



Funded by the European Community Horizon 2020 Program

Project Title:

PROtect traditional built HERITAGE Skills



PRO-Heritage

Grant Agreement No: 785211

Collaborative Project

D1.1 Synopsis / overview of available training offers

| | |
|------------------|---|
| Deliverable No. | D1.1 |
| Workpackage | WP1 |
| Task | T1.1 Synopsis / overview of available training offers |
| Lead beneficiary | AEGPC |
| Authors | Ana Isabel Velasco Rebollo |
| Delivery date | 31/05/2019 |
| Status | Completed |
| File Name | D1.1_Synopsis_Overview_V1.0_20190601 |

Dissemination level

| | | |
|----|--|---|
| PU | Public, fully open, e.g. web | X |
| CO | Confidential, restricted under conditions set out in Model Grant Agreement | |
| CI | Classified, information as referred to in Commission Decision 2001/844/EC. | |

| Deliverable administration | | | |
|--|--|-----------|--|
| No & name | D1.1 Synopsis / overview of available training offers | | |
| Status | Completed | Due | M4 |
| | | Date | 2019-05-31 |
| Author(s) | Ana Isabel Velasco Rebollo (AR) | | |
| Description of the related task and the deliverable in the DoA | <p>T1.1 Synopsis / overview of available training offers Involved Partners: BHOe, NTUK, NECT, NTSK, SGPR, UBW, AEGPC The implementation of this task includes follow steps:</p> <ul style="list-style-type: none"> ○ Define structure together with the experience of BUILDUP Skills roadmap creator(s) ○ Develop selection criteria ○ Desk research on available training offers for improving construction skills for historic buildings and sites within partner countries (based on the principles of the BUILDUP roadmap) in general ○ Select relevant training for energy efficiency and renewable energy for historic buildings ○ Create synopsis/overview on relevant training for energy efficiency & renewables for historic buildings | | |
| Comments | | | |
| V | Date | Authors | Description |
| 0.1 | 2019-05-04 | GW | First draft, structure |
| 0.2 | 2019-05-31 | AR | Second draft with country contributions |
| 0.3 | 2019-06-01 | GW | Third draft, rework content and contribution |
| 1.0 | 2015-XX-XX | WP leader | Checked and released to the Coordinator for internal QA and subsequent submission to the EC. |
| 1.1 | 2019-09-05 | SH | Revised version |
| 2.0 | 2019 | WP-leader | Checked and released to the Coordinator for internal QA and subsequent submission to the EC. |

Disclaimer

The information in this document is provided as is and no guarantee or warranty is given that the information is fit for any particular purpose. The user thereof uses the information at its sole risk and liability.

This document reflects only the author's view. The Executive Agency for Small and Medium-sized Enterprises is not responsible for any use that may be made of the information it contains.

Table of contents

| | |
|--|-----------|
| 1. Publishable executive summary | 6 |
| 1.1 Definition of selection criteria..... | 6 |
| 1.2 Contributions of partners | 7 |
| 1.3 Relations to other activities..... | 7 |
| 2. Overview of Training Offers..... | 8 |
| 2.1 Austria..... | 8 |
| 2.2 Portugal..... | 11 |
| 2.3 Slovakia..... | 15 |
| 2.4 Spain..... | 16 |
| 2.5 United Kingdom..... | 22 |
| 2.6 Non-Partner Countries..... | 24 |
| 2.6.1 Belgium | 24 |
| 2.6.2 Germany | 26 |
| 2.6.3 France | 31 |
| 2.6.4 Norway | 32 |
| 2.6.5 Poland..... | 33 |
| 3. Conclusions | 34 |
| 3.1 Summary of achievements | 34 |
| 3.2 Relation to continued developments..... | 34 |
| 3.3 Other conclusions and lessons learned | 34 |
| 3.4 Contact to the Coordinator´s Data Protect Officer..... | 34 |
| 4. Acronyms and terms | 35 |

Tables

No Tables

Figures

No Figures

1. PUBLISHABLE EXECUTIVE SUMMARY

This document aims to show and document the situation of training and professional education and higher education that combines the concepts of energy efficiency and cultural heritage, historical buildings, analysing the current state in Europe and related training in Austria, Belgium, France, Germany, Norway, Poland, Portugal, Slovakia, Spain and UK.

In general, heritage conservation and energy efficiency are usually separated in different professional fields.

There are exceptions in which in some master and postgraduate trainings we can find this training in an integral way, but it is something exceptional at this moment.

There is some training offer in conservation and heritage management, often at the secondary school level, vocational training, university programs or even private companies, either with technological or professional orientation as in Portugal, Spain or Austria, for example. In addition to this there are very practical training programs of Restoration and Heritage Conservation in private professional schools.

On the other hand, there are seminars, courses and technological workshops, thermal/passive behaviour and energy efficiency, as well as solutions for water reuse, insulation options, micro energy production solutions, etc.

In the University, masters and doctoral levels are also found in separate subjects, even in different faculties, although, as in the case of Spain, some of them are already working in an integral way on these issues aware of the potential generated. Those who use the words rehabilitation and energy efficiency as a whole, in many cases, are aimed at the search and offer of sustainable housing or but also take into account that cultural aspects play an essential role in the success of the 2030 Agenda. Cultural rights, the heritage, diversity and creativity are components central to human and sustainable development.

Most likely, the issues of sustainability and energy efficiency are mentioned in heritage conservation and management training, but in a context, as a basic understanding of all subjects, not as a curriculum in itself.

However, some courses and trainings seem to focus on the merger that Pro-Heritage is looking for, as Portugal has indicated in its training offer.:

1.1 Definition of selection criteria

Three main characteristics should define the strategies and training modalities, as well as the didactic approaches in this subject, both in undergraduate and postgraduate training and lifelong learning. The first is that it is training-training, to be able to carry out different types of roles and tasks related to the preservation / conservation of Cultural Heritage and the application of energy efficiency; It is not about training just for motivation or sensitization and neither is instruction.

The second is the interactive nature of the subject matter of learning: working with people, groups and communities. The third is the need for coherence among the attitudes, skills, methods and techniques proposed for this work.

Regarding training strategies, you cannot learn a subject centred on "know-how" and "know-how" only from the theory. Training interventions are more useful focused on

the practice of the centres and services where the professionals work and which offer the possibility of interaction among the professionals who are trained. The purely informative / instructive interventions (lectures and classes) or the non-face-to-face interventions of self-learning and / or distance learning, must be combined, with different interactive approaches depending on whether they are undergraduate, postgraduate or continuing education.

It is essential that at least part of the training, at least related to training for cooperative and educational work, is face-to-face. On the other hand, from the focus on the learner and active pedagogy, more experiential learning and learning by tasks strategies than more traditional approaches that could generate cognitive objectives but hardly attitudes and skills are more appropriate.

Distance training that adequately uses information and communication technologies can establish new possibilities for active training between teachers and students. The use of electronic information and multimedia materials facilitates the accessibility of training to groups geographically remote and allows improving the tutoring and monitoring of training processes.

Both in undergraduate and postgraduate training and lifelong learning, the training modalities must be diversified to adapt to different contexts, training needs and training itineraries.

1.2 Contributions of partners

The lead partner per country contributes to this deliverable and put together the relevant information.

1.3 Relations to other activities

These results will be used for all further Deliverables of Work packages WP1: “Traditional competences and skills for built cultural heritage” (D1.2 Country report on certified and non-certified education for craftsmen in energy issues, D1.3 Best Practice report “Energy efficient historic buildings” and D1.4 First draft PRO-Heritage curriculum) and for D2.1 Report on study visits of training provider for energy efficiency and renewable energy for historic buildings of Task T2.1 Study visit of specialised training providers.

2. OVERVIEW OF TRAINING OFFERS

2.1 Austria

Austrian Historic Houses Associations <https://burgenverein.at/aktivitaten/seminare>

Practical knowledge of experts. Comprehensive know-how is indispensable for the preservation of historical buildings. In the specialist seminars, members can find out about specific topics and talk to specialists in their field. Theoretical knowledge can be brought up to date and practical information can be obtained.

VELUX <https://www.velux.at/fachkunden/handwerker-haendler/trainingsangebot>

Seminars are aimed at planners, consultants, craftsmen and schools. They have put together relevant and suitable topics for everyone, from beginners to experts.

- Monday seminar basis
- Monday seminar expert
- Selling seminar
- VELUX Modular Skylights
- Theory & practice
- Planning seminar

Master's Degree in Historic Preservation <https://www.master-and-more.at/masterstudium-denkmalpflege.html>

The Master in Preservation offers you a comprehensive education, which includes interesting job prospects in various fields. Examples include:

- Monument Protection Authorities
- Facilities for archaeological investigations
- specialized laboratories
- research institutions
- National offices for historic preservation
- Landscape design company
- Old building renovation company

Training in electrical and building engineering
Seminars and advanced training <https://www.tuev-sued.at/at-de/branchen/akademie/elektro-und-gebaeudetechnik>

Schloss Hofen <https://www.schlosshofen.at/bildung/technik-gestaltung>
The field of technology and design offers future-oriented postgraduate certificate and master programs especially for engineers and people from the natural sciences.

The university course Überholz is an extra-occupational, interdisciplinary education for architects, structural engineers and woodworkers. The focus of the study is the communication between the disciplines and the training of a successful cooperation. Überholz conveys both technical knowledge and the opportunity to deepen personal focus and find new cooperation partners.

BAU Akademie <http://www.noebauakademie.at/Kursliste.aspx?ZG1=C&ZG2=CB#.XKlf4bguBPY>
Seminars:

Adult education enables the construction industry to respond to the ever-increasing demands of working life and to further and higher-quality while working extra-occupationally. The educational offer covers all functional levels from the apprentice to the skilled worker and foreman to the site manager, construction technician, construction manager and master builder.

In addition, the house offers special seminars for municipalities such as construction law and regional planning.

WIFI <https://www.wifiwien.at/suche?searchterm=historische+geb%c3%a4ude>
Around 3,000 courses, seminars and courses - and just as many ways to develop. WIFI Vienna is the largest provider of vocational education, training and lifelong learning

The European Heritage Academy <https://www.european-heritage-academy.eu>
With in-depth knowledge of heritage conservation in Europe, they prepare your international training participants for the unique challenges of using, managing and preserving heritage and other historically significant buildings.

They offer a Europe-wide, certified advanced training at EQF level 4 and 5, which will be increasingly required in public tenders in the future. Their trainings combine many years of experience in the preservation of historical monuments and in the field of training and

further education, thus enabling rapid learning success in a pleasant learning environment. Their goals are the communication of the current state of monument preservation and the necessary competences for owners as well as managers of historical buildings. Therefore, in addition to the training and certifications as well as validations, ongoing update workshops are offered. Thus they create the conditions for perfect learning results and highest satisfaction of our customers.

bfi <https://www.bfi.wien/technik>

AMS https://www.ams.at/b_info/download/wbbau.pdf

Many of the professional development opportunities are possible on an extra-occupational basis, i. the courses will be held in the evening Weekends or in intensive form - as block seminars - instead. Increasingly, educations are also being held in form of distance learning (i.e., the lessons can be worked on at home, presence is with them Forms of training only required for certain training periods and examinations)

FH Campus Wien <https://www.fh-campuswien.ac.at/studium/studien-und-weiterbildungsangebot/detail/bau-und-sanierungstechnik-fuer-die-immobilienwirtschaft.html>

Academic course, extra-occupational for construction and renovation technology for the real estate industry

What you learn during your studies:

You receive the first comprehensive construction technology training for real estate professionals.

They acquire structural engineering knowledge for the rehabilitation of construction and supporting constructions as well as building physics basics.

They learn to interpret energy certificates and to recognize which measures for the energetic rehabilitation and / or design of the project are expedient and economical.

They deal with construction law peculiarities, ecological aspects and economic effects of remediation measures.

They acquire the necessary know-how to purposefully manage and supervise planning and construction service

2.2 Portugal

In Portugal, Heritage conservation and Energy Efficiency are usually separated in different professional fields.

There are some conservation and heritage management training offer, often on a secondary school level, either technological or professional oriented. There are also courses for Restoration Assistant and for Heritage Conservation Technician in professional private schools with strong presence of practical training.

On the other hand, there are trainings, courses and small workshops in thermic/passive behaviour and energy efficiency, as well as solutions to water re-use, isolation options, micro energy production solutions, etc. These are usually targeted to designers, architects or engineers. The basic idea behind is to consider sustainable solutions in project phases.

In University, Master Degrees and PhD levels the subject fields are also separated, even in different faculties. The ones using the words rehabilitation and energy efficiency together are targeted to housing renovation towards sustainability.

Most likely the sustainable issues and energy efficiency matters are mentioned in conservation and heritage management trainings, but in a context frame work, as a basic understanding across all subjects, not as a curricula itself.

Nevertheless, some courses and trainings seem to focus on the fusion Pro-Heritage is looking for:

“Energy Rehabilitation and buildings conservation”, Madeira University

4 semesters, 2 years, with a certificate in the end.

Curriculum

(1st semester) Maths, Physics, Chemistry, Informatics, buildings construction drawing, entrepreneurship

(2nd semester) Maths II, Buildings stability, security in construction sites, rehabilitation materials, topography

(3rd semester) Renewable energies and micro production, energy efficiency, pathologies and foundations rehabilitation, maintenance

(4th semester) Internship

<https://www.uma.pt/ensino/ctesp/ctesp-em-reabilitacao-energetica-e-conservacao-de-edificios/>

“Energy Rehabilitation and buildings conservation”, Guarda University

4 semesters, 2 years, with a certificate in the end.

Curriculum

(1st semester) Portuguese, Technical English I, Maths, Physics, construction drawing, Technical office, buildings

(2nd semester) Technical English II, Mechanics, Infrastructures survey techniques, Procurement laws and regulations, sewage nets

(3rd semester) Pathologies and foundations rehabilitation, renewable energies, topography, security in construction sites, foundations

(4th semester) Internship

http://www.ipg.pt/website/ensino_tesp.aspx?id=12&curso=Reabilita%C3%A7%C3%A3o%20Energ%C3%A9tica%20e%20Conserva%C3%A7%C3%A3o%20de%20Edif%C3%ADcios

“Advanced training on Energy Efficiency in Historic Buildings”, Algarve University (EH-CMAP Project, ERASMUS+)

4 days, with a certificate in the end.

(This training had several sessions in different cities in Portugal and Spain, but is no longer available)

Curriculum

Historical buildings conservation: principles, rules, cases study

Energy Efficiency in buildings: concepts and regulation

EH-CMap Presentation: utility and functionality

Building and analysing conceptual Maps: practical exercise

<https://www.ualg.pt/pt/evento/curso-livre-eficiencia-energetica-em-edificios-historicos>

“Adaptive Reuse and Energy Efficiency”, Institution ADENE (National Energy Agency)

12 days, 50 hours, with a certificate in the end.

Curriculum

General concepts of conservation, rehabilitation, adaptive reuse

General characterization of the Portuguese built reality

Legal context of rehabilitation, adaptive reuse and energy in buildings

Historic buildings characterization

Acoustics, Thermic behaviour, construction main problems

Buildings maintenance

Thermic rehabilitation - general concepts

Thermic rehabilitation – improvement's measures

Thermic rehabilitation – incentives

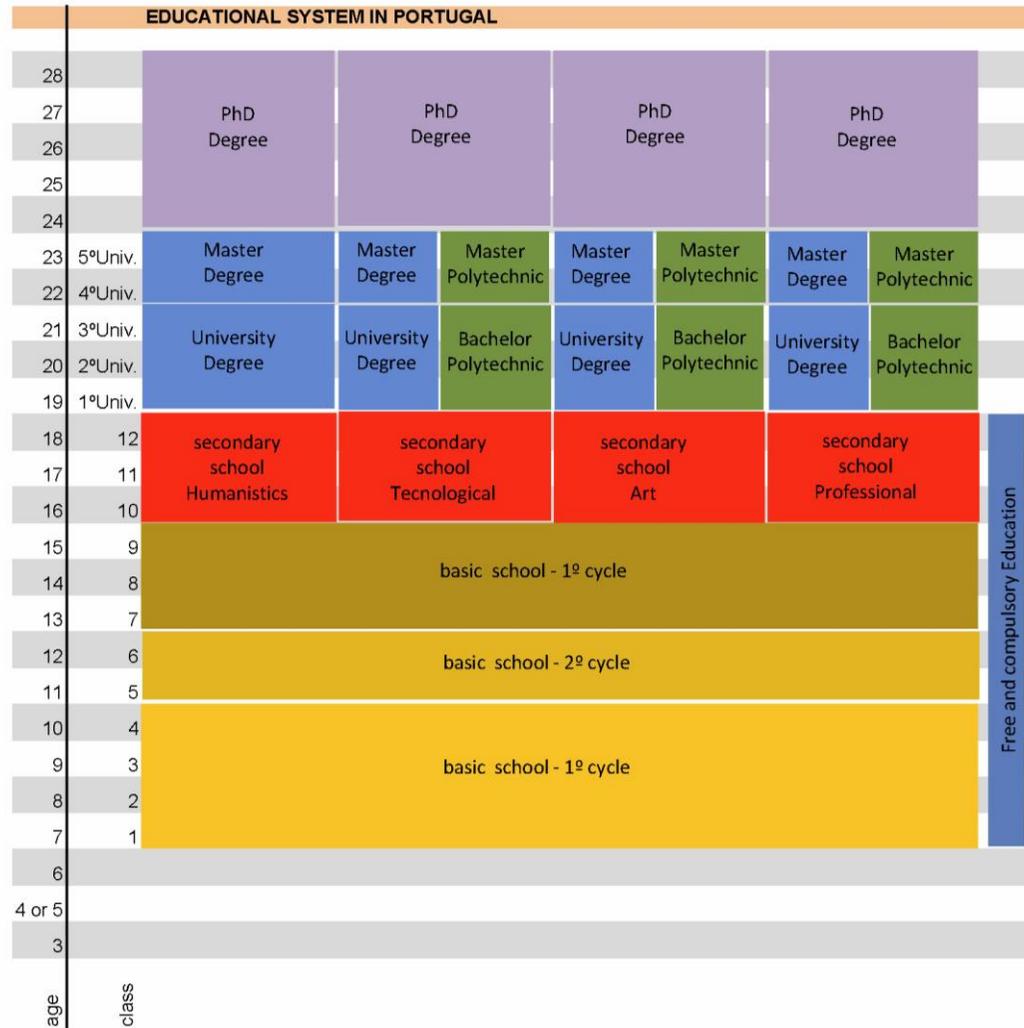
Energy efficiency and NZEB (Nearly zero-energy buildings)

Energy production, self-sufficiency and energy management systems

Reference case study visit

<https://academia.adene.pt/curso-reabilitacao-edificios-eficiencia-energetica/>

For better understanding the stages / ages of the Educational System in Portugal, consult the following table:



2.3 Slovakia

- Days of Architectural Heritage Conservation Technology <https://is.stuba.sk/pracoviste/projekty.pl?id=28;lang=en>
- School of traditional built crafts http://www.ainova.sk/sk/skola-tradicnych-stavebnych-remesiel_2/
- Lifelong learning of architects from Slovak Chamber of Architects <https://www.komarch.sk/udrzatelnost-v-architekture-a-vo-vystavbe>
- Lifelong learning of architects from Slovak Chamber of Architects <https://www.komarch.sk/energeticka-hospodarnost-budov-hodnota-za-peniaze/>
- Environmental structures - Bachelor, Master programme <https://www.svf.tuke.sk/>, https://www.svf.tuke.sk/en/?page_id=118
- Environmental basis of architecture, Alternative technologies https://www.fa.stuba.sk/ueea.html?page_id=1576
- Renovation of traditional houses - building and energy <https://ozartur.sk>

2.4 Spain

Master's degree in science and technology in architectural heritage <http://masteres.ugr.es/citpa/>

The master is divided into two blocks:

1) The contents in Sciences applied to the material part of the Architectural Heritage.

The meaning and importance of a work of art do not reside in the material that constitutes it, but in the expressive content it manages to communicate; In spite of this, the permanence in time of an artistic work inevitably depends on the materials that compose it.

The integral knowledge of these materials is essential, not only for the conservation and restoration tasks, but also for a correct and deep understanding of the cultural property.

2) Studies and knowledge in Technologies for the conservation of materials and architectural heritage structures.

The current criteria in the field of Architectural Heritage conservation require a thorough study prior to the execution of an intervention. It is necessary to know how to choose the most appropriate methodologies in each case, in order to eliminate or slow down the causes and processes of deterioration; hence the need to know the techniques of analysis of more advanced materials and the methodologies of application of the most suitable treatments for their conservation.

Master's degree in historical and cultural heritage <http://www.uhu.es/master.phc>

This Official Master's Degree and Doctoral Program is oriented towards the scientific and professional training of heritage specialists, in its double Historical-Cultural and Natural aspect, offering an original and innovative study program, with the intervention of leading specialists in the academic field and of the professional sector, with the collaboration of important institutions and public and private organizations in which the students will be able to carry out their practices.

Master's degree in sustainability and energy efficiency in buildings and industry <https://www.ujaen.es/estudios/oferta-academica/masteres/master-universitario-en-sostenibilidad-y-eficiencia-energetica-en-los-edificios-y-en-la>

Master's degree in diagnosis of the state of conservation of historical heritage <https://www.upo.es/postgrado/en/Master-Diagnosis-of-the-State-of-Preservation-of-the-Historical-Heritage>

This Masters degree can be studied online (except the internship, which is an optional course). Its main objective is to train professionals and specialists in the necessary techniques to identify, to know more and to diagnose the state of conservation of movable and immovable property in order to preserve them for future generations.

Students will have the chance of getting an updated and multidisciplinary picture of the techniques and scientific methodologies used for dating, cataloguing, characterising, researching and diagnosing. They will also learn about the breakthroughs in methodological knowledge and up-to-date trends in monitoring intervention and conservation.

This programme is aimed at training professionals, who will become specialists, and future PhDs. They study the characterisation, diagnosis and, overall, all the methodologies that show the nature of works of historical and artistic interest and their problems, and they even suggest solutions. With this programme, students will reach the scientific and technical standards required in the methodology used for diagnosis programmes of movable and immovable property of the historical heritage.

It is uncommon to find a postgraduate programme with such an interdisciplinary approach. However, the unique characteristics of this Master's degree enables professionals in diverse fields such as history of art, archaeology, architecture, physics and chemistry, biology, and crystallography in order to work together and to apply mainstream knowledge to historical heritage works of different natures.

Master's degree in architecture and historical heritage http://www.us.es/estudios/master/master_M051

Master's degree specializing in a generalist approach to the complexity of work with Historical Heritage, using criteria of interdisciplinarity and territorialisation and applying new technologies. Specialized seminars and technical visits are combined with a teaching model that integrates students, professors and experts from the various degrees related to Historical Heritage. It is taught in Seville (Monasterio de la Cartuja) and optionally 35% of teaching can be followed in Granada (Alhambra), thanks to the collaboration of the Andalusian Institute of Historical Heritage and the Board of the Alhambra and Generalife.

Master's degree in renewable energies and energy efficiency <https://estudios.unizar.es/estudio/ver?id=652>

The Master's Degree in Renewable Energy and Energy Efficiency is a master's degree in introduction to research that constitutes the training period of the doctoral program of the same degree. The objective of the degree is the training of researchers in the field of renewable energy and energy efficiency.

The focus of the program is technological, but with a transversal approach towards the problem of sustainability, which will give us a global perspective in the medium term. It is intended that students are able to put the knowledge of the technologies and calculation and design skills that are acquired in each of the courses in a context of evaluation of the energy sustainability of a process and the most appropriate use of resources.

Master's degree in energy efficiency

https://www2.ulpgc.es/index.php?pagina=plan_estudio&ver=wpe002&codTitulacion=5025&tipotitulacion=A

The Master of Energy Efficiency, interdisciplinary, which has a research orientation with an important component in R & D in a strategic sector for the Canary Islands and Europe, provides the theoretical and practical basis for training in management, energy planning, sustainable building and development of projects of energy efficient installations. Among the professional activities that may be performed by graduates of this master are those of energy auditor and energy services provider, as defined in Royal Decree 56/2016, of February 12, which transposes the Directive 2012 / 27 / EU of the European Parliament and of the Council of 25 October 2012 on

energy efficiency, in relation to energy audits, accreditation of service providers and energy auditors and promotion of energy supply efficiency. This master also gives access to the PhD program in Telecommunication Technologies and Computational Engineering.

Research Group in laboratory for the investigation and intervention in the architectonic, patrimonial and cultural landscape

<http://www.uva.es/opencms/3.investigacion/3.03.gir/3.03.04.areadeingenieriaytecnologia/index.html?grupo=336&area=4>

Research, intervention and recovery of cultural, heritage and archaeological landscapes

Development of a methodology for the sustainable and accessible integration of architecture in the historical and contemporary cultural landscape

Master's degree in management of conservation-restoration projects

<https://www.ub.edu/portal/web/bellasartes/masteres-universitarios/-/ensenyament/detallEnsenyament/1048056>

This master's degree is a specialization path. Regarding the content of the master's degree, emphasis will be placed on the direction of projects, especially collections and patrimonial groups, so that the role of the conservator-restorer as a professional will be enhanced, which should coordinate the multidisciplinary work involved in the intervention in a patrimonial set, assuming all the competences implied by this important intervention.

To ensure training in these contents, the master's degree includes subjects dedicated to knowledge, study and intervention of various types of heritage, as well as a thematic block dedicated to scientific techniques and familiarization with the resources available to the UB for the study of heritage and a subject centred on the business and administrative aspects of conservation-restoration actions.

Master's degree in sustainable intervention in the built environment

<https://www.upc.edu/en/masters/sustainable-intervention-in-the-built-environment-mismec>

[the-built-environment-mismec](https://www.upc.edu/en/masters/sustainable-intervention-in-the-built-environment-mismec)

The master's degree in Sustainable Intervention in the Built Environment aims to produce graduates with advanced conceptual and technological knowledge of the urban environment to improve sustainability and manage projects involving intervention in the fields of architecture, building construction, urban design and infrastructure.

Master's degree in rehabilitation and architectural restoration: from the performance evaluation (CTE) to the intervention project

<https://www.talent.upc.edu/ing/estudis/formacio/curs/213400/master-degree-architectural-rehabilitation-restoration-performance-evaluation-technical-building-code-intervention-project>

The Master's in Architectural Rehabilitation and Restoration at the UPC School provides all the knowledge and skills needed to completely undertake the rehabilitation cycle of a building. It starts with a study of the property and ends with the complete project, including the analysis of its instrumental and cultural assets, as well as the criteria to develop this new professional activity.

This training offers students the methods, technical tools and attitudes needed for this specialised profile, as well as the possibility of joining a community interested in keeping abreast of the latest innovations which will help them more efficiently tackle the challenges of each project.

The training programme has an outstanding track record of more than ten years, during which time specific pedagogical and methodological instruments have been developed which are unique in the sector. They are then applied in the development of a real rehabilitation project to train professionals with an interdisciplinary vision of the fields of Architecture, Technical Architecture and Engineering, as well as experts in other related disciplines.

Master's degree in rehabilitation, maintenance and recovery of buildings

https://www.uax.es/fileadmin/user_upload/Informacion-adicional/Master/Informacion-adicional-master-universitario-rehabilitacion-mantenimiento-y-recuperacion-edificios.pdf

The Master's Degree in Rehabilitation, Maintenance and Recovery of Buildings of the UAX is aimed at construction professionals who want to specialize and / or update in the knowledge of new techniques, processes and materials destined to the execution of constructive actions. Its objective fundamental will be the recovery, rehabilitation or maintenance of the building and existing, in order to achieve complete compatibility between building systems traditional and current.

This Master presents a purely technical approach.

Master's degree in conservation and restoration of architectural heritage

http://www.upm.es/Estudiantes/Estudios_Titulaciones/Estudios_Master/Programas?id=3.4&fmt=detail

The Master's Degree in "Conservation and Restoration of Architectural Heritage" has an interdepartmental character oriented towards formative specialization. The University Master's Degree aims at the best training of technicians - not just architects - who, in one way or another, intervene in the architectural heritage or have management tasks or responsibility in it. This training does not pretend to be only of a technical nature, but also, very specially, to establish criteria, which is of particular relevance at the present time.

One of the training objectives is the training in the work of interdisciplinary teams, an aspect of essential value in the intervention in the architectural heritage. The University Master is considered as an integral training unit, it does not establish specialties.

Master's degree in construction and technology of historic buildings

http://www.upm.es/Estudiantes/Estudios_Titulaciones/Estudios_Master/Programas?id=3.12&fmt=detail

Master's Degree dedicated to the investigation of historical construction. With a clear practical vocation based on the art of building in Antiquity, with a desire to turn this knowledge into restoration work. It is a Master that responds to the wishes of many restoration specialists who need practical knowledge. This Master moves in an international framework and is an essential training complement to complement the training of the architect in the Field of the Conservation and Restoration of the Heritage and consequently, a professional practice implemented with the knowledge of the latest techniques of application in this area. In the academic field it becomes a powerful instrument that drives research.

Real workshops in which the students must build four pieces of architecture of considerable dimensions through which will acquire a deep and complete knowledge of each of these systems of construction of the past.

Rehabilitation and energy saving in buildings <http://www.structuralia.com/es/>

Energy efficiency is an instrument of economic and social growth. Renewable technologies are constantly evolving to be more efficient.

Master's Degree in Conservation of Architectural Heritage

<https://www.upv.es/titulaciones/MUCPA>

The conservation, safeguarding and appreciation of heritage is an obligation of society of our time. In architecture, we should not understand heritage as only real estate classified as cultural interest (monuments), but also the set of structures that form the context in which society has been configured throughout its history.

Today, facing new challenges (among others, sustainable development), the main challenge of contemporary architecture is to respond to the growth of our historic cities, respecting the inherited urban landscape without jeopardizing its authenticity or integrity.

INTERNATIONAL FORUM SEMINAR UNESCO - University and heritage

<http://www.catedraunescoforum.upv.es/esp/>

Master's Degree In Architectural Heritage

<https://www.upct.es/estudios/master/2001>

The Master's Degree in Architectural Heritage of the Polytechnic University of Cartagena aims to train high-level specialists in the research and conservation of real estate heritage; that is to say, not only the Architectural Heritage, but also the one linked to some branches of engineering, such as military, hydraulic, industrial, mining, road and rail assets, which we could include under the rubric, which is increasingly used in the last years, of Built Heritage.

The Master includes a period of internships in companies or institutions related to the conservation of architectural heritage.

Master in Rehabilitation, Restoration and Integral Management of the Built Heritage and Existing Constructions

<https://www.ehu.eus/es/web/master/master-restauracion-patrimonio-construido>

In the Master in Rehabilitation, Restoration and Integral Management of the Built Heritage and Existing Constructions you will address most of the issues that must be considered in any action that has as its object, or in which it is included, an element of the Built Heritage. You will study the purely architectural issues, eminently technological and others belonging to other disciplines, such as Economics, Law and Sociology.

The main objective of the master's degree focuses on preparing you as a professional capable of conducting research and innovation in the development of integral projects for the restoration of built heritage and the enhancement of its surroundings.

International Congress on Energy Efficiency and Historic Building

<http://www.energy-heritage.com>

Conference on energy efficiency and historic building: following the steps of Europe

<http://www.campusmoncloa.es/es/noticias/jornadas-sobre-eficiencia-energetica-y-edificacion-historica-siguiendo-los-pasos-de-europa/235>

Simposio SH buildings <http://www.shbuildings.es/>

This project responds to the need to promote R & D & I, competitiveness, and ensure the sustainability of the SUDOE Space, promoting energy efficiency and promoting efficient public management.

4th International Congress Science and Technology for the Conservation of Cultural Heritage Technoheritage 2019

Techno

Heritage Red de Ciencia y Tecnología para la Conservación del Patrimonio cultural

http://gestioneventos.us.es/event_detail/18082/detail/iv-international-congress-science-and-technology-for-the-conservation-of-cultural-heritage.html

An interdisciplinary and international forum for discussions on all aspects of Cultural Heritage.

2.5 United Kingdom

STBA - Sustainable Traditional Buildings Alliance

www.stbauk.org

Retrofitting Traditional Buildings: Principals and Practice - The Green Register, London and Cambridge, England

IHBC - The Institute of Historic Building Conservation

www.ihbc.org.uk

Energy Efficiency & Retrofit of Traditional Buildings ESC, London, England

SPAB - The Society for the Protection of Ancient Buildings

www.spab.org.uk

Energy Efficiency in Old Buildings, London, England

CIOB - The Chartered Institute of Building

www.ciob.org.uk

Energy Efficiency in Traditional Buildings, London, England

SQA - The Scottish Qualifications Authority

www.sqa.org.uk/

Award in Energy Efficiency Measures for Older and Traditional Buildings, various location in UK

CIBSE - Chartered Institute of Building Services Engineers

www.cibse.org

The Importance of Energy Efficient Buildings, London, England

Energy Efficiency Building Regulations: Part L

Energy Monitoring and Targeting

Energy Surveys

Low and Zero Carbon Energy Technologies

Frew Conservation www.frewconservation.co.uk

Energy Efficiency in Traditional Buildings, Scotland

Trades Courses www.tradescourses.co.uk/renewables

Renewable Energy Installation Course, throughout the UK

Historic Environment Scotland / Scottish Lime Centre Trust www.scotlime.org/en/

Retrofitting Traditional Buildings: Principles and Practice Masterclass, Scotland

HECW - Heritage Construction in Wales www.tywicentre.org.uk

Energy Efficiency and Retrofit of Traditional (pre-1919) Buildings, Carmarthenshire, Wales

Important note:

NOTE: All of these courses are for a duration of one or two days, none are specific for Tradespersons, & none are nationally 'recognised' awards in their own right

2.6 Non-Partner Countries

2.6.1 Belgium

Maçonnerie en pierre sèche <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

La chaux – Un matériau et ses diverses utilisations <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Techniques décoratives à la chaux <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Technique du sgraffite <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Les moulures – Stucs et staffs <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Techniques d'imitation des matières – Faux marbre <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

À la découverte du décor à travers le dessin, le modelage et histoire de l'art <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

L'art du trait – Charpentes en bois <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Colombage et torchis <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Entretien des monuments funéraires <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Gestion des cimetières et du patrimoine funéraire <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Maçon du patrimoine <https://agencewallonnedupatrimoine.be/wp-content/uploads/2018/02/programme-formation-2017-2018.pdf>

Conservation-restauration du patrimoine culturel immobilier

<https://www.programmes.uliege.be/cocoon/20182019/formations/descr/T3CONS01.html>

Les lundis de l'immobilier <https://www.efp.be/formations/formation-continue/les-lundis-de-l-immobilier.html>

Certificateur PEB - base <https://www.efp.be/formations/formation-continue/certificateur-peb.html>

Atelier bois: récupération des espaces perdus <https://www.efp.be/formations/formation-continue/atelier-bois-recuperation-des-espaces-perdus.html>

2.6.2 Germany

Effizienter arbeiten für mehr <https://www.caparol.de/service/akademie/handwerker-seminare/einzelansicht.html?seminar=277>

Statische Untersuchungen am Baudenkmal

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmaele_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Tierische Schädlinge an historischen Gebäuden

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmaele_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Schimmelpilze in Denkmalen

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmaele_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Fachwerkschäden Denkmal

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmaele_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Neue Nutzungen für Bauhaus-Architektur

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmaele_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Steuervorteile bei Erhaltungsmaßnahmen und Reparaturen

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmale_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Energetische Sanierung von Baudenkmalen <https://www.qpunkt.de/energieberater-in-fuer-baudenkmale.html>

Praxisworkshop Baubegleitung vor Ort und Haustechnik im Baudenkmal

<https://www.qpunkt.de/events/praxisworkshop-baubegleitung-vor-ort-haustechnik-im-baudenkmal-8-ue.html>

Baubegleitung bei Denkmalschutzobjekten <https://www.qpunkt.de/events/baubegleitung-bei-denkmalschutz-objekten-8-ue.html>

Reparatur von Natursteinschäden an Denkmalen

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmale_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Methodik der Gartendenkmalpflege

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmale_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Historische Maltechniken

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmale_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

Die Sanierung der Sanierung

https://www.denkmalschutz.de/fileadmin/media/Bilder/Denkmale_erleben/Denkmalakademie/181126_DSD_DA_Jahresprogramm2019_DenkmalAkademie_LoResWeb.pdf

- Energiebrater für Baudenkmale <https://www.akademie-des-handwerks.de/lehrgaenge/energiebrater-fuer-baudenkmale>
- Denkmalpflege Kompakt <https://www.akademie-des-handwerks.de/seminare/wissen-kompakt>
- Baustoffchemie für Sanierungsarbeiten an Baudenkmalen <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/baustoffchemie-fuer-sanierungsarbeiten-an-baudenkmaelern>
- Fresko und Stuccolustro <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/fresko-und-stuccolustro>
- Historische Maltechniken – Rekonstruktion und Neugestaltung <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/rekonstruktion-und-neugestaltung-historischer-maltechniken/>
- Marmorimitation <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/marmorimitation>
- Oberflächenbehandlung, Reinigung und Konservierung von Metallen <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/metallbauer/oberflaechenbehandlung-reinigung-und-konservierung-von-metallen>
- Polimentvergoldung <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/polimentvergoldung>
- Tadelakt – ein jahrhundertealter Kalkglanzputz <https://www.akademie-des-handwerks.de/seminare/denkmalpraxis/maler/tadelakt-ein-jahrhundertealter-kalkglanzputz>
- Geprüfte/r RestauratorIn im Handwerk <https://www.akademie-des-handwerks.de/lehrgaenge/restaurator-im-handwerk>

- ArchitektIn, PlanerIn - Denkmalpflege <https://www.propstei-johannesberg.de/html/architekt-in- planer-in -denkmalpflege.html>
- TragwerksplanerIn in der Denkmalpflege https://www.propstei-johannesberg.de/html/tragwerksplaner-in_in_der_denkmalpflege.html
- RestauratorIn im Handwerk https://www.propstei-johannesberg.de/html/restaurator-in_.html
- EnergieberaterIn Denkmalpflege https://www.propstei-johannesberg.de/html/energieberater-in_denkmalpflege.html
- Brandschutz https://www.propstei-johannesberg.de/180622_Brandschutz.pdf
- Nachträgliche Bewehrung und Anker/ Dübel im historischen Mauerhandwerk https://www.propstei-johannesberg.de/181123_Nachtragliche_Bewehrung_Anker_Dubel_im_historischen_Mauerwerk.pdf
- Bauaufnahme Planung und Ausführung https://www.propstei-johannesberg.de/181127_Bauaufnahme_Planung_Ausfuhrung.pdf
- Haustechnik im Denkmal https://www.propstei-johannesberg.de/190228_Haustechnik.pdf
- Sanierungsmöglichkeiten bei feuchte- und salzbelastetem Mauerwerk https://www.propstei-johannesberg.de/190328_Feuchte_Mauerwerk.pdf

Dacheindeckungen auf historischen Gebäuden https://www.propstei-johannesberg.de/190514_Dialog_Handwerk_und_Denkmalpflege_Dacheindeckungen.pdf

Bögen, Gewölbe und Strebepfeiler https://www.propstei-johannesberg.de/190628_Bogen_Gewolbe_Strebepfeiler.pdf

Natursteinbearbeitung https://www.propstei-johannesberg.de/190206_Natursteinbearbeitung.pdf

Statik und Tragwerkanalyse historischer Holzkonstruktionen für Zimmerer https://www.propstei-johannesberg.de/190207_Statik_Tragerwerkanalyse_Zimmerer.pdf

Backsteinmauerwerk https://www.propstei-johannesberg.de/190218_Backsteinmauerwerk.pdf

Baustoff Holz: Schäden und Schädlinge in historischen Holzkonstruktionen https://www.propstei-johannesberg.de/190218_Baustoff_Holz_Schaeden_und_Schaedlinge_in_historischen_Holzkonstruktionen.pdf

Energetische Verbesserung von historischen Gebäuden https://www.propstei-johannesberg.de/190220_Energetische_Verbesserung.pdf

Historische Furnier- und Einlegetechniken https://www.propstei-johannesberg.de/190311_Historische_Furniertechnik.pdf

Lösemittel in der Konservierung und Restaurierung https://www.propstei-johannesberg.de/190318_Losemittel_in_der_Restaurierung.pdf

Historische Putze und Putztechniken https://www.propstei-johannesberg.de/190325_Putze_und_Putztechniken.pdf

Zimmermannsmäßige Reparaturverbindungen https://www.propstei-johannesberg.de/190403_Zimmermannsmaessige_Reparaturverbindungen.pdf

Sicherung und Restaurierung historischer Gefacheputze https://www.propstei-johannesberg.de/190523_Gefacheputze.pdf

2.6.3 France

Les matériaux de conservation et de conditionnement (niveau 2) <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Les-materiaux-de-conservation-et-de-conditionnement-niveau-2>

Solvants écologiques et moins toxiques: comment choisir? <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Solvants-ecologiques-et-moins-toxiques-comment-choisir>

La conservation préventive: principes fondamentaux <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/La-conservation-preventive-principes-fondamentaux3>

Techniques et conservation-restauration des dorures sur bois et stuc (niveau 2) <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Techniques-et-conservation-restauration-des-dorures-sur-bois-et-stuc-niveau-2>

Gestion des infestations: les insectes <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Gestion-des-infestations-les-insectes>

Réception, montage, démontage et utilisation d'échafaudages roulants <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Reception-montage-demontage-et-utilisation-d-echafaudages-roulants>

Les fondamentaux de la réponse à un marché public pour les monuments historiques <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/Les-fondamentaux-de-la-reponse-a-un-marche-public-pour-les-monuments-historiques>

La protection des monuments historiques : de la constitution du dossier à la gestion au quotidien <http://www.inp.fr/Formation-initiale-et-continue/Formation-continue/Catalogue-de-formation/La-protection-des-monuments-historiques-de-la-constitution-du-dossier-a-la-gestion-au-quotidien>

Compagnons professionnels maçons du patrimoine candidatures ouvertes http://www.ecole-avignon.com/fr_FR/FORMATION/COMPAGNON-PROFESSIONNEL-MACON-DU-PATRIMOINE-N3P1

Recrutement des apprentis tailleurs de pierre des monuments historiques http://www.groupement-mh.org/actualite_formation/rentree-2019-recrutement-des-apprentis-tailleurs-de-pierre-des-monuments-historiques-formation-bpmh

2.6.4 Norway

Cultural heritage preservation workshop <https://www.frh-europe.org/norway-workshop-cultural-heritage-preservation/>

Capacity Building Workshop <https://www.ovpm.org/program/capacity-building-workshop>

2.6.5 Poland

Energy efficiency – local energy adviser

Energy efficiency auditing <https://fpe.org.pl/en/>, <https://fpe.org.pl/szkolenia/>

Energy efficiency, energy clusters <https://www.kape.gov.pl/page/szkolenia>

„Energy Bus” – mobile education and information centre against climate change http://autobusenergetyczny.pl/?page_id=118

Energy efficiency for industry, analysis and energy consulting for companies <http://www.energy-aid.pl/uslugi-kompleksowe/szkolenia-personelu/>

Energy storage [http://pime.pl/wydarzenia/1_1/54_WARSZTATY_PIME - Rynek magazynowania energii w Polsce](http://pime.pl/wydarzenia/1_1/54_WARSZTATY_PIME_-_Rynek_magazynowania_energii_w_Polsce)

Renewable Energy Sources <https://www.seka.pl/uslugi/odnawialne-zrodla-energii/>

Photovoltaic Systems – Theory and Practice <http://www.szkoleniafotowoltaika.pl/>

3. CONCLUSIONS

3.1 Summary of achievements

This is the first list of trainings for cultural heritage. It does not include a deep analysis of these offers. There is also not mentioned:

- information about certification
- detailed information related to the training content
- detailed information related to the training provider

All these will be included in Deliverable D1.2 Country report on certified and non-certified education for craftsmen in energy issues.

The achievements of this deliverable are:

- there are some trainings
- some countries might not have trainings offered by national providers
- often trainings not specialised for cultural heritage and are referring to general aspects of energy efficiency for buildings

3.2 Relation to continued developments

These trainings will be the basis for D1.2 Country report on certified and non-certified education for craftsmen in energy issues and for the first PRO-Heritage curriculum.

3.3 Other conclusions and lessons learned

The main finding is the need to involve contacts in the field in every country, because some offers are only available in country language.

3.4 Contact to the Coordinator's Data Protect Officer

Roland Lehner
Head of Construction Management II
Hofburg-Schweizerhof
A-1010 Vienna
Phone: +43 (1) 53649-814631
Mail: datenschutz@burghauptmannschaft.at

4. ACRONYMS AND TERMS

| | |
|------------------|---|
| VELUX..... | Company name |
| WIFI..... | Wirtschaftsförderungsinstitut der Wirtschaftskammer Österreich (Economic Development Institute of the Economic Chamber Austria) |
| bfi..... | Berufsförderungsinstitut Österreich |
| AMS..... | Arbeitsmarktservice (Public Employment Service Austria) |
| FH..... | Fachhochschule (University of Applied Science) |
| EH-CMap..... | Erasmus+ Project “EH-CMap - Advanced Training on Energy Efficiency in Historic Heritage |
| NZEB..... | Nearly zero-energy buildings |
| R&D..... | Research and Development |
| R&D&I..... | Research and Development and Innovation |
| CTE..... | Career and Technical Education |
| UPC..... | Universitat Politècnica de Catalunya |
| UAX..... | Alfonso X El Sabio University |
| SUDOE Space..... | Southwestern Europe |