Innovative Online Vocational Training of Renewable Energy Technologies

2011-1-IE1-LEO05-03581

http://www.adam-europe.eu/adam/project/view.htm?prj=8997
**Project Information**

**Title:** Innovative Online Vocational Training of Renewable Energy Technologies  
**Project Number:** 2011-1-IE1-LEO05-03581  
**Year:** 2011  
**Project Type:** Transfer of Innovation  
**Status:** granted  
**Country:** IE-Ireland  

**Marketing Text:** Heat pump systems are one of the most efficient heating systems available. However, these efficiencies are only achievable as long as the systems are properly designed and installed. A recent study shows that badly installed heat pump systems have resulted in 87% of these systems under-performing. Notwithstanding, heat pump systems offer the greatest reduction of CO2 emissions of any single technology. The challenge therefore is to provide state of the art training in heat pump system installation. The INNOVRET project used the innovative CbKST methodology for content development and delivery, engaged with a state of the art, interactive online energy facility. The resultant toolset supports personalised/adaptive learning and assures a deep penetration of high quality industry relevant content. It was validated through the training of a number of heat pump installers.

**Summary:** INNOVRET addressed the training and up-skilling needs of installers and maintenance personnel in the world of work in heat pump systems. This was achieved by:  
- Leveraging experience in online learning and pedagogical models from previous projects.  
- Applying these proven methodologies to the online training of heat pump systems in the state of the art online energy laboratory.  
- Developing industry relevant content and case studies.  
- Developing industry relevant loading scenarios for heat pumps in the online training facility using live and archived data (from the data points collected daily throughout the college).  
- Validating the content with end users.  
- Disseminating and commercially exploiting the findings.

**Description:** INNOVRET was a European project co-funded by the Leonardo da Vinci programme. It started in 2011 and had a 24 month duration. The consortium comprised experts on heat pump systems, in the academic field, in online training, the world of work and industrial organisations.

All partners were trained in the innovative aspects of the project (CbKST - TUG and online energy lab - GMIT), end users were met on different occasions and focus groups were organised to identify installers' needs and required content for the training programme. The INNOVRET website was up, Moodle was installed, the online energy lab and the CbKST learning support tools were integrated with Moodle. The learning objects were created using the CbKST methodology and were uploaded. A large number of users were enrolled for testing purposes. The project was widely disseminated according to INNOVRET's dissemination and exploitation strategy. An application for accreditation of the programme has been submitted. A number of training session on the CbKST were run for the GMIT staff. At least two more training session on the CbKST will be run for the GMIT staff post-project.

**Themes:**  
*** Sustainability  
*** Lifelong learning  
*** Open and distance learning  
*** Continuous training  
*** Initial training  
** Enterprise, SME  
* ICT  
* Vocational guidance  

**Sectors:**  
*** Electricity, Gas, Steam and Air Conditioning Supply  
*** Other Service Activities
**Project Information**

*** Education

**Product Types:**
- website
- teaching material
- program or curricula
- others
- open and distance learning
- material for open learning

**Product information:** The final product is an accredited training programme for heat pump installers. It is addressed to self-regulated learners and features adaptive content and assessment, which is based on the Competence based Knowledge Space Theory (CbKST).

**Project homepage:** www.innovret.com
Project Contractor

Name: Galway-Mayo Institute of Technology
City: Galway
Country/Region: Border, Midland and Western
Country: IE-Ireland
Organization Type: university/Fachhochschule/academy
Homepage: http://www.gmit.ie

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Homepage:
### Partner

**Partner 1**
- **Name:** UNITHERM HEATING SYSTEMS LTD
- **City:** Galway
- **Country/Region:** Mid-West
- **Country:** IE-Ireland
- **Organization Type:** others
- **Homepage:** [http://www.uni-therm.ie](http://www.uni-therm.ie)

**Partner 2**
- **Name:** Daikin Europe NV
- **City:** Oostende
- **Country/Region:** Antwerpen
- **Country:** BE-Belgium
- **Organization Type:** others
- **Homepage:** [http://www.daikin.com](http://www.daikin.com)

**Partner 3**
- **Name:** Graz University of Technology
- **City:** Graz
- **Country/Region:** Styria
- **Country:** AT-Austria
- **Organization Type:** others
- **Homepage:** [http://www.tugraz.at](http://www.tugraz.at)
Products

1. INNOVRET website
2. Learning Management System
3. CbKST learning support tools
4. Training material
Product 'INNOVRET website'

Title: INNOVRET website

Product Type: website

Marketing Text: Visit the INNOVRET website for all information regarding the project, partners and news

Description:

Target group: Large public

Result:

Area of application:

Homepage: www.innovret.com

Product Languages: English
Product 'Learning Management System'

Title: Learning Management System

Product Type: website

Marketing Text:

Description: Moodle has been chosen as the LMS for INNOVRET project. It can be accessed from the project website, but is password protected.

Target group: Learners

Result:

Area of application:

Homepage: www.innovret.com

Product Languages:
Product 'CbKST learning support tools'

Title: CbKST learning support tools

Product Type: website

Marketing Text:

Description: CbKST learning support tools were tailored to INNOVRET needs and integrated with Moodle.

Target group: Learners

Result:

Area of application:

Homepage:

Product Languages: English
Product 'Training material'

Title: Training material

Product Type: teaching material

Marketing Text:

Description: The training material was developed according to the specifications approved by industry and the CbKST methodology. The training course has two parts: a generic part and a product-specific part.

Target group:

Result:

Area of application:

Homepage:

Product Languages: English
Events

Paper presented at Research Cycle conference, GMIT

Date 02.05.2014

Description Paper “Self-Reflection on the Suitability of Adaptive Self-Regulated e-Learning to Vocational Training Based on an Experimental Study in Heat Pump System Installation” presented at Research Cycle conference, GMIT

Target audience

Public Closed event

Contact Information

Time and place

Paper accepted for publication in the proceedings of ICALT 2014 conference, Athens, Greece

Date 15.03.2014

Description Paper “Combining Self-regulation and Competence-based Guidance to Personalise the Learning Experience in Moodle” accepted for publication in the proceedings of ICALT 2014 conference, Athens, Greece

Target audience

Public Closed event

Contact Information

Time and place

Innovret presented at CESI conference

Date 01.03.2014

Description

Target audience

Public Closed event

Contact Information

Time and place
Events

**Workshop for installers in GMIT**

Date 05.12.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place


Date 15.11.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place

**Paper presented at ICDLE 2013, Paris, France**

Date 12.10.2013

Description Paper “Innovative Online Vocational Training of Renewable Energy Technologies (INNOVRET)” presented at ICDLE 2013, Paris, France

Target audience

Public  Closed event

Contact Information

Time and place
Events

Paper presented at LTLE2013 conference in Matsue, Japan

- Date: 04.09.2013
- Description: Paper “Applying Pedagogical Approaches to Enhance Learning: Linking Self-Regulated and Skills-based Learning with support from Moodle Extensions” presented at LTLE2013 conference in Matsue, Japan

Target audience
- Public
- Closed event

Contact Information

Time and place

Information day for installers in Donegal

- Date: 11.06.2013
- Description

Target audience
- Public
- Closed event

Contact Information

Time and place

Workshop on CbKST

- Date: 05.06.2013
- Description: Workshop on CbKST and INNOVRET organised for staff in GMIT during Staff Development Week

Target audience
- Public
- Closed event

Contact Information

Time and place
Events

Trade fair

Date 12.03.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place

Installers visited Daikin factory in Ostend

Date 07.03.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place

Innovret presented at CESI conference

Date 23.01.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place
Events

Information morning for installers

Date 18.01.2013

Description

Target audience

Public  Closed event

Contact Information

Time and place

INNOVRET app

Date 04.01.2013

Description Launch of INNOVRET app

Target audience Large public

Public  Closed event

Contact Information

Time and place Google Play, 04.01.2013

Project presentation

Date 17.12.2012

Description Presentation at the elearning workshop in GMIT

Target audience Lecturers in GMIT

Public  Closed event

Contact Information

Time and place GMIT, 17.12.2012
Events

Meeting with European Heat Pump Association

Date 26.11.2012

Description INNOVRET and potential collaboration with EHPA and IHPA were discussed

Target audience Bodies representing all heat pump manufacturers present on the European market (EHPA) and Irish one (IHPA)

Public Closed event

Contact Information

Time and place Dublin, 26.11.2012

Participation to Self Build and Improve Your Home

Date 11.11.2012

Description Unitherm Heating Systems, in collaboration with Daikin Air to water heat pumps, had a working air to water heat pump on their stand, which attracted a lot of attention. They took the opportunity to highlight their joint involvement in the Innovret project, displaying the banner, and distributing information on this innovative online line course, currently in development.

Target audience Installers

Public Closed event

Contact Information

Time and place Cork, 9-11.11.2012

Presentation

Date 29.09.2012

Description Short project presentation, project cards at training course in Unitherm

Target audience Installers

Public Closed event

Contact Information

Time and place Unitherm, 29.09.2012
Events

Visit to Daikin Ostend

Date 13.04.2012

Description The Irish partners visited Daikin Europe in Ostend, Belgium. They visited the plant as well as a house equipped with Daikin heat pumps and numerous sensors, which is used by Daikin engineers and designers for tests and performance measurements. Meetings with installers were organised as well.

Target audience Installers

Public Closed event

Contact Information

Time and place 11-13.04.2012, Ostend, Belgium

Workshop

Date 30.03.2012

Description In the e-learning workshop organised for staff at GMIT, the CBKST was introduced

Target audience Lecturers in GMIT

Public Closed event

Contact Information

Time and place GMIT, 21-23.03.2012, 28-30.03.2012

Energy app

Date 12.03.2012

Description GMIT launched the Energy app

Target audience Large public

Public Closed event

Contact Information

Time and place Google Play, 12.03.2012
Events

Project presentation

Date  25.01.2012

Description  Short project presentation, project cards at training course in Unitherm

Target audience  Installers

Public  Closed event

Contact Information

Time and place  Unitherm, 25.01.2012