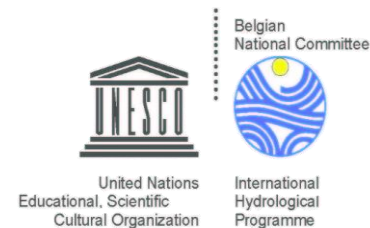
- Erasmus+ Programme of the European Union
- DUPC2: IHE Delft Partnership Programme for Water and Development

International Networks:

- UNESCO-IHP
- Open Water Network
- IUPWARE
- VLIR-UOS



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The project planned to meet the following specific objectives:

- Develop e-Curriculum for the new Master in Water Resources Engineering
- Develop e-Training modules on open-source software for water resources applications.
- Develop eLearning platform as a repository of Open Education on water resources.
- Establish eLearning communication facility in each partner university.
- Strengthen existing academic and research network in partner countries.
- Promote joint research, open-access data and innovative technologies
- Support students' mobility across countries



Project Structure:

- ***WP1: Need Assessment for country-specific requirements***
- ***WP2: eLearning Courses, Platform Development and Piloting 1st year eMaster program***
- **WP3: Internal and External Evaluation**
- **WP4: Dissemination and Broadcasting Activities**
- **WP5: Project Management**



WP: 1 PREPARATION	“Need Assessment for country-specific requirements”
Related assumptions	All Partners are willing to work online and participate in the virtual meetings
Tasks	<ul style="list-style-type: none"> ✓ T1.1 Survey of existing relevant MSc programs ✓ T1.2 Identification of country-specific requirements for the accreditation process ✓ T1.3 Survey of existing and state-of-the-art eLearning systems ✓ T1.4 Evaluation of local computing infrastructure ✓ T1.5 Market analysis, student survey ✓ T1.6 Definition of most suitable eLearning tools and applications



WP: 2 DEVELOPMENT

eLearning Courses, Platform Development and Piloting 1st year eMaster program

Related assumptions

Partners Universities have high interest on eLearning and open for regional and international cooperation

Tasks

- ✓ T2.1 Definition of MSc program and e-Learning courses
- ✓ T2.2 Development of e-Learning platform and computing facilities
- ✓ T2.3 Development of e-Training modules
- ✓ T2.4 Organize e-training sessions and study tours
- ✓ T2.5 Digital Content Development of e-Courses
- ✓ T2.6 Design of applied case studies (applied projects for students)
- ✓ T2.7 Design of internship program
- ✓ T2.8 GIS laboratory
- ✓ T2.9 Piloting applied case studies (integrated projects for students)
- ✓ T2.10 Accreditation of the e-Master and eLearning course
- ✓ T2.11 Implementation of 1st year e-MWRE master program and eLearning courses



Tangible Results

- ✓ eMaster curriculum developed
- ✓ eCourses Developed (lectures and exercises) part of the eMaster
- ✓ eLearning platform created
- ✓ eTraining for local academic staff
- ✓ GIS laboratory established (facility for visual communication)
- ✓ Design and definition of the applied case study
- ✓ Local accreditation of the eMaster program
- ✓ Implementation of the 1st year eMaster
- ✓ Pilot applied case study with students' involvement implemented



Project Impacts

- 1. Sustainability on wide project environment**
- 2. Constructive Impacts on the individual, institutional, and national level**
- 3. Helpful Contribution to policy development of HE and national education reforms**
- 4. Positive trend on public health, ICT developments, and climate change**



Project Impacts

- ✓ **1- Project sustainability on its wider environment and its contribution to the achievement of the project's overall objective**

Improved participating individual and groups skills through:

- ✓ Enhanced interaction and exchange of experiences through different project mobility activities
- ✓ European project partners have long and expanded experience in e-learning, which reflected positively on transferring technical and IT skills
- ✓ Project meeting, conferences and webinars have built new networks in the national and international level.
- ✓ The project gave practical and applied exercise adopted by academic, scientific and researches.



Project Impacts

- ✓ 1. Project sustainability on its wider environment and its contribution to the achievement of the project's overall objective

Improved participating individual and groups skills through:

- ✓ The e-Master program conducted in English language, this enhanced the English language skills and the international collaboration, increase in building new contacts and develop networking, which reflected positively on involvement in international cooperation activities.
- ✓ Through the project mobilities the participant gained and adopted new teaching tools, good opportunities to direct contact and communication with other cultures and societies.
- ✓ The participated partners are highly motivated and committed, specially under the health Corona crisis, in developing e-learning approaches



Project Impacts

- ✓ **2. Impacts on institutional, and national level, as well as its effect on the students' enrolment rate/performance/employability**
- ✓ Increased the institutional capability and skills in the e-learning education approaches.
- ✓ This positive impact granted beyond the project partners through the free and open accessibility of results dissemination.
- ✓ The project built up the e-learning know-how of the partners institutions, through establishment of new or upgrade existing GIS laboratories in each partner university.



Project Impacts

- ✓ 2. Impacts on institutional, and national level, as well as its effect on the students' enrolment rate/performance/employability
- ✓ The project gives a good example to adopt the e-learning approach in the national or regional level as the achieved results will be disseminated and can be used form other universities.
- ✓ The project is a practical exercise to apply e-learning approach and the achieved results can be used from the ministry of higher education to develop the e-learning guidelines and regulations.



Project Impacts

- ✓ **3. Project's contribution to the Ministry and the policy development of HE and national education reforms**
- ✓ Local HE accreditation institute adopt the results of the project for reform of the accreditation of the planned e-learning programs in the national level.
- ✓ Based on the project results, the ministry of higher education developed e-learning guidelines and regulations.
- ✓ Open access repositories have an essential role of increasing the visibility, competitiveness and attractiveness of the targeted HEIs in locally and in the international level.
- ✓ Lead the targeted HEIs in internationalization level by applying international curriculum standard gained by the project.



Project Impacts

✓ 4. The trends of the projects concerning public health, ICT developments, and climate change

The project focused on water issues affected by climate vulnerability and expected environmental impacts of climate change such:

- ✓ Variability in precipitation translates into reduced yields for rainfed agriculture and mean a greater frequency of flash floods.
- ✓ Reduced amounts of precipitation will mean greater strain on the over-strained groundwater and surface water resources.
- ✓ Increase in temperatures may also lead to greater groundwater pumping because of increased desertification.

These subject and other related issues were targeted in the e-mater program through e-learning courses or final research theses.



Project Impacts

- ✓ 4. The trends of the projects concerning public health, ICT developments, and climate change

ICT developments

- ✓ Digital Education using information and communications technology (ICT) courses are recognized in this e-master program with a certain percentage of electronically (e-Learning).
- ✓ It will have a practical exercise to apply e-learning approach using ICT and the achieved results can be used to develop the e-learning guidelines and regulations.



*New Suggestions,
Thoughts or Questions*

Thank you

