



Erasmus+

## **ERASMUS+ PROGRAMME**

**COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES  
STRATEGIC PARTNERSHIPS**

# **COMMON LEARNING OUTCOMES FOR EUROPEAN MANAGERS IN CONSTRUCTION, PHASE IV CLOEMC IV (2015-2017)**

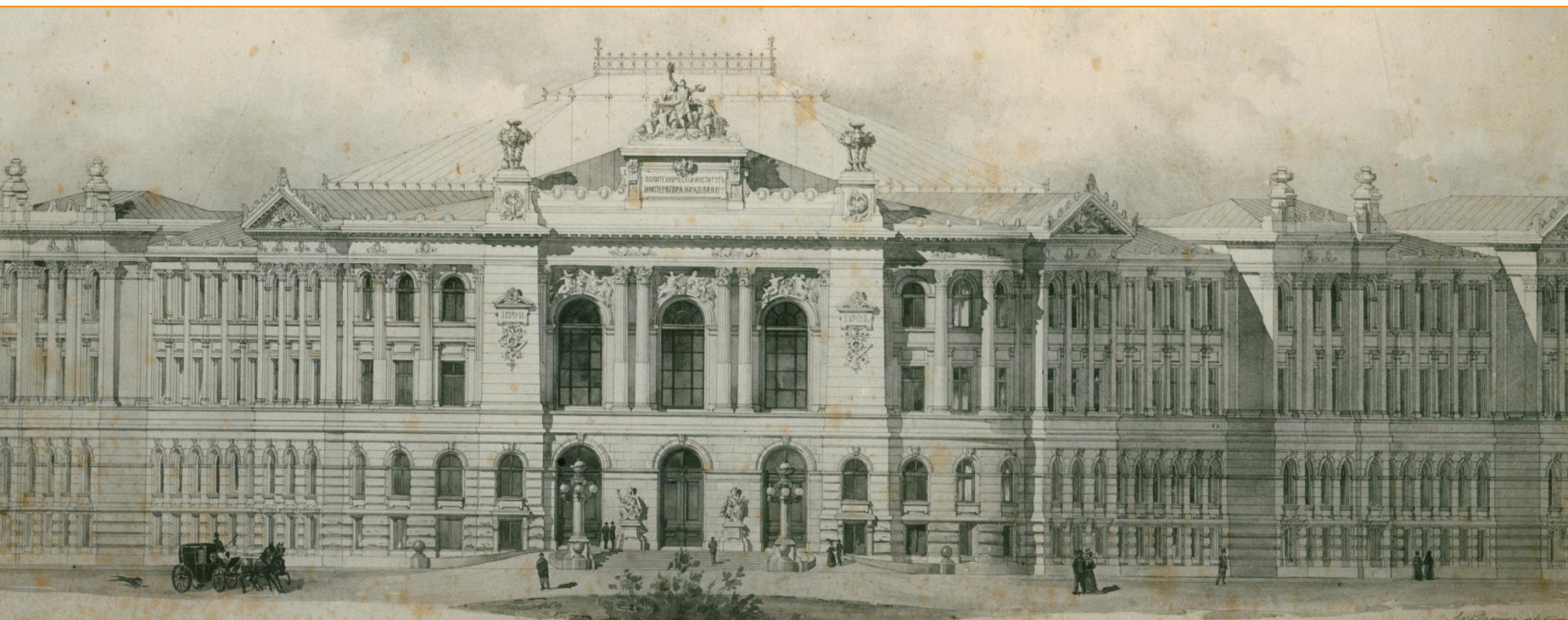
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On 15 November 1915, Warsaw University of Technology began teaching independently as the first Polish technical university. However, its traditions go back much further. For almost 190 years, from 1826, the University has been educating generations of engineers, thereby making a vital contribution to the technical sciences.

In 2015 Warsaw University of Technology was celebrating 100 years of its Revival. CEF – Civil Engineering Faculty was among the 4 first Faculties established.



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# PROJECT IDEAS AND ASSUMPTIONS

## BENEFICIARIES OF THE PROJECT ARE:

- construction companies personnel,
- small and medium construction companies personnel (but also personnel from large companies), participating in construction infrastructure projects financed by EU,
- personnel of central and local administration supervising construction projects.

## LIST OF PROJECT PARTNERS:

- Warsaw University of Technology (WUT),
- Polish Association of Building Managers (PSMB),
- Reykjavík University (RU),
- Technical University of Darmstadt (DARM),
- Chartered Institute of Building (CIOB),
- Association of Building Surveyors and Construction Experts (AEEBC),
- AWBUD S.A. (AWBUD).





## OBJECTIVES OF THE PROJECT:

- Increasing of managerial qualifications and knowledge of engineers and governmental officers for better consumption of EU funds as the respond for labour market requirements, and development of social dialogue.
- Promotion of qualifications transparency through creating new tools allowing to present, compare and certify managerial qualifications of construction engineers.
- Prepared new manuals, allow to take all forms of Continuous Professional Development courses (formal and informal learning) complementing technical knowledge of construction engineers with knowledge necessary for managers to independently run a business on the EU construction-investment market.
- Exchange of best practices in the management areas (relevant subjects described in manuals) between Strategic Partners countries and presentation of this practices at EU level.
- Improvement of educational offer vocational education and training, manuals could be used for CPD courses, postgraduate courses at the Partners Universities and for self learning of engineers.

## NEEDS OF THE PROJECT:

- continuous improvement of qualifications of engineers and managers in EU construction.
- recognition and transparency of qualifications allowing betterment of mobility at EU market, as AEEBC created the European Building Expert (EurBE) title for construction managers, which already is and will be obtained through a number of courses basing on the set of foreseen manuals.
- exchange of experience and knowledge between Partners countries to adjustment of education process to labour market requirements in EU for individual professional specializations.

## THE PROJECT WILL:

- increase multi-cultural exchange of best practices and knowledge between Partners countries and later - at UE level,
- increase recognition of legal regulations, relevant to managerial subjects presented in manuals, at EU level and in Partners countries,
- facilitate proper recognition and transparency of managerial skills in construction across EU.

## PRODUCTS OF THE PROJECT WILL BE AS FOLLOWS:

- M20. REVITALISATION AND REFURBISHMENT IN CONSTRUCTION,
- M21. BUILDING INFORMATION MODELLING – BIM,
- M22. OPTIMISATION OF CONSTRUCTION PROCESSES,
- M23. DIVERSITY MANAGEMENT IN CONSTRUCTION,
- M24. STRUCTURAL MECHANICS FOR CONSTRUCTION MANAGERS,
- M25. CORPORATE SOCIAL RESPONSIBILITY IN CONSTRUCTION.

The Project is complementary to previous three CLOEMC projects, where 19 manuals in several languages were successfully created. Present manuals of Construction Managers Library are as follows:

### CLOEMC I:

- M1: PROJECT MANAGEMENT IN CONSTRUCTION,
- M2: HUMAN RESOURCE MANAGEMENT IN CONSTRUCTION,
- M3: PARTNERING IN CONSTRUCTION,
- M4: BUSINESS MANAGEMENT IN CONSTRUCTION ENTERPRISE
- M5: REAL ESTATE MANAGEMENT,
- M6: ECONOMY AND FINANCIAL MANAGEMENT IN CONSTRUCTION,
- M7: CONSTRUCTION MANAGEMENT.

### CLOEMC II:

- M8: RISK MANAGEMENT,
- M9: PROCESS MANAGEMENT – LEAN CONSTRUCTION,
- M10: COMPUTER METHODS IN CONSTRUCTION,
- M11: PPP PROJECTS IN CONSTRUCTION,
- M12: VALUE MANAGEMENT IN CONSTRUCTION,
- M13: CONSTRUCTION PROJECTS – GOOD PRACTICE.

### CLOEMC III:

- M14: DUE-DILIGENCE IN CONSTRUCTION,
- M15: MOTIVATION AND PSYCHOLOGY ASPECTS IN CONSTRUCTION INDUSTRY,
- M16: PROFESSIONALISM AND ETHICS IN CONSTRUCTION,
- M17: SUSTAINABILITY IN CONSTRUCTION,
- M18: HEALTH AND SAFETY IN CONSTRUCTION,
- M19: MANAGING BUILDING PATHOLOGY AND MAINTENANCE.



Manuals from construction Managers Library.

## PROJECT IDEAS AND ASSUMPTIONS

### THE MAIN AIM OF THE PROJECT:

- to extend - in transnational co-operation – the Construction Managers Library by six new manuals. Manuals, containing full contents in 4 languages (English, German, Polish and Icelandic), allow their implementation and use in different countries and in EU VET education systems.

Products of the Project are as follows:

- M20. REVITALISATION AND REFURBISHMENT IN CONSTRUCTION,
- M21. BUILDING INFORMATION MODELLING – BIM,
- M22. OPTIMISATION OF CONSTRUCTION PROCESSES,
- M23. DIVERSITY MANAGEMENT IN CONSTRUCTION,
- M24. STRUCTURAL MECHANICS FOR CONSTRUCTION MANAGERS,
- M25. CORPORATE SOCIAL RESPONSIBILITY IN CONSTRUCTION.

# PROJECT IDEAS AND ASSUMPTIONS

## OPERATIONAL GOALS OF THE PROJECT IS:

- to increase multi-cultural exchange of best practices and knowledge between Partners countries and later - at UE level,
- to increase recognition of legal regulations, relevant to managerial subjects presented in manuals, at EU level and in Partners countries,
- to facilitate proper recognition and transparency of managerial skills in construction across EU.

The manuals allow process of standardization in EU countries of certification process of engineers applying for the title of EurBE (European Building Expert).

The EurBE title was developed by AEEBC (The Association of European Building Surveyors & Construction Experts, with headquarter in Brussels, Belgium). AEEBC associates management in construction related associations from numerous European countries.

(Belgium, Denmark, Finland, France, Germany, Ireland, Italy, The Netherlands, Poland, Spain, Sweden, United Kingdom, <http://aeebc.org/>).

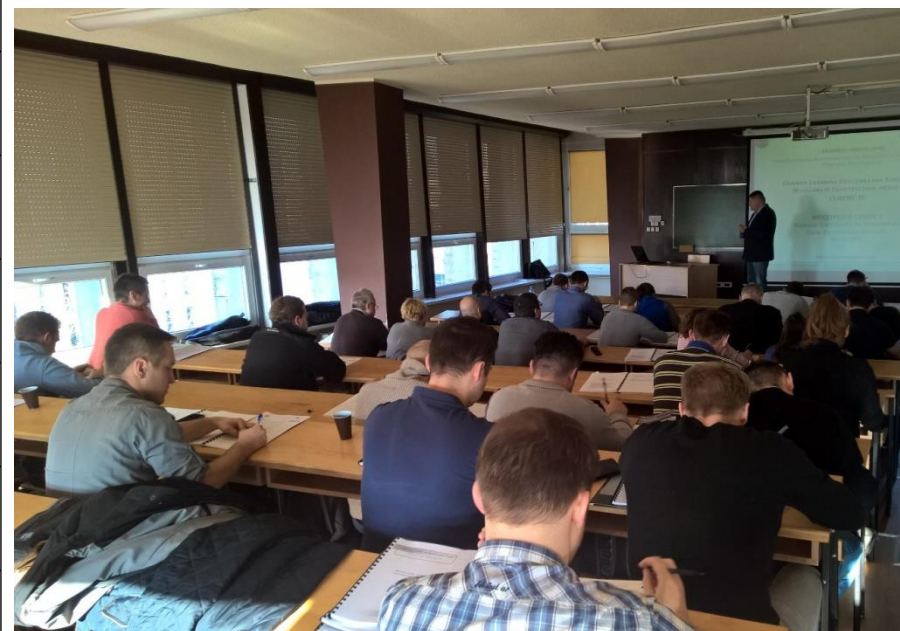






## ANKIETA - MULTIPLIER EVENT 1

Lp.	Pytanie	1- NIE			5 - TAK	
		1	2	3	4	5
1	Czy zawartość podręczników niesie nowe treści, z którymi chcieliby Państwo się zapoznać?					
M20	Rewitalizacja i remonty w budownictwie: np. nowoczesna rewitalizacja obiektów komercyjnych, wyzwania i ważność rewitalizacji (w ujęciu klasycznym i nowoczesnym), zastosowanie technologii 3D i innych, remonty budynków zabytkowych, renowacje i rekonstrukcje (np. wzmacnianie stropów), zagadnienia poszanowania energii, Urban Mining "górnictwo miejskie" - odzyskiwanie surowców krytycznych, studia przypadku.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M21	Building Information Modeling –BIM: np. opisy poziomów 1 - 7 BIM, oraz wyższych, takich jak 8 - użytkowanie, 9 - akustyka, 10 - bezpieczeństwo, 11- ogrzewanie, itp., regulacje prawne związane z BIM w krajach Partnerów projektu (PL, UK, DE, IS), studia przypadku.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M22	Optymalizacja Procesów Budowlanych: np. wybrane algorytmy optymalizacji harmonogramów i kosztorysów, narzędzia podejmowania decyzji w budownictwie, wybrane algorytmy optymalizacyjne (przeszukiwanie tabu, wyzarcanie symulacyjne, algorytmy genetyczne, roje cząstek).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M23	Zarządzanie różnorodnością w budownictwie: np. zwinne zarządzanie, coaching i mentoring, socjo - techniczne metody zarządzania, zarządzanie wpływem, problemy międzykulturowe, zagadnienia gender, analiza zdolności do pracy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M24	Mechanika konstrukcji dla menedżerów budowlanych: np. podstawowe aspekty projektowania konstrukcji i wytrzymałości materiałów, współpraca fundamentów i gruntu, obliczenia dla deskowań i rusztowań (np. parcie mieszanek betonowej, obciążenie wiatrowe, wybrane wzory empiryczne).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M25	CSR - Odpowiedzialność Socjalna Przedsiębiorstw w budownictwie: i.e. zagadnienia socjalne w firmie budowlanej, odpowiedzialne prowadzenie biznesu, media społecznościowe, przetwarzanie dużego zbioru danych, korzyści z CSR oraz wyzwania z tym związane.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Czy wiedza menedżerska bazująca na wymaganiach Unii Europejskiej w zakresie rozpoznawania kwalifikacji jest ważna dla polskich menedżerów budowlanych	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Czy treści zawarte w podręcznikach odpowiadają zapotrzebowaniu na wiedzę menedżerską w zakresie zarządzania przedsięwzięciami budowlanymi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Czy wezmą Państwo udział/ delegują swoich pracowników na studia podyplomowe bazujące na Bibliotece Menedżera Budowlanego?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Czy dodałoby Państwo jakieś inne zagadnienia do podręczników, które miałyby powstać w przyszłości, jeśli tak to jakie? Jeśli potrzeba - prosimy pisać na odwrocie strony.						
.....						
6. Jeśli chcieliby Państwo otrzymywać bieżące informacje o projekcie, prosimy o podanie danych poniżej						
- imię i nazwisko .....						
- adresu e-mail lub telefonu kontaktowego: .....						



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## Questionnaire results:

- over 200 questionnaires gathered
- 86% of participants agree that scope of knowledge presented in the manuals is relevant
- 48% will delegate the personnel or will take part in postgraduate studies based on presented manuals
- highest score – Building Information Modeling
- lowest score – Building Mechanics for CM



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Results of CLOEMC project were used for creation of the MBAIC postgraduate studies.

## WEBSITE AND CONTACT:

CLOEMC IV official website:

<http://www.cloemciv.il.pw.edu.pl/>

CONTACT:

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