ingREeS – training for better energy efficiency

Ing. Tomáš Funtík, PhD.

Slovak Chamber of Civil Engineers

6.december 2016, EU BUS Exchange meeting, Athens, Greece

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 649925-ingREeS

FACTS

Full name:	**Setting up Qualification and Continuing Education and Training Scheme for Middle and Senior Level Professionalson Energy Efficiency and Use of Renewable Energy Sources in Buildings — ingREeS**
Duration:	**marec 2015 – február 2018**
Program:	**Horizont 2020 – program Európskej únie pre výskum a inovácie**

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FACTS

Partners:

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3 COUNTRIES - 9 PARTNERS

Slovenská komora stavebných inžinierov - *Lead Partner*	SK
Stavebná fakulta STU v Bratislave	SK
ViaEuropa® Competence Centre s.r.o.	SK
Zväz stavebných podnikateľov Slovenska	SK
Národný ústav celoživotného vzdelávania	SK
Universität für Bodenkultur Wien	AT
Technische Universität Graz	AT
Svaz podnikatelů ve stavebnictví v České republice	CZ
SEVEn – Středisko pro efektivní využívání energie o.p.s.	CZ

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ingREeS

700 PROFESSIONALS

SLOVAKIA & CZECH REPUBLIC

INCREASING ENERGY EFFICIENCY

&

INCREASING THE SHARE OF RENEWABLE ENERGY SOURCES

INVESTMENT IN SKILLS AND INCREASING DEMAND THROUGH NEW POLICIES

COMPETITIVE AND ENERGY-EFFICIENT EUROPE

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KEY POINTS

5 EDUCATIONAL PROGRAMS

TRAINING OF TRAINERS

NETWORK OF TRAINERS IN SK AND CZ

TRAININGS FOR 700 INDUSTRY PROFESSIONALS

PUBLIC DATABASE OF SUCCESSFUL ATTENDANTS

INCENTIVES TO INVEST IN FURTHER EDUCATION

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KEY POINTS

E-LEARNING

MONITORING ON ACTIVITY

COVERING REGIONS

IN-HOUSE TRAINING

FLEXIBILITY OF DATA BANK

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- ARCHITECT / PLANNER
- SITE MANAGER
- SITE SUPERVISOR
- ASSESSOR OF ACHIEVED ENERGY EFFICIENCY OF THE BUILDINGS
- SUSTAINABILITY / ENERGY COUNSELLOR

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KEY POINTS

- ESTABLISHMENT OF THE PROGRAMME STRUCTURE AND MODULES
- AGREEMENT ON THE SCOPE AND CONTENT OF THE MATERIALS IN THE MODULE AND REDUCING OVERLAPS
- THE CREATION OF THE TEAM OF MODULAR EXPERTS
- APPROVAL OF A MODULAR PACKAGE TO THE DATA BANK
- TRAINING OF TRAINERS
- TRAININGS – SPRING 2017

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KEY PERSONS

ARCHITECT / PLANNER

- CZ prof. Ing. Alois Materna, CSc., MBA, SK prof. Ing. Zuzana Sternová, PhD.

SITE MANAGER

- CZ Ing. Ludmila Zahradnická, CSc., SK doc. Ing. Peter Makýš, PhD.

SITE SUPERVISOR

- CZ doc. Ing. Dana Měšťanová, PhD., SK doc. Ing. Ivan Juríček, PhD.

ASSESSOR OF ACHIEVED ENERGY EFFICIENCY OF THE BUILDINGS

- CZ Ing. Bohuslav Málek, CSc., SK prof. Ing. Ivan Chmúrny, PhD.

SUSTAINABILITY / ENERGY COUNSELLOR

- CZ doc. Ing. Iveta Skotnicová, PhD., SK Ing. Ladislav Piršel, PhD.

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TRAINING OF TRAINERS

INITIAL 4 TRAINING SESSIONS IN SLOVAKIA AND CZECH REPUBLIC

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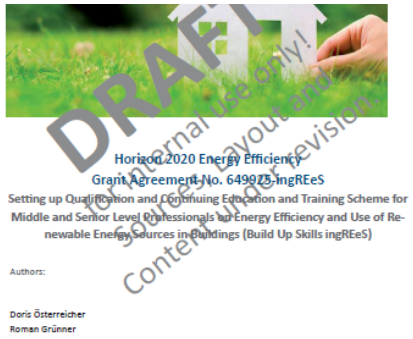
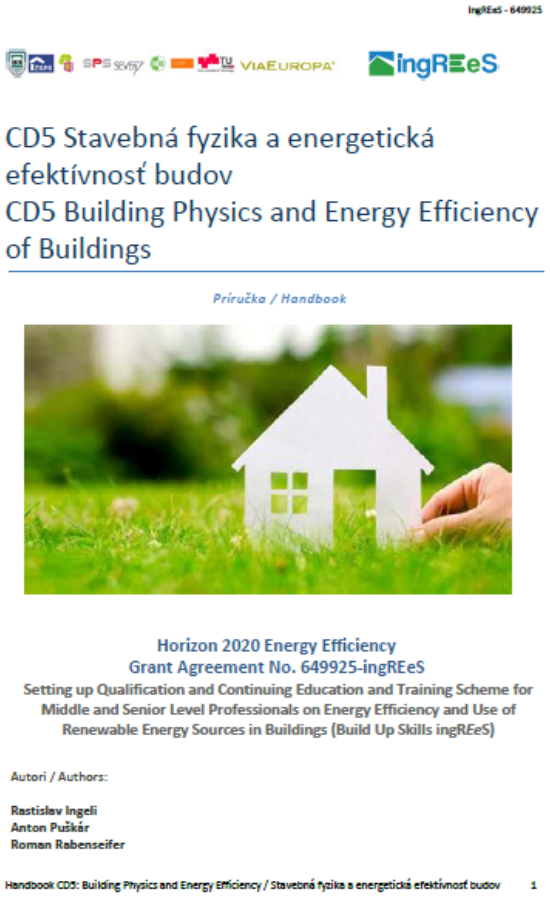
MATERIALS INCLUDED IN DATA BANKS

- ✓ 2h presentation on the methodology of teaching and instructions,
- ✓ A complete presentation in a predefined structure (module - Theme 1, Theme 2, ..)
- ✓ PDF version of the presentation,
- ✓ 40-60 pages of supporting scientific text,
- ✓ Including examples and calculations,
- ✓ Related literature with additional information,
- ✓ Other sources (video, tests, standards,..)
- ✓ Min. 30 questions with correct and incorrect answers

15 MODULES





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AM1 – Energy Certification and Building Certification:
• Energy certification (2 sessions);
• Building Certification (2 sessions).
	CD1 – Basic Climate Adaptive Design:
	• Introduction to climate adaptive design;
	• Passive-, Zero- and Plus-Energy buildings;
	• Orientation, form and compactness;
	• Case study/Practical demonstration (excursion).
		LQ1 – Project Life Cycle Management:
		• Project management;
		• Building information modelling;
		• Putting the building into service;
		• Facility management (FM):
		  ○ Environmental impacts of FM;
		  ○ Impacts of FM on building's life cycle.

AM2 – Life Cycle Assessments: • General principles of life cycle assessment (LCA) and life cycle cost assessment (LCCA); • System boundaries; • Methods and tools; • Databases; • Application – influence factors and strategies; • Communication of results.	**CD2 – Advanced Climate Adaptive Design:** • Methodological approach to sustainable building design; • Building envelope 1: Opaque materials; • Building envelope 2: Transparent materials; • Design Exercise.	**LQ2 – Recycling and waste management on-site:** • Material flows in the construction sector; • Political intensions and legal framework; • Recycling technologies for construction materials; • Economic aspects.

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BS1 – Integrated Buildings Design: • Integrative approach: architecture and building energy systems; • Heating technologies and strategies; • HVAC technologies and strategies; • Lighting and control engineering strategies.	**CD3 – Internal Comfort and Indoor Air Quality:** • Health, comfort and productivity in the indoor environment; • Daylighting and sunlight in buildings; • Acoustics of the indoor environment; • Thermal comfort in indoor environment and appropriate design measures to ensure high indoor comfort; • IAQ – chemicals, pathogens and odours in indoor environment, sick building syndrome; • Health hazard evaluations – radon, asbestos, dampness, mould and VOCs;	**LQ3 – Quality Control:** • Assessment of building energy systems; • Operational evaluation of building in real conditions.
BS2 – Renewable Energy Technologies: • Solar thermal systems; • Photovoltaic (PV) and building integrated wind power systems; • Heat pumps and biomass systems; • RES application for various building typologies and climates; • Energy concepts for plus energy buildings.	**CD4 – Green Construction Products:** • What is a green product; • Environmental impacts; • Basics of environmental assessments; • EPDs acc. to EN 15804.	**LQ4 – Legal Requirements:** • European policies and energy efficiency "acquis"; • National legislation in CZ and SK.

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BS3 – Advanced Building methods and tools:

- Overview and application of advanced building simulation tools;
- Introduction to static simulation tools (e.g. ArchiPhysik or PHPP);
- Introduction to thermal dynamic simulation tools (e.g. Trnsys or EnergyPlus).

CD5 – Building Physics and Energy Efficiency:

- Building physics and thermodynamics;
- Heat transfer modelling – Case: Advanced construction technologies;
- Modelling of energy flows;
- Assessment and Validation.

BS 4 – Non-residential High Performance Buildings:

- Typologies and framework conditions of high performance buildings;
- Advanced façade systems;
- Façade integrated heating, ventilation and air-conditioning (HVAC) and renewable energy systems.

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STRUCTURE OF PROGRAMS

ARCHITECT / PLANNER	
Modules	CD1 CD2 CD3 CD4 CD5 BS2 BS4 LQ1 LQ4
Number of Modules	9

SUSTAINABILITY / ENERGY COUNSELLOR	
Modules	AM1 AM2 CD3 CD4 CD5 BS1 BS2 LQ3 LQ4
Number of Modules	9

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STRUCTURE OF PROGRAMS

	SITE MANAGER
Modules	LQ1 LQ2 LQ3 LQ4 CD4
Number of Modules	5

	ASSESSOR OF ACHIEVED ENERGY EFFICIENCY OF THE BUILDINGS
Modules	CD2 CD5 BS1 BS2 BS3 BS4 LQ3 LQ4
Number of Modules	8

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STRUCTURE OF PROGRAMS

	SITE SUPERVISOR
Modules	LQ1 LQ2 LQ3 LQ4 CD4
Number of Modules	5

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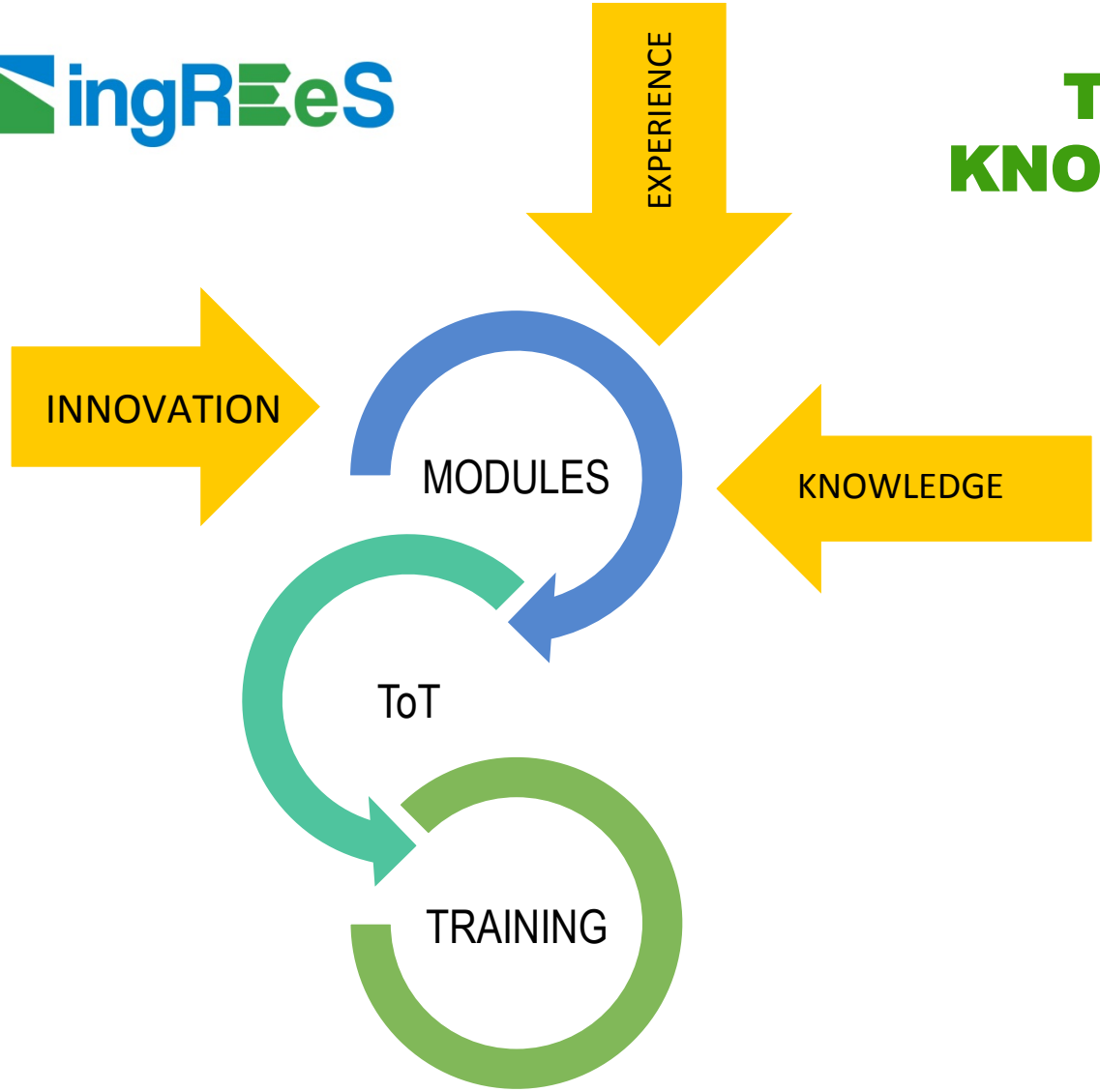
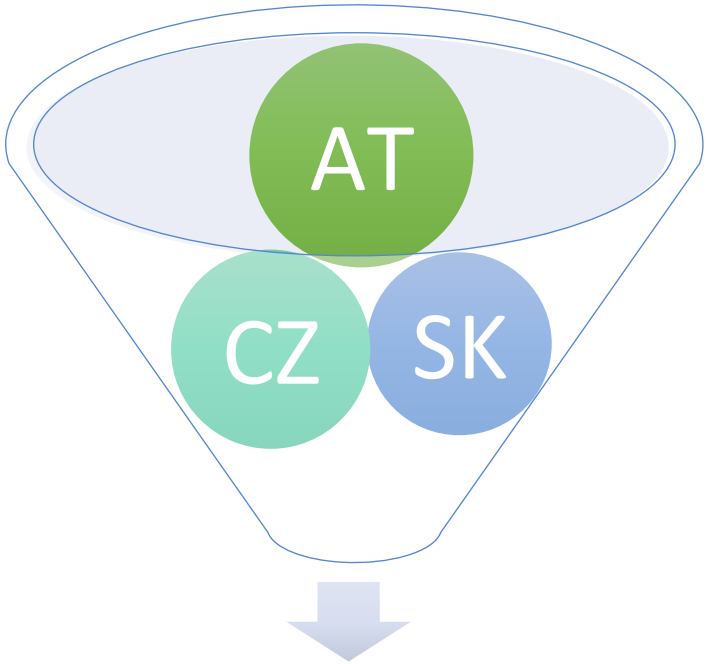
TRANSFER OF INNOVATION, KNOWLEDGE AND EXPERIENCE





PARTNERSHIP

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FOCUS OF TRAINING

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CHALLENGES OF TRAININGS

ATTRACT INDUSTRY PROFESSIONALS

MOTIVATE BUSINESS OWNERS

RISE AWARENESS TO RISE DEMAND

OPTIMIZE LENGTH OF TRAINING

CONSIDER ALTERNATIVE TO IN-HOUSE TRAINING

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KEY POINTS

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THANK YOU FOR YOUR TIME AND ATTENTION

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