



# DIGITAL AND ENVIRONMENTAL SKILLS FOR FACILITIES MANAGEMENT

## IMPACT ANALYSIS ASSESSMENT

Project Start Date - October 1st, 2016  
Project End Date - March 31, 2019  
Duration in months - 30 months  
Project code 2016 -1-UK01-KA202-024420





# THE DEFMA PROJECT

## Overall aim

To develop and offer educational resources and materials to address the digital and “green” skill needs of facility managers, to strengthen their employability and keep up with the demands of the EU buildings sector.

## Main Outputs

- ❑ Learning & assessment materials
- ❑ Massive Open Online Course (MOOC)
- ❑ Two workshops (UK, IT)
- ❑ Three Information Days (BG, GR, LT)

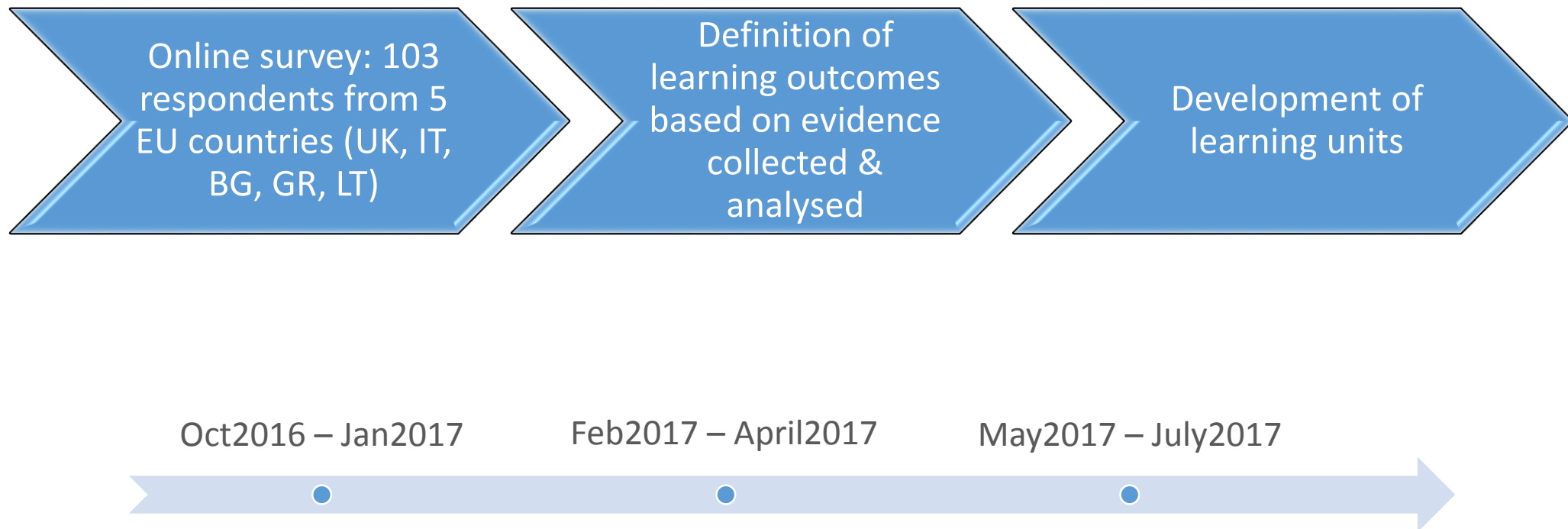
## DEFMA consortium

1. SWC - South West College, UK
2. PROMEA – Hellenic Society for the Promotion of Research and Development Methodologies Astiki Etairia
3. SNS - National School of Services Foundation, Italy
4. BGFMA - Bulgarian Facility Management Association, Bulgaria
5. VSRC - Vilnius Builders Training Centre, Lithuania





# Work done since the start of the DEFMA project





# DEFMA Learning Units

- Learning Unit 1:** Sustainability and environmental issues and their impact on FM
- Learning Unit 2:** Energy efficiency and energy management in buildings
- Learning Unit 3:** Sustainable buildings
- Learning Unit 4:** Building management and intelligent building solutions
- Learning Unit 5:** Maintenance and repairs to prevent energy losses
- Learning Unit 6:** Occupant & Operator Health and Wellbeing





# Overall Course Description

Title	Digital and environmental skills for facilities management
Description	<p>Facility managers, after attending this course will be equipped with all needed skills, knowledge and competence in order to meet current and emerging workplace demands with regards to zero carbon services and technologies.</p> <p>During the course, learners will learn:</p> <ul style="list-style-type: none"> <li>• Basic facts and principles of sustainability and environmental management for improving resource efficiency in buildings</li> <li>• Latest low and zero carbon technologies for buildings</li> <li>• Maintenance and repairs to prevent energy losses</li> <li>• Smart building controls</li> <li>• Communicating the sustainability agenda to the users' of the building</li> <li>• Health and Safety procedures with regard to environmental aspects</li> </ul>
EQF level	5
Duration	120 NLT
ECVET credits	6
General prerequisites	<p>One of the following:</p> <ul style="list-style-type: none"> <li>• Certificate in facility management, equal to or greater than EQF level 4.</li> <li>• 2 or more years of proven experience as facility manager.</li> </ul>

Based on the European Qualification Framework descriptors of levels

Each ECVET credit equates to 20 notional learning hours

NLT (Notional Learning Time) includes teaching contact time (lectures, seminars, tutorials, laboratory practicals, workshops, fieldwork etc.), time spent on preparing and carrying out formative and summative assessments (written coursework, oral presentations, exams etc.) and time spent on private study





# Learning Unit 1 Description

<b>Title</b>	<b>Sustainability and Environmental Issues and their Impact on FM</b>
<b>Description</b>	This learning unit introduces the learner to sustainability and environmental management and provides basic facts and principles that improve resource efficiency in or for buildings, covering different types of FM operations. It introduces to the key EU and national legislation on environmental issues.
<b>Overall Learning Outcome</b>	Learners should understand key concepts of the environmental and sustainability principles in order to develop a coherent and efficient saving energies policy. Also, learners should comprehend what EU and national environmental laws address and know which the main legislation covering the various topics related to energy saving practices for the building industries.
<b>EQF level</b>	4 - 5
<b>Duration</b>	20 hrs NLT
<b>ECVET credits</b>	1
<b>Prerequisites</b>	General
<b>Assessment</b>	1 assignment: case-study (5 open-ended questions and/or multiple choice test).
<b>Learning Outcome 1</b>	Describe the fundamental principles of environmental management and sustainability in relation to FM.
<b>Learning Outcome 2</b>	State at least 3 energy saving measures for buildings.
<b>Learning Outcome 3</b>	Explain how to manage and implement energy efficiency within the buildings in the short- and long-term.
<b>Learning Outcome 4</b>	State the main national and EU environmental policy principles (laws) on energy saving practices for the building industry.
<b>Learning Outcome 5</b>	Advise customers on how to improve resource efficiency in or for buildings.





# Learning Unit 2 Description

<b>Title</b>	<b>Energy efficiency and energy management in buildings</b>
<b>Description</b>	This learning unit covers the processes and technologies applied in energy saving and carbon emissions reduction for buildings as well as the impacts from the use of energy saving practices. It introduces the learner to practical and cost effective ways of energy management, such as developing an energy policy and energy management plan.
<b>Overall Learning Outcome</b>	Learners should understand the role of the energy efficiency practices in buildings, appreciating the range of approaches and technologies available in order to select the appropriate strategy. Also, they should understand the importance of communication of the agenda to the users of the building.
<b>EQF level</b>	4-5
<b>Duration</b>	20 hrs NLT
<b>ECVET credits</b>	1
<b>Prerequisites</b>	General+ Learning Outcomes of Learning Unit 1
<b>Assessment</b>	1 assignment: case-study (5 open-ended questions and/or multiple choice test)
<b>Learning Outcome 1</b>	Describe the fundamental principles of environmental management and sustainability in relation to FM.
<b>Learning Outcome 2</b>	Explain no-cost vs. low-cost energy saving measures for buildings.
<b>Learning Outcome 3</b>	Evaluate the impact of integrating energy saving measures in buildings.
<b>Learning Outcome 4</b>	Prepare energy management plan.
<b>Learning Outcome 5</b>	Advise customers on the use and impact of smart energy saving solutions.





# Learning Unit 3 Description

<b>Title</b>	<b>Sustainable buildings</b>
<b>Description</b>	This learning unit introduces the learner to the concept of sustainable building and provides basic facts and principles on efficient use of energy, water, and other resources; waste reduction; indoor environmental quality enhancement; operations and maintenance optimization; building rating & certification systems.
<b>Overall Learning Outcome</b>	Learners should develop innovative thinking in the design and operation of buildings and be able to analyse and evaluate sustainable design options for buildings.
<b>EQF level</b>	4 - 5
<b>Duration</b>	20 hrs NLT
<b>ECVET credits</b>	1
<b>Prerequisites</b>	General+ Learning Outcomes of Learning Units 1& 2
<b>Assessment</b>	1 assignment: case-study (5 open-ended questions and/or multiple choice test)
<b>Learning Outcome 1</b>	Explain the concept of sustainable building and the existing building certification systems.
<b>Learning Outcome 2</b>	State the main energy concepts for heating & cooling.
<b>Learning Outcome 3</b>	Explain waste management & reduction processes.
<b>Learning Outcome 4</b>	Describe the ways to enhance the indoor air quality.
<b>Learning Outcome 5</b>	Advise customers on operations and maintenance optimization.







# Learning Unit 4 Description

<b>Title</b>	<b>Building management and intelligent building solutions</b>
<b>Description</b>	This learning unit explains how to utilise complex building information & maintenance technology systems and to operate these to ensure the highest building performance.
<b>Overall Learning Outcome</b>	Learners should appreciate the role of the digital innovation for energy efficiency maintenance and quality, health & safety issues in building in order to apply proper solutions to energy saving.
<b>EQF level</b>	4 - 5
<b>Duration</b>	20 hrs NLT
<b>ECVET credits</b>	1
<b>Prerequisites</b>	General + Learning Outcomes of Learning Units 1, 2 & 3
<b>Assessment</b>	1 assignment: case-study (5 open-ended questions and/or multiple choice test)
<b>Learning Outcome 1</b>	Describe the importance of Building Management Systems in Facility Management.
<b>Learning Outcome 2</b>	State the general requirements to implement smart metering technologies in or for buildings.
<b>Learning Outcome 3</b>	Explain the purpose of a building log book and how to develop it.
<b>Learning Outcome 4</b>	Identify health and safety issues for buildings that include energy monitoring technologies and services.
<b>Learning Outcome 5</b>	Advise customers to ensure the correct selection of smart metering system.





# Learning Unit 5 Description

Title	Maintenance and repairs to prevent energy losses
Description	This learning unit introduces the learner to technical issues related to the installation of energy saving technologies and services in new and existing buildings, detecting faults and performing the necessary repairs.
Overall Learning Outcome	Learners should be able to apply the proper tools to detect heat, water and air losses in buildings in order to rectify small faults and carry out simple maintenance to increase energy efficiency. Also, learners should understand the technical skills required to incorporate smart metering technologies in automated home infrastructures.
EQF level	5
Duration	20 hrs NLT
ECVET credits	1
Prerequisites	General + Learning Outcomes of Learning Units 1,2, 3, 4
Assessment	1 assignment: case-study (5 open-ended questions and/or multiple choice test).
Learning Outcome 1	Describe the main principles and tools for detecting heat, water and air losses in buildings.
Learning Outcome 2	Explain the technical issues related to repair and maintenance of building systems to increase energy performance.
Learning Outcome 3	Identify health and safety issues during repair and maintenance operations.
Learning Outcome 4	Explain the technical issues related to incorporating smart metering technologies in automated home infrastructures
Learning Outcome 5	Evaluate the impact of the interconnection of smart meters with other home infrastructure.





# Learning Unit 6 Description

Title	Occupant & Operator Health and Wellbeing
Description	This learning unit introduces the learner to the main health and wellbeing aspects relevant to FM operations that focus on respecting the environment through efficient integrated waste, energy and water management, and managing the carbon emissions generated by FM activities.
Overall Learning Outcome	Learners should understand key rules and requirements for Health & Wellbeing when organising and performing facility management operations, securing total customer satisfaction through the use of innovative technology and organizational excellence in a sustainable and environmental friendly manner.
EQF level	4 – 5
Duration	20 hrs NLT
ECVET credits	1
Prerequisites	General+ Learning Outcomes of Learning Units 1,2, 3, 4&5
Assessment	1 assignment: case-study (5 open-ended questions and/or multiple choice test)
Learning Outcome 1	State the main principles for keeping optimum thermal comfort and indoor air quality.
Learning Outcome 2	Explain potential areas of risk in the workplace and how to take action to minimise the threat.
Learning Outcome 3	Describe environmental safety measures.
Learning Outcome 4	Advise customers on environmental, health and safety questions.





# MOOC: The Open and Online Course can be Massive

- Open & free for all
- Available on the internet
- Enables learners to interact with the materials and other learners
- Each learner's work can be shared with other learners





# What will be included in the MOOC?

## Training materials

- Lecture notes
- Slide presentations
- Case studies
- FAQs

## Assessment tools

- Multiple choice questions
- Quizzes
- Case studies
- Application scenarios





# Foreseen indicators for the DEFMA MOOC

## Training & assessment material

- 70-100 lecture notes/ presentation slides
- 4-7 case studies
- 50-60 FAQs
- 60-80 multiple choice questions
- 20-30 practical exercises
- 3-4 application scenarios





# DEFMA Impact Analysis

## FOCUS

On the long-term potential benefits for VET provision, learners, and the occupation of Facility Manager

## TOOL

Online questionnaire on:  
(link on G-drive)





## Contacts

### Coordinator

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