

Erasmus+ MARUEEB

MARUEEB project

561890-EPP-1-2015-1-IT-EPPKA2-CBHE-JP

Kick-off meeting, Genoa, 17-19 February 2016

OVERALL ACADEMIC APPROACH TO THE MASTER DEGREE IN INNOVATIVE TECHNOLOGIES IN ENERGY EFFICIENT BUILDINGS FOR RUSSIAN & ARMENIAN UNIVERSITIES AND STAKEHOLDERS

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Context: Economic Motivations for Energy Efficiency 1/2

OIL PRICE SHOCKS SINCE THE 1973 CRISIS*

Key events labeled on the graph: Iranian revolution, OPEC embargo, Iran-Iraq war, Gulf War I, September 11, Asian financial crisis, Gulf War II, Arab Spring/Japanese tsunami, Strong demand, stagnant supply, GFC.

*Inflation-adjusted crude oil price. Source: www.InflationData.com

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Context: Environmental Motivations for Energy Efficiency 2/2

Annual Carbon Emissions by Region

- The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets
- Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

Energy sector represents one of the most carbon intensive sectors, therefore an increase of its efficiency means less carbon emissions

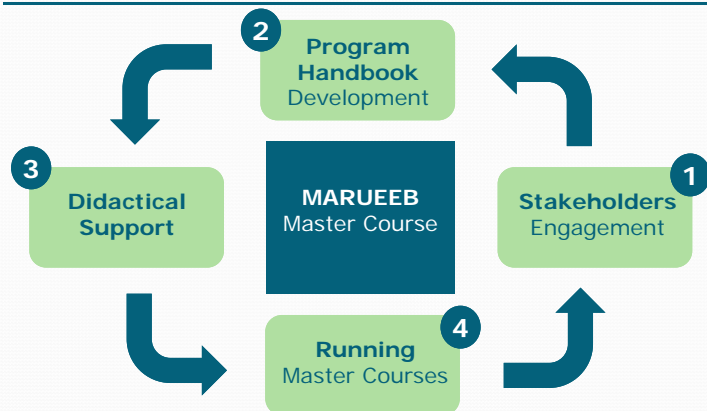
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Aims of MARUEEB

- Design, Development and Implementation** of a Master Course in *Innovative Technologies in Energy Efficient Buildings* in the Russian and Armenian context
- Dissemination of the project experience and outcomes** to the local stakeholders, with specific reference to the labour market, public institutions and other universities
- Exploitation of the project experience** after the ending of its life by establishing durable networking actions and cooperation.

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a Design, Development and Implementation



a Design, Development and Implementation

1 Stakeholders Engagement

Motivations

Necessity to consult stakeholders before defining the study programs

The **competences to develop** in the upcoming programs **must fit within** the requirements of the **local labour market**

The **channel** to reach them **will be an online survey**. Each of the **PC HEIs will contact 15 stakeholders** (in case of **large corporations** you can collect **2-3 questionnaires at the same institutions**. For example 1 from HR Manager, 1 from a Technical Manager, etc.)

The collected feedbacks will allow to shape in an optimal way the contents of the programs

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2 Program Handbooks Development 1/2

Framework

Definition of the study programs according to the feedback of the labor market

Development of **each teaching module to contribute** to reach **the global aim** of the upcoming programs

Introduction of the **Bologna Process approach** to the design of study courses. Change of paradigm **from a "staff based" to a "student centered" approach**. Analysis of the **students' needs and definition of the "learning outcomes"**.

Introduction of some **preliminary criteria of Quality Assurance** of study courses

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2 Program Handbooks Development 2/2

Bologna Process

"Old-Style Approach" – Staff centered design

Resources already available

Tradition

Interests of the Academic Staff

Existing Organization of Studies

"New Approach after Bologna" – Student centered design

Fit for purpose

Change of Paradigm

Learning Outcomes

Organization related to the expected results

a Design, Development and Implementation

3 Didactical Support Development

Innovation

Empowerment of young teaching staff according to the contents of the new courses

Empowerment connected with the latest EU advances in the field of Energy Efficient Buildings (e.g. NZEB) and innovative learning methodologies (e.g. Problem Based Learning).

Development of didactical textbooks according to contents of the upcoming courses. The books will be a balanced mix of theoretical explanations and practical cases study.

Setting up of didactical laboratories in order to improve the learning experience of the students

a Design, Development and Implementation

4 Running Master Courses

Implementation

Enforcing the international dimension by complementing lectures of local teaching staff with those of EU staff

Applications of the principles and methodologies learnt during the empowerment period

Utilization of the developed textbooks as references for the didactical activities. Support for the theoretical lectures and practical sessions.

Development of practical sessions by exploiting the new laboratory equipment.

Preliminary implementations about Quality Assurance

b Dissemination

MARUEEB
Master Course

- Presentations at other institutes/departments of the participating HEIs
- Participation in local conferences connected with the engineering education
- Organization of dedicated workshops for labour market stakeholders and local authorities
- Presentation at other universities of the innovative approach of MARUEEB

c Exploitation

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Master Course

- Exploitation of the results after the project ending via a networking action among the partners
- Development of an Educational Model which will help other institutions to develop Master programs in agreement with EU Standard. The model will contain all the procedures and processes to follow to create a BP compliant Master Course

THANKS FOR YOUR ATTENTION!

Vincenzo Bianco

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