D4.1 Listing of CSP training in Europe and worldwide

STAGE-STE Project	
Scientific and Technological Alliance for Guaranteeing the European Excellence in Concentrating Solar Thermal Energy	
Grant agreement number:	609837
Start date of project:	01/02/2014
Duration of project:	48 months
WP4 – Task 4.2	Deliverable 4.2
Due date:	09/2014 (M8)
Submitted	27/04/15
File name:	STAGESTE_D4.1
Partner responsible	CTAER
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Dissemination Level	PU

Executive Summary

The deliverable D4.1 is a list of all the CSP training courses identified in Europe and worldwide. This is the result of the task 4.2 “Mapping of existing Concentrating Solar Thermal training programmes” from the WP4 “Capacity Building and Training Activities”.

The aim of this task 4.2 is to identify existing CSP training courses and assess the quality of the training offered on CSP technologies in Europe and worldwide in order to develop a reference course on concentrating solar thermal energy technologies, as is indicated in the next task 4.3. “Design of a reference course on STE technologies”

Firstly, a detailed work plan was designed in collaboration with all the partners involved in this task. It was decided to extend the scope of the mapping of the existing CST-related training programmes to the international level. To do so, all partners drafted a common questionnaire which was published online with the Google Docs tool. The partners also listed the countries of interest in the world to do the search, based on information gathered from SolarPACES and ESTELA. This list includes 59 different countries. These countries were distributed between all task 4.2 partners and assigned to each of them on the basis of their already established contacts in the world, location, language, etc. Each partner sent finally the questionnaire to several institutions of interest around the world. Fifty-eight (58) answers were received from 19 different countries. After having discarded the answers out of interest (e.g. courses not specifically related to CST), the database was completed and fine-tuned with the information gathered in the frame of EU-SOLARIS, WP6 (Dissemination and Outreach), task 6.5 related to Training in Europe. CTAER also complemented the listing of the courses with the information gathered in collaboration with SOLAR CONCENTRA, the Spanish technology platform for concentrated solar thermal energy.

Finally 97 CSP training courses worldwide have been identified and are described country by country in this deliverable into the three following parts:

- CSP training courses in Europe: initially the survey was dealing only with the existing CSP training in Europe.
- CSP training courses worldwide: the survey has been extended to the existing CSP training worldwide.
- Online CSP training courses.

Training courses dedicated only to CSP are not that much widespread and it has been decided to include also in this deliverable generic courses on renewable energies containing CSP lessons.

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1. Introduction

The Work package 4 Capacity Building and Training Activities is focused on the following objectives:

1. Ensuring efficient implementation of the research Workplan and reinforcing cooperation and synergies among the partners through exchange/mobility of personnel between the partners. This will also raise the level of excellence of the researchers through transfer of knowledge among the partners.

2. Increasing the use of complementary research infrastructures among the partners filling the gaps in CSP training programmes through the definition of training needs and mapping of existing ones.

3. Fostering collaboration of the partners by creating a reference course on CSP to be delivered to scientific communities, especially the industry.

4. Creating a pool of high-qualified professionals by delivering a reference course on the latest knowledge in CSP to experts, researchers, students, industry.

5. Guaranteeing the sustainability of the reference course after the project to create a long-term generation of high-qualified researchers.

In order to develop a reference course on concentrating solar thermal energy technologies (WP4 task 4.3), a mapping of the already existing related training programmes have been done in this task 4.2. Also the possible extension of the mapping at a worldwide level has been performed to obtain a better vision of what exists in the world in order to design a more relevant reference course.

2. Methodology

The methodology carried out has been structured in the following steps:

- Analysis and establishment of quality indicators for the training programmes: definition of the quality indicators permitting to collect the needed information in order to assess the existing CSP training courses worldwide.

- Draft of a questionnaire to gather data on CSP training programmes: with the help of all the WP4 partners and the existing questionnaire of the task 6.5. in the EUSOLARIS Project, CTAER drafted a questionnaire including the quality indicators previously defined and the general information to be collected about each CSP training courses. All the requested information in the questionnaire should permit to identify, describe and collect needed information permitting to assess the quality of existing CSP training courses.

- Procedures to organise the gathering of information: defining the countries of interest, asking our partners to consult their contacts in the countries of interest and other countries proposed. And the next step was sending the questionnaire to all the institutions of interest within the defined countries and reminding our contacts who did not reply to increase the number of responses. To perform the query, google docs has been used which allowed us a control of the process.

- CTAER has obtained 58 answers from nineteen different countries. This has been completed

with he collaboration of the EUSOLARIS Project and SOLAR CONCENTRA.

- Analysis of the replies to the questionnaire: further to the listing, an assessment of the quality of all the courses listed will be done. The results of this assessment are not included in this deliverable, but it will serve internally as a basis for the design of the reference course on CSP technologies (task 4.3) by determining the gaps of existing CSP training courses and by offering a better vision of the information to transmit within the reference course.

3. Questionnaire

CTAER and all partners have elaborated this questionnaire to obtain information related with the training activities of CSP in Europe and around the world.

The structure chosen to achieve the objectives of the questionnaire focuses on the following key factors:

– Name of the course training action (including website if applicable).

– The responsible institution for delivering the course.

– The type of action developed (seminar/workshop, technical training, university course or specific others actions).

– The target audience for its implementation (industry, research & development, students general public or others).

– The minimum level of knowledge to access the course (bachelor, degree, master, PhD degree or others).

– The type of attendance (classroom course, online or mixed).

– If learning is not online, the country and the city implementing the course will be asked as well as the course duration, the frequency and the number of editions of the course (specifying both the first as the last).

– The type of qualification granted after training action attendance (professional or industrial qualification, academic or scientific qualification, or both).

– It is also important to know the percentage of trainers/lecturers who comes from the academic sector (public or private higher education establishments awarding academic degrees, public or private non-profit research organisations whose primary mission is to pursue research, and international European interest organisations), or instead, who comes from the non-academic sector and if for their participation to the course takes place a selection process based on the experience.

– The training cost of the course and the possibility to receive scholarships.

– The number of practical training hours.

– The use of tools like theoretical calculations, software tools, research infrastructure, visit to infrastructures, or others.

The partners of STAGE-STE have collaborated in the diffusion of the questionnaire which is presented below:

1. NAME OF THE COURSE/TRAINING ACTION *

_____

WEBSITE

If no specific website is available for the course, please provide the website link of the responsible institution.

_____

2. RESPONSIBLE INSTITUTION *

_____

3. TYPE OF ACTION *

Tick all that apply.

- ☐ Seminar/Workshop
- ☐ Technical training
- ☐ University course
- ☐ Other: _____

4. TARGET AUDIENCE *

Tick all that apply.

- [ ] Industry
- [ ] R&D
- [ ] Students
- [ ] General public
- [ ] Other: _____

4.1. Type of the selected course attendees: minimum level to access the course

Tick all that apply.

- [ ] Bachelor
- [ ] Degree
- [ ] Master
- [ ] Phd degree
- [ ] Other: _____

5. TYPE OF ATTENDANCE *

Tick all that apply.

- [ ] Classroom course
- [ ] Online
- [ ] Mixed

5.1 Venue: (When not online action)
Please precise country and town:

_____

6. DURATION *

_____

7. PERIODICITY *

8. NUMBER OF EDITIONS

8.1 Last edition date

Example: 15 December 2012

8.2 First edition date

Example: 15 December 2012

9. ACCESS TO QUALIFICATION: Type of qualification granted after training attendance *

Tick all that apply.

- [ ] Professional or industrial qualification
- [ ] Academic or scientific qualification
- [ ] Both

10. TRAINERS/LECTURERS

Coming from the academic sector (public or private higher education establishments awarding academic degrees, public or private non-profit research organisations whose primary mission is to pursue research, and international European interest organisations); Please provide %.

Coming from the non-academic sector (any socio-economic actor not included in the academic sector); Please provide %.

Existence of a selection process for the trainers/lecturers based on experience

Mark only one oval.

- ◯ Yes
- ◯ No

11. TRAINING COSTS

Amount (€)

Possibility of scholarships
Mark only one oval.

- ◯ Yes
- ◯ No

12. INCLUSION OF PRACTICAL TRAINING *

Mark only one oval.

- ◯ Yes
- ◯ No

12.1. If yes, please provide the number of hours and type of training:

_____

com/forms/d/1Fc5XhF49fj1QQjnOHk4EEKvr7BYZIY5rElazw4QLNSY/printform

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Questionnaire: Listing of CSP training

12.2. If yes, please specify:

Tick all that apply.

- ☐ Theoretical calculations
- ☐ Use of software tools
- ☐ Use of research infrastructure
- ☐ Visit to infrastructure
- ☐ Other: _____

4. Listing of the training

In relation with the questionnaire mentioned in point 3, 58 replies were received of which 15 of these were out of the topic. The number of replies obtained was below the expectations and it has been then decided to complete the list with information from EU-SOLARIS and SOLAR-CONCENTRA reaching a total of 97 CSP trainings courses.

The completion of the listing was done in relation with EUSOLARIS and SOLAR CONCENTRA:

- SOLAR CONCENTRA (Spanish technology platform for concentrated solar thermal energy), is a forum for active participation that brings the thermoelectric solar sector, and part of it: administrations, knowledge managers and industry.Its objectives: developing the Strategic Research Agenda for the sector and there are 150 members and it is funded by Ministry of research.
- EUSOLARIS, is a European project co-funded by the 7th Framework Programme of the European Union. It aims to create a new legal entity to explore and implement new and improved rules and procedures for research infrastructures (RI) for Solar Thermal Electricty (STE) technology, in order to optimise RI development and RTD coordination. According to what was communicated by ESFRI, EUSOLARIS is expected to be the first of its kind, where industrial needs and private funding will play a significant role.

4.1. CSP trainings in Europe

4.1.1. Cyprus

1. **The Cyprus Institute – CCCI Training programme on Concentrated Solar Energy Systems, Multi-Generation Plants and Further Applications**

- **Responsible institution:** Cyprus Institute, Cyprus Chamber of Commerce and Industry
- **Venue:** Aglantzia, Nicosia, Cyprius
- **Duration:** 2 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, Professionals
- **Periodicity:** Isolated action
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Visit to infrastructure
- **Website:** www.cyi.ac.cy/solarenergyanddesalination-ongoing/item/759-sts-med.html

2. **Master (MSc) in Energy Systems: module on Solar Energy Engineering**

- **Responsible institution:** Cyprus University of Technology (CUT)
- **Venue:** Limassol, Cyprus
- **Duration:** 900 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Type Action:** University course

- **Type of attendance:** Classroom course
- **CSP training duration:** 60 hours
- **Practical Training:** No
- **Website:** http://www.cut.ac.cy/digitalAssets/120/120110_CUT__MSc_in_Energy_Systems__2014-2015__CN_____2014_____Engl.pdf

4.1.2. France

3. EUREC Master Solar Thermal specialization

- **Responsible institution:** University of Perpignan Via Domitia
- **Venue:** Odeillo and Perpignan, France
- **Duration:** 1 semester - 240 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 7800 (european) to 12800 (non-european) €/years
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 120 hours
- **Content of CSP training:**
  1. Fundamentals
     a. Radiative heat transfer
     b. Combined heat and mass transfer
  2. Solar Low Temperature
     a. Solar Collectors theory and technologies
     b. Solar Conversion (solar heating / cooling)
  3. Solar High Temperature
     a. Solar concentrating systems and receiver
     b. Solar Power Plants
     c. Solar Fuel
  4. Thermal Storage
- **Practical Training:** Yes
- **Number of hours and type of training:** 10 hours
- **Advanced tools:** Theoretical calculations, Use of research infrastructure, Visit to infrastructure
- **Website:** http://www.master.eurec.be/en/Partnering-Universities/Spe-Solar-Thermal-Univ-de-Perpignan-France/

4. Energétique Energies Renouvelables

- **Responsible institution:** Polytech' Montpellier
- **Venue:** Perpignan, France
- **Duration:** 3 years
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 700 €/year
- **Possibility of scholarship:** Yes
- **Type Action:** University course

- **Type of attendance:** Classroom course
- **CSP training duration:** 37 hours + 54 hours Thermic / Thermodynamic
- **Content of CSP training:** Exchanger and reactor, Thermique, Thermodynamique, Solar Thermique, Concentrated Solar Thermique
- **Practical Training:** Yes
- **Number of hours and type of training:** 66,5 hours
- **Website:** http://polytech.univ-perp.fr/www/index.php/fr/accueil

5. **Master Energie Solaire**

- **Responsible institution:** University of Perpignan
- **Venue:** Perpignan, France
- **Duration:** 2 years
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 40 €/year
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training, University course
- **Type of attendance:** Classroom course
- **Website:** http://masteres.univ-perp.fr/

6. **EU Renewable Energy Master**

- **Responsible institution:** European Renewable Energy Research Centers (EUREC)
- **Venue:** Perpignan, France
- **Duration:** 1,5 years
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 7800 €/year (EU), 12800€/year (NON-EU)
- **Possibility of scholarship:** No
- **Type Action:** Technical training, University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 240 hours
- **Website:** http://www.eurec.be

7. **Ingénierie physique des énergies**

- **Responsible institution:** Université Paris Diderot
- **Venue:** Paris, France
- **Duration:** 1 year
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 300 €/year
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training, University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 25 hours

- **Content of CSP training:** 1. Introduction about the solar energy
    a. Capacity of the solar radiation in France and worldwide. Introduction about the current techniques and development areas
    b. The portion of solar in the energy production
    c. Solar energy and sustainable development, motivational policies
2. Concentrated solar power
    a. Principle (Electricity and heat production)
    b. Thermodynamics
    c. Optical systems of concentration
    d. Existing power plants and projects in development
    e. Feasibility and interests (technical contraints, optimized production site, grid connexion, etc.)
    f. Visit of the Thémis power plant

Website: http://www.physique.univ-paris-diderot.fr/M2/IPE/accueil.html

8. Mastère spécialisé Energie Renouvelables

- **Responsible institution:** Mines Paristech
- **Venue:** Perpignan, France
- **Duration:** 16 months
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, General public
- **Periodicity:** Every year
- **Cost:** 7800 €/year (EU), 12800€/year (NON-EU)
- **Possibility of scholarship:** No
- **Type Action:** Technical training, University course
- **Type of attendance:** Classroom course
- **Website:** http://www.mines-paristech.fr/Formation/Masteres-Specialises/Masteres-Specialises-temps-plein/ENR/

9. Renewable Energy Science & Technology

- **Responsible institution:** Mine Paristech
- **Venue:** Palaiseau, France
- **Duration:** 2 years
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 6125 €/year
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training, University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 8 hours
- **Content of CSP training:** Concentrated solar power technologies
    o Challenges and Potential of the CSP tehnologies
    o Concentrated sunlight – method to concentrate light and calculation of the temperature reached
    o Storage technologies – heat storage systems
    o Thermodynamic of solar systems – case studies using the computer software introduced in the 2nd and 3rd week
- **Website:** http://www.master-renewable-energy.com/fr/

4.1.3. Germany

10. MSc Course Renewable Energy Management

- **Responsible institution:** Univ. Freiburg, ZEE (Centre for Renewable Energies)
- **Venue:** Freiburg, Germany
- **Duration:** 2 years
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** No
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 40 hours
- **Website:** http://www.zee-uni-freiburg.de/fileadmin/REM/Modulhandbuch_2012_13.pdf

11. Large-Scale Solar Thermal Systems: Design and Installation

- **Responsible institution:** Renewable Academy RENAC
- **Venue:** Berlin, Germany
- **Duration:** 32 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Industry, R&D, Students, General public, Professionals
- **Periodicity:** Every year
- **Cost:** 1 875 €
- **Possibility of scholarship:** No
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **CSP training duration:** 32 hours
- **Practical Training:** Yes
  Advanced tools: Theoretical calculations, Use of software tools
  Website: http://www.renac.de/en/event/seminar/99-large-scale-solar-thermal-systems.html

4.1.4. Italy

12. Renewable Energy and Biofuels L

- **Responsible institution:** Università di Bologna
- **Venue:** Bologna, Italy
- **Duration:** 100 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry
- **Cost:** Yearly university fee - variable value that covers the entire university degree
- **Type Action:** Technical Training
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
  Website: http://www.unibo.it/en/teaching/course-unit-catalogue/course-unit/2011/325241

13. **Renewable Energy Technologies**

- **Responsible institution:** Università degli studi di Cagliari
- **Venue:** Cagliari, Italy
- **Duration:** 1200 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Website:** https://webstudenti.unica.it/esse3/Guide/PaginaADErogata.do;jsessionid=A3194292A160B778384EA194111BFE16?cod_lingua=eng&ad_er_id=2014*N0*N0*S2*18060*18175&ANNO_ACCADEMICO=2014&mostra_percorsi=N

14. **Technology for renewable energy sources**

- **Responsible institution:** Politecnico di Torino
- **Venue:** Torino, Italy
- **Duration:** 81,5 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools, Final project
- **Website:** https://didattica.polito.it/pls/portal30/sviluppo.guide.visualizza?p_cod_ins=01OKDMW&p_a_acc=2014

15. **Primo impianto solare termodinamico per la produzione di calore di processo**

- **Responsible institution:** CSP-F Solar Systems and Solutions
- **Venue:** Oristano, Italy
- **Duration:** 2 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://anest-italia.it/primo-impianto-solare-termodinamico-fresnel-per-lagroalimentare-csp-f-inaugura-il-28-maggio-a-oristano/

16. **STS-MED: Impianti solari a concentrazione multi-generativi**

- **Responsible institution:** ENEA, Consorzio ARCA
- **Venue:** Palermo, Italy
- **Duration:** 18 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry
- **Periodicity:** Isolated action
- **Cost:** 0 €
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://anest-italia.it/wp-content/uploads/2015/05/Invito_e_presentazione_corso_STS-Med_1.pdf

17. **Molten Salt Systems: Collector Loop, Thermal Storage and Heat Transfer Fluids**

- **Responsible institution:** ENEA, SFERA II
- **Venue:** Rome, Italy
- **Duration:** 5 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry
- **Periodicity:** Isolated action
- **Cost:** 0 €

- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Website:** http://www.ctaer.com/es/comunicacion/destacados/curso-formacion-para-profesionales-energ-solar-concentraci-n

4.1.5. Portugal

18. **Energia Solar Térmica**

- **Responsible institution:** Faculdade de Ciências da Universidade de Lisboa
- **Venue:** Lisboa, Portugal
- **Duration:** 3 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** Yearly university fee - variable value that covers the entire university degree
- **Possibility of scholarship:**
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course

19. **Renewable Energy Engineering**

- **Responsible institution:** Universidade de Évora
- **Venue:** Évora, Portugal
- **Duration:** 3 years
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 1037 €/year
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 156 hours
- **Website:** http://www.estudar.uevora.pt/Oferta/licenciaturas/curso/%28codigo%29/175

20. **Master in Solar Energy Engineering**

- **Responsible institution:** Universidade de Évora
- **Venue:** Évora, Portugal
- **Duration:** 2 years
- **Qualification granted:** Academic or scientific qualification

- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 1608 €
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 156 hours
- **Website:** http://www.estudar.uevora.pt/Oferta/mestrados/curso/%28codigo%29/442

21. Doctoral Program in Mecatronics and Energy Engineering

- **Responsible institution:** Universidade de Évora
- **Venue:** Évora, Portugal
- **Duration:** 4 years
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 4000 €
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Website:** http://www.estudar.uevora.pt/Oferta/doutoramentos/curso/%28codigo%29/456

4.1.6. Spain

22. eM-Internship (ENERMENA)

- **Responsible institution:** Deutsches Zentrum für Luft- und Raumfahrt
- **Venue:** Almeria, Spain
- **Duration:** 2 weeks
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Number of hours and type of training:** half day practical exercises on research infrastructure
- **Advanced tools:** Theoretical calculations, Use of software tools, Use of research infrastructure
- **Website:** http://www.dlr.de/sf/desktopdefault.aspx/tabid-8679/14930_read-37140/

23. Máster en Energías Renovables y Mercado Energético

- **Responsible institution:** EOI Escuela de Organización Industrial (www.eoi.es)
- **Venue:** Madrid, Spain
- **Duration:** 700 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, Students
- **Periodicity:** Every year
- **Cost:** 14 070 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Number of hours and type of training:** 30-40%
- **Advanced tools:** Use of software tools, Visit to infrastructure, Real practical cases, Final project
- **Website:** http://www.eoi.es/portal/guest/curso/42/medio-ambiente/master-en-energias-renovables-y-mercado-energetico-merme-madrid?EOI_tipoPagina=1

24. Master Executive en Energías Renovables on line

- **Responsible institution:** EOI Escuela de Organización Industrial (www.eoi.es)
- **Venue:** Madrid, Spain
- **Duration:** 650 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, Professionals
- **Periodicity:** Every year
- **Cost:** 9 000 €
- **Possibility of scholarship:** Yes

- **Type Action:** Other
- **Type of attendance:** Classroom course, Online
- **CSP training duration:** 32 hours
- **Practical Training:** Yes
- **Number of hours and type of training:** 30-40%
- **Advanced tools:** Use of software tools, Visit to infrastructure, Real practical cases, Final project
- **Website:** http://www.eoi.es/portal/guest/curso/195/master-executive-en-energias-renovables-on-line?EOI_tipoPagina=1

25. Sistemas Solares Térmicos de Concentración

- **Responsible institution:** CIEMAT
- **Venue:** Madrid, Spain
- **Duration:** 2 weeks
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, R&D, Students
- **Periodicity:** Every year
- **Cost:** 950 €
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Website:** http://www.energiasrenovables.ciemat.es/index.php?pid=4000&id_seccion=&tipo=cursos&id=1097

26. Solar Thermal Power Plants

- **Responsible institution:** SIALSOL TU ENERGÍA SOLAR, S.L
- **Venue:** Granada, Spain
- **Duration:** 1 week
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Isolated action
- **Cost:** 990 €
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **CSP training duration:** 32 hours
- **Website:** http://www.protermosolar.com/docs/programa_sialsol.pdf

27. Informative Workshop on CSP

- **Responsible institution:** ABENGOA Solar
- **Venue:** Albacete, Spain
- **Duration:** 1 day
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Isolated action
- **Cost:** 0 €
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **CSP training duration:** 1 day

- **Website:** www.helionoticias.es/noticia.php?id_not=1383

28. Grado en Ingeniería energética

- **Responsible institution:** Universidad de Huelva
- **Venue:** Huelva, Spain
- **Duration:** 2400 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 3 300 €
- **Possibility of scholarship:** Yes
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** Less than 60 hours
- **Practical Training:** Yes
- **Website:** http://www.uhu.es/eps/titulaciones/grados/grad_energetica.php#

29. Grado en Ingeniería de la Energía

- **Responsible institution:** Universidad de Malaga
- **Venue:** Malaga, Spain
- **Duration:** 2400 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 3 300 €
- **Possibility of scholarship:** Yes
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** 60 hours
- **Practical Training:** Yes
- **Website:** hhttps://oas.sci.uma.es:8443/pls/apex/f?p=101:1:2952678726997176::NO::INICIO_LOV_TIPO_ESTUDIO,INICIO_LOV_CURSO_ACAD,INICIO_LOV_CENTROS,INICIO_LOV_TITULACIONES,INICIO_LOV_CICLOS,INICIO_LOV_CURSOS,INICIO_BUSCAR:3,2014,308,5158,1,-1,

30. Grado en Ingenieria de la Energia

- **Responsible institution:** Universidad de Sevilla
- **Venue:** Seville, Spain
- **Duration:** 2490 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 3 300 €
- **Possibility of scholarship:** Yes
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** 165 hours
- **Practical Training:** Yes
- **Website:** http://www.us.es/estudios/grados/plan_221?p=7

31. Master thermoelectric generation, zero emission technologies

- **Responsible institution:** Universidad de Zaragoza
- **Venue:** Blended, Spain
- **Duration:** 1 year
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 3 940 €
- **Possibility of scholarship:** Yes
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** 600 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://wzar.unizar.es/servicios/ingles/estud/propi/progr.htm

32. Sistemas Solares Térmicos y Termoeléctricos

- **Responsible institution:** Universidad Rovira I Virgili, Fundacion URV Tarragona
- **Venue:** Tarragona, Spain
- **Duration:** 240 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 1 200 €
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 45 hours
- **Website:** http://www.fundacio.urv.cat/pdf_cursos/CSSTTEN-I1-2012-1-CAS.pdf

33. Master Universitario en Energias Renovables

- **Responsible institution:** Proy3cta, Centro Superior de Edificación, Arquitectura e Ingenieria. Universidad Europea de Madrid
- **Venue:** Madrid, Spain
- **Duration:** 1500 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Periodicity:** Every year
- **Cost:** 12 900 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Type of attendance:** Classroom course
- **CSP training duration:** 60 hours
- **Practical Training:** Yes
- **Website:** http://madrid.universidadeuropea.es/estudios-universitarios/master-universitario-en-energias-renovables

34. Master Universitario en Energias Renovables

- **Responsible institution:** Proy3cta, Centro Superior de Edificación, Arquitectura e Ingenieria. Universidad Europea de Madrid
- **Venue:** Madrid, Spain
- **Duration:** 1500 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, General public
- **Periodicity:** Every year
- **Cost:** 12 900 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Type of attendance:** Classroom course, Online
- **CSP training duration:** 80 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Final project
- **Website:** http://madrid.universidadeuropea.es/estudios-universitarios/master-universitario-en-energias-renovables

35. Master en Sistemas de Energía Térmica

- **Responsible institution:** Universidad de Sevilla
- **Venue:** Seville, Spain
- **Duration:** 2250 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Periodicity:** Every year
- **Cost:** 2 700 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Type of attendance:** Classroom course, Online
- **CSP training duration:** 100 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Final project
- **Website:** http://www.etsi.us.es/postgrado/master/termica

36. Master on-line de Generación Termoelectrica, Tecnologías de Cero Emisiones

- **Responsible institution:** Universidad de Zaragoza
- **Venue:** Casablanca, Spain
- **Duration:** 600 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Periodicity:** Every year
- **Cost:** 3 940 €
- **Possibility of scholarship:** Yes
- **Type Action:** University Course
- **Type of attendance:** Classroom course, Online
- **CSP training duration:** 75 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Final project

- **Website:** http://www.fcirce.es/masters/generacion-grandes-instalaciones.aspx

37. Curso de postgrado en Energias Renovables

- **Responsible institution:** Universidad de Barcelona. IUSC, Estudios Superiores presenciales y a distancia
- **Venue:** Barcelona, Spain
- **Duration:** 900 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Cost:** 3 490 €
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** 70 hours
- **Practical Training:** Yes
- **Website:** http://www.iusc.es/programas?progid=552

38. Curso Director de Obra

- **Responsible institution:** Renovetec, Renove Tecnología SL Madrid
- **Venue:** Seville, Spain
- **Duration:** 112 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 4 088 €
- **Type Action:** Other
- **Type of attendance:** Classroom course
- **CSP training duration:** 112 hours
- **Website:** http://www.renovetec.com/

4.1.7. Sweden

39. ME3: Management and Engineering of Environment and Energy

- **Responsible institution:** Erasmus Mundus
  KTH Royal Institute of Technology
- **Venue:** Stockholm, Sweden
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 9000 €/year
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.emn.fr/z-de/me3-site/index.php/course-content/energy

40. Solar Energy Engineering

- **Responsible institution:** Dalarna University
- **Venue:** Borlängue, Sweeden

- **Duration:** 2 years
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** General public
- **Periodicity:** Every year
- **Cost:** 11000 SEK *EU/EEA Citizens or exchange students are not required to pay fees.
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 50 hours
- **Content of CSP training:** Concentrating solar collectors of various kinds and their theoretical models are studied along with their use in various applications for solar thermal power: power tower, trough, Fresnel reflectors, big dish and dish stirling systems. Power cycles and high-temperature heat storage are discussed as necessary components of a complete solar power system.
  Hybrid systems with e.g. desalination are studied and analyzed with simulation software. The current situation in the world for solar thermal power (research and market) will be studied and factors affecting the viability of solar thermal power are taken up and discussed.
  A case study is conducted as a homework assignment (project work) where students will have to formulate objectives and plan work. Goals and planning are discussed in a seminar and the results in another and the whole project will be described and analyzed in a written report.
- **Website:** http://www.du.se/en/Study-at-DU/Courses-A-O/Syllabus/?kod=M%C3%964004

4.1.8. Swizerland

41. Integrated approaches to energy systems

- **Responsible institution:** EPFL
- **Venue:** Lausanne, Switzerland
- **Duration:** 2 weeks full time
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students, R&D, Industry
- **Cost:** 1 250 €
- **Possibility of scholarship:** Yes
- **Type Action:** Winterschool
- **Type of attendance:** Mixed
- **CSP training duration:** 2 hours
- **Content of CSP training:** Solar concentrating technologies, components (mirrors, receiver, power cycles), characterization/perfomance, challengues and opportunities, comparison to other (renewable) technologies
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://eurotech.epfl.ch/

42. Emerging Renewable Power

- **Responsible institution:** EPFL
- **Venue:** Lausanne, Switzerland
- **Duration:** 14 weeks a 3 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students

- **Cost:** 0 €
- **Possibility of scholarship:** No
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 3 hours
- **Content of CSP training:** Solar concentrating technologies, components (mirrors, receiver, power cycles), characterization/perfomance, challengues and opportunities, comparison to other (renewable) technologies
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations
- **Website:** **http://edu.epfl.ch/coursebook/en/emerging-renewable-power-EE-480**

43. Renewable Energy Technologies

- **Responsible institution:** ETH Zurich
- **Venue:** ETH Zurich
- **Duration:** 6 weeks
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Cost:** 0 €
- **Possibility of scholarship:** No
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Content of CSP training:**

  CSP module :

  1. Principles of solar irradiation
  2. Concentrated solar optics
  3. Concentrated solar power
  4. Thermal storage
  5. Solar fuels

- **Practical Training:** No
- **Website:** **http://www.vvz.ethz.ch/Vorlesungsverzeichnis/lerneinheitPre.do**

44. Energy Systems & Power Engineering

- **Responsible institution:** ETH Zurich
- **Venue:** ETH Zurich
- **Duration:** 6 weeks
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Possibility of scholarship:** No
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Content of CSP training:**

  Introductory first course for the specialization in ENERGY. The course provides an overall view of the energy field and pertinent global problems, reviews some of the thermodynamic basics in energy conversion, and presents the state-of-the-art technology for power generation and fuel processing.

- **Practical Training:** No
- **Website:** **http://www.vvz.ethz.ch/Vorlesungsverzeichnis/lerneinheitPre.do**

4.1.9. United Kingdom

45. Concentrating Solar Power (CSP)

- **Responsible institution:** Cranfield University
- **Venue:** Cranfield, United Kingdom
- **Duration:** 3 days
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Scientists, engineers, managers, technologists, and postgraduate researchers from the energy sector
- **Periodicity:** Isolated action
- **Cost:** £ 900
- **Type Action:** University Course
- **Type of attendance:** Classroom course
- **CSP training duration:** 13,25 hours
- **Practical Training:** Yes
- **Number of hours and type of training:** 3 hours . Parabolic trough collector characterization
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.cranfield.ac.uk/courses/training/concentrating-solar-power-csp.html

4.1.10. Other

46. SFERA Summer School

- **Responsible institution:** CNRS (Sollab)
- **Duration:** 2-3 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Professionals
- **Periodicity:** Every year
- **Cost:** registration fees will vary depending on the type of registration
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **CSP training duration:** 6,25 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://sfera.sollab.eu/downloads/Schools/Schedule_2013.pdf

4.2. CSP trainings worldwide

4.2.1. Argentina

47. Enegía Solar II

- **Responsible institution:** Universidad Nacional de Salta
- **Venue:** Salta - Argentina
- **Duration:** 40 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, R&D, Students
- **Periodicity:** 2 years
- **Cost:** 100 €
- **Possibility of scholarship:** No
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 8 hours
- **Practical Training:** Yes
- **Number of hours and type of training:** 6 hours concentrators design
- **Advanced tools:** Use of software tools, Use of research infrastructure, Visit to infrastructure
- **Website:** http://exactas.unsa.edu.ar/web2/

4.2.2. Chile

48. Diplomado Energía

- **Responsible institution:** Universidad de Antofagasta
- **Venue:** Antofagasta, Chile
- **Duration:** 160 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, Students
- **Periodicity:** Semestral
- **Cost:** 1 300 €
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
- **Website:** www.mdeua.cl

49. Magister Desarrollo Energético

- **Responsible institution:** Universidad de Antofagasta
- **Venue:** Antofagasta, Chile
- **Duration:** 960 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Industry, R&D, Students
- **Periodicity:** Every year
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
- **Website:** http://www.uantof.cl/pages/carreras/mgr_desarrollo_energetico.php?parametro=carrera

4.2.3. Egypt

50. Solar Energy Devices

- **Responsible institution:** Faculty of Engineering, Cairo University
- **Venue:** Cairo, Egypt
- **Duration:** 150 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 20 hours
- **Practical Training:** No
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.uni-kassel.de/eecs/remena/modules/elective-modules/solar-energy-devices.html

51. Development of Renewable Energy Projects

- **Responsible institution:** Faculty of Engineering, Cairo University
- **Venue:** Faculty of Engineering, Cairo University
- **Duration:** 125 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes

- **Website:** http://www.uni-kassel.de/eecs/remena/modules/elective-modules/development-of-renewable-energy-projects.html

52. Concentrating Solar Multi-Generation Plants

- **Responsible institution:** Academy of scientific research and technology
- **Venue:** Cairo, Egypt
- **Duration:** 5 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D, Students
- **Cost:** 10 €
- **Possibility of scholarship:** No
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of research infrastructure, Visit to infrastructure
- **Website:** http://www.eurosunmed.eu/sites/default/files/documents/invitation_letter_technician.pdf

53. STS-MED project: Training Program for Profesional Concentrating Solar Multi-Generation Plants

- **Responsible institution:** Academy of Scientific Research and Technology
- **Venue:** Sharkeyah, Egypt
- **Duration:** 4 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry
- **Periodicity:** Isolated action
- **Cost:** 0 €
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **CSP training duration:** 32 hours
- **Practical Training:** No
- **Website:** http://www.asrt.sci.eg/

54. eM-Project (ENERMENA)

- **Responsible institution:** Deutsches Zentrum für Luft- und Raumfahrt
- **Venue:** Cairo, Egypt
- **Duration:** 4 days - 24 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training
- **Type of attendance:** Classroom course

- **CSP training duration:** 7.25 hours
- **Practical Training:** Yes
- **Number of hours and type of training:** practical exercises with computer based project planning program 8 hours and visit infrastructure min. 2 hours
- **Advanced tools:** Use of software tools, Visit to infrastructure
- **Website:** http://www.dlr.de/sf/Portaldata/73/Resources/dokumente/qualifizierung/enermena_0613/module_ii/eM-Project-01_Program.pdf

4.2.4. Israel

55. Solar Energy

- **Responsible institution:** Tel Aviv University
- **Venue:** Tel Aviv, Israel
- **Duration:** Semester
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** 2 years
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://www.eng.tau.ac.il/index.php?option=com_content&view=article&id=230&catid=36&language=en-GB&Itemid=393

4.2.5. Jordan

56. Design and Modeling of Multi-Generation Concentrated Solar Plants

- **Responsible institution:** Al-Balqa Applied University
- **Venue:** Jordan
- **Duration:** 3 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D, Students
- **Periodicity:** Isolated action
- **Cost:** 500 Euro/person
- **Type Action:** Technical training
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://www.ccci.org.cy/wp-content/uploads/2014/09/Newsletter-N7-STS-Med.pdf

57. CSP technology

- **Responsible institution:** JUST, GJU
- **Venue:** Irbid (JUST) and Madaba (GJU), Jordan
- **Duration:** One semester (4 months)
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Industry, Students
- **Periodicity:** Every year
- **Cost:** 3 credit hours course (180-540)
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://www.mansur-energy.eu/second.php

4.2.6. México

58. Postgraduate Programme on Energy

- **Responsible institution:** Renewable Energy Institute UNAM
- **Venue:** At IER's UNAM facilities in Temixco, Mor. Mexico
- **Duration:** 2 years (Master) 4 years (PhD)
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Number of hours and type of training:** 1 year (master) 2+ years (phd)
- **Advanced tools:** Theoretical calculations, Use of software tools, Use of research infrastructure
- **Website:** http://xml.cie.unam.mx/xml/docencia/posg_ing/maestria.xml

4.2.7. Morocco

59. Solar Energy

- **Responsible institution:** Cadi Ayyad University
- **Venue:** Morocco, Marrakesh
- **Duration:** 6 months
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Type Action:** University course
- **Type of attendance:** Classroom course

4.2.8. Saudi Arabia

60. Solar Energy

- **Responsible institution:** King Saud University
- **Venue:** Riyadh, Saudi Arabia
- **Duration:** One semester (15 weeks)
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Twice a year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://fac.ksu.edu.sa/hansary/course/67113

4.2.9. South Africa

61. Thermal Energy Systems

- **Responsible institution:** Department of Mechanical and Mechatronic Engineering, Stellenbosch University (STERG)
- **Venue:** Stellenbosch, South Africa
- **Duration:** 6 days
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
- **Website:** http://crses.sun.ac.za/files/studies/short-courses/2015/Thermal%20energy%20systems%20Course%20Brochure%202015.pdf

62. Renewable Energy Systems

- **Responsible institution:** Centre for Renewable and Sustainable Energy Studies
- **Venue:** Stellenbosch, South Africa
- **Duration:** 5 days
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Industry, R&D, Students, General public
- **Periodicity:** Every year
- **Cost:** 750 €
- **Possibility of scholarship:** Yes
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** Yes

- **Advanced tools:** Theoretical calculations, Use of software tools, Tutorials
- **Website:** http://crses.sun.ac.za/files/studies/short-courses/2015/Renewable%20Energy%20Systems%20Course%20Brochure%202015.pdf

4.2.10. Turkey

63. ME 514

- **Responsible institution:** METU
- **Venue:** Ankara, Turkey
- **Duration:** 1-semester (14 weeks)
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** Part of tuition
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 30 hours
- **Practical Training:** No
- **Advanced tools:** Theoretical calculations
- **Website:** http://www.me.metu.edu.tr/meweb/index.php?sec=courses&page=graduate&lan=en

4.2.11. United Arab Emirated

64. Desalination Sustainability

- **Responsible institution:** Masdar Institute
- **Venue:** Abu Dhabi, United Arab Emirates
- **Duration:** 1 week
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Industry, R&D, Students
- **Periodicity:** Every year
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://masdar.ae/en/media/detail/masdar-launches-renewable-energy-desalination-program

4.2.12. Other

65. REMENA: Renewable Energy and Energy Efficiency for the MENA Region

- **Responsible institution:** The University of Kassel and the Cairo University
- **Venue:** Kassel (Germany) and Cairo (Egypt)
- **Duration:** 21 months divided into three semesters of 6, 6 and 9 months respectively
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students, General public
- **Periodicity:** Every year
- **Cost:** 10 000 €
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 30 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** www.uni-kassel.de/eecs/remena

66. eM-Expert (ENERMENA)

- **Responsible institution:** Deutsches Zentrum für Luft- und Raumfahrt
- **Venue:** Almeria, Spain or North-African and Arabian Countries
- **Duration:** 5 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **CSP training duration:** 19 hours
- **Practical Training:** No
- **Website:** http://www.dlr.de/sf/en/Portaldata/73/Resources/dokumente/qualifizierung/enermena_0613/module_ii/eM-Expert-03_CSP_Wind_Training_Program.pdf

67. eM-CB (ENERMENA)

- **Responsible institution:** Deutsches Zentrum für Luft- und Raumfahrt
- **Venue:** Almeria, Spain or North African and Arabian Countries
- **Duration:** 4 weeks or 1 week on demand
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training

- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Number of hours and type of training:** minimum 50 percent of the course are practical training on research infrastructure
- **Advanced tools:** Use of software tools, Use of research infrastructure
- **Website:** http://www.dlr.de/sf/desktopdefault.aspx/tabid-8679/14930_read-37135/

68. eM-University (ENERMENA)

- **Responsible institution:** Deutsches Zentrum für Luft- und Raumfahrt
- **Venue:** North African and Arabian Countries
- **Duration:** 2 days
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Professionals (University Professors of North African and Arabian Countries)
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **Practical Training:** No
- **Website:** http://www.dlr.de/sf/desktopdefault.aspx/tabid-8679/14930_read-37139/

69. The Green Power Mini MBA

- **Responsible institution:** Green Power Academy
- **Venue:** Cape Town, Mexico city, London, Ssantiago, San Francisco
- **Duration:** 5 days
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry
- **Periodicity:** Every year
- **Cost:** 4299 to 6499 USD
- **Type Action:** Seminar/Workshop
- **Type of attendance:** Classroom course
- **CSP training duration:** Less than 1 day
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** www.greenpoweracademy.com/product/details/9/the-renewable-energy-mini-mba#.VNymI_mG_d0

70 MSc Renewable Energy - RENE

- **Responsible institution:** KIC Innoenergy
- **Venue:** Universities associated with KIC Innoenergy
- **Duration:** 1200 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €/years EU students
8.000 €/year Non-EU students
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **CSP training duration:** 175 hours
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://kic.upc.edu/training/msc-rene/Syllabus-and-Content/upc

71. MSc Environomical Pathways for Sustainable Energy System (SELECT)

- **Responsible institution:** KIC Innoenergy
- **Venue:** Universities associated with KIC Innoenergy
- **Duration:** 1200 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €/years EU students, 8 000 €/year Non-EU students
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.kic-innoenergy.com/education/master-school/msc-select-environomical-pathways-for-sustainable-energy-system/courses-and-syllabus/

72. MSc Energy Technologies (ENTECH)

- **Responsible institution:** KIC Innoenergy
- **Venue:** Universities associated to KIC Innoenergy
- **Duration:** 1200 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €/years EU students, 8 000 €/year Non-EU students
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course

- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.kic-innoenergy.com/education/master-school/msc-energy-technologies-entech/courses-and-syllabus/

73. SENSE: Smart Electrical Networks and Systems

- **Responsible institution:** KIC Innoenergy
- **Venue:** Universities associated with KIC Innoenergy
- **Duration:** 1200 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Every year
- **Cost:** 0 €/years EU students, 8 000 €/year Non-EU students
- **Possibility of scholarship:** Yes
- **Type Action:** University course
- **Type of attendance:** Classroom course
- **Practical Training:** Yes
- **Advanced tools:** Theoretical calculations, Use of software tools
- **Website:** http://www.kic-innoenergy.com/education/master-school/msc-sense-smart-electrical-networks-and-systems/courses-and-syllabus-2/

74. Understanding Concentrated Solar Power (CSP)

- **Responsible institution:** Green Power Academy
- **Duration:** 2 days
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry
- **Periodicity:** On demand
- **Type Action:** Other
- **Type of attendance:** Classroom course
- **CSP training duration:** 2 days
- **Practical Training:** Yes
- **Website:** http://www.greenpoweracademy.com/product/details/28/understanding-concentrated-solar-power-csp#course-agenda

4.3. Online CSP trainings

75. Training course on CSP

- **Responsible institution:** SIALSOL TU ENERGÍA SOLAR, S.L
- **Venue:** Granada (Spain)
- **Duration:** 5 days
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Periodicity:** Isolated action
- **Cost:** 990 €
- **Type Action:** Technical training
- **Practical Training:** Yes
- **Website:** http://www.sialsol.es/docs/2S%C3%ADlabo%20curso%20online%20de%20Plantas%20Termosolares.%20Tecnolog%C3%ADa%20CCP.pdf

76. Integration of Large Amounts of Renewable Energy in Grids (ReGrid) the Electricity Grids

- **Responsible institution:** Renewable Academy RENAC
- **Duration:** 60 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, R&D, Students, General public, Professionals
- **Periodicity:** Every year
- **Cost:** 0 €
- **Possibility of scholarship:** Yes
- **Type Action:** Technical training
- **Practical Training:** Yes
- **Website:** http://www.renac.de/fileadmin/user_upload/Download/Projects/ReGrid/Advanced_Online_Seminar/InfoReGrid-CRGM-Summary-EN-v3.pdf

77. Solar Thermal Power Plants implementing Parabolic Trough Collectors

- **Responsible institution:** Sialsol s.l
- **Duration:** 2,5 months
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Students
- **Cost:** 400 USD
- **Type Action:** Technical training
- **Website:** https://imaginariohumano.wordpress.com/category/sin-categoria/page/81/

78. General Technical Course on Thermosolar Plants

- **Responsible institution:** RENOVETEC
- **Duration:** 16 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Industry, Professionals
- **Cost:** 295 €
- **Type Action:** Technical training
- **CSP training duration:** 16 hours
- **Website:** http://renovetec.com/130-curso-de-centrales-termosolares

79. Master en Energia Solar Termoelectrica

- **Responsible institution:** Acedis Formacion
- **Duration:** 600 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Periodicity:** Open
- **Cost:** 1 150,00 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Practical Training:** No
- **Website:** http://www.acedis.com/Master-Profesional-en-Energia-Solar-Termoelectrica-1_1_73.html

80. Master en Energía Solar Termoelectrica

- **Responsible institution:** Enfoc, Escuela de Negocios y Formacion Continua
- **Duration:** 900h hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Periodicity:** Open
- **Cost:** 1 895,00 €
- **Possibility of scholarship:** Yes
- **Type Action:** Other
- **Practical Training:** No
- **Website:** http://enfocproyectos.com/master-en-energia-solar-termoelectrica.php

81. Master en Energía Solar Termoelectrica

- **Responsible institution:** TrainingQuality
- **Duration:** 600 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals

- **Cost:** 1 150,00 €
- **Type Action:** Other
- **CSP training duration:** 600 hours
- **Practical Training:** No
- **Advanced tools:** Theoretical calculations
- **Website:** http://es.campuseduca.net/master-energia-solar-termoelectrica/

82. Curso en Energia Solar Termoelectrica

- **Responsible institution:** Acedis Formacion
- **Duration:** 100 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Cost:** 195,00 €
- **Type Action:** Other
- **CSP training duration:** 100 hours
- **Website:** http://www.acedis.com/Curso-de-Energia-Solar-Termoelectrica-1_1_31.html

83. Curso Tecnico de Cálculo, Diseño y Simulación de Plantas Solares Termoeléctricas

- **Responsible institution:** Acedis Formacion
- **Duration:** 300 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 495,00 €
- **Type Action:** Other
- **CSP training duration:** 300 hours
- **Advanced tools:** Use of software tools
- **Website:** http://www.acedis.com/Curso-Tecnico-de-Calculo-Diseno-y-Simulacion-de-Plantas-Solares-Termoelectricas-1_1_75.html

84. Curso Tecnico de Instalación y Mantenimiento de Plantas Solares Termoeléctricas

- **Responsible institution:** Acedis Formacion
- **Duration:** 250 hours
- **Qualification granted:** Professional or industrial qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 495,00 €
- **Type Action:** Other
- **CSP training duration:** 250 hours
- **Website:** http://www.acedis.com/Curso-Tecnico-de-Instalacion-y-Mantenimiento-de-Plantas-Solares-Termoelectricas-1_1_74.html

85. Curso Energía Solar Termica

- **Responsible institution:** ADR Formacion
- **Duration:** 40 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students
- **Cost:** 200 € (with tutor), 100 € (without tutor)
- **Type Action:** Other
- **CSP training duration:** 30 hours
- **Website:** http://www.adrformacion.com/cursos/solarter/leccion1/tutorial5.html

86. Curso Técnico Superior de Diseño, Construcción y Explotación de Centrales Solares Termoeléctricas

- **Responsible institution:** AECED, Centro Enseñanza a Distancia
- **Duration:** 300 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 240,00 €
- **Type Action:** Other
- **CSP training duration:** 200 hours
- **Website:** http://www.emagister.com/tecnico-superior-diseno-construccion-explotacion-centrales-solares-termoelectricas-cursos-2859290.htm

87. Curso de Calculo, Diseño y Simulación de Plantas Solares Termoeléctricas

- **Responsible institution:** AULA 7 Formación
- **Duration:** 250 hours
- **Qualification granted:** Academic or scientific qualification
- **Target audience:** Students, Industry
- **Cost:** 450,00 €
- **Type Action:** Other
- **CSP training duration:** 250 hours

88. Curso de Tecnico de Instalación y Mantenimiento de Energía Solar Termoelectrica

- **Responsible institution:** AULA 7 Formación
- **Duration:** 250 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 450,00 €
- **Type Action:** Other
- **CSP training duration:** 250 hours

89. **Curso de Tecnico Superior de diseño, construccion y explotación de centrales solares termoelectricas**

- **Responsible institution:** Euroinnova
- **Duration:** 300 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 300,00 €
- **Type Action:** Other
- **CSP training duration:** 200 hours
- **Website:** http://www.euroinnova.edu.es/Curso-Centrales-Solares-Termoelectricas#contenidoTemario-tab

90. **Curso de Campo Solar**

- **Responsible institution:** Renovetec, Renove Tecnología SL Madrid
- **Duration:** 50 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 295,00 €
- **Type Action:** Other
- **CSP training duration:** 50 hours
- **Website:** http://www.renovetec.com/

91. **Curso de ciclo de agua-vapor en centrales termosolares**

- **Responsible institution:** Renovetec, Renove Tecnología SL Madrid
- **Duration:** 50 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 295,00 €
- **Type Action:** Other
- **CSP training duration:** 50 hours
- **Website:** http://www.renovetec.com/

92. **Curso del sistema HTF**

- **Responsible institution:** Renovetec, Renove Tecnología SL Madrid
- **Duration:** 50 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 295,00 €
- **Type Action:** Other
- **CSP training duration:** 50 hours
- **Website:** http://www.renovetec.com/

93. **Curso Director de Obra**

- **Responsible institution:** Renovetec, Renove Tecnología SL Madrid
- **Duration:** 300 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 1 350,00 €
- **Type Action:** Other
- **CSP training duration:** 300 hours
- **Website:** http://www.renovetec.com/

94. **Curso Tecnico de Instalación y Mantenimiento de Plantas Solares Termoeléctricas**

- **Responsible institution:** TrainingQuality
- **Duration:** 250 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 495,00 €
- **Type Action:** Other
- **CSP training duration:** 250 hours
- **Website:** http://www.trainingquality.es/

95. **Curso de Energía Solar Termoeléctrica**

- **Responsible institution:** TrainingQuality
- **Duration:** 100 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 195,00 €
- **Type Action:** Other
- **CSP training duration:** 100 hours
- **Website:** http://www.trainingquality.es/

96. **Curso Instalacion y Mantenimiento de Energía Solar Termoelectrica**

- **Responsible institution:** TrainingQuality
- **Duration:** 250 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 495,00 €
- **Type Action:** Other
- **CSP training duration:** 250 hours
- **Website:** http://www.trainingquality.es/

97. Curso Tecnico de Cálculo, Diseño y Simulación de Plantas Solares Termoeléctricas

- **Responsible institution:** TrainingQuality
- **Duration:** 300 hours
- **Qualification granted:** Professional or industrial qualification, Academic or scientific qualification
- **Target audience:** Students, Industry, Professionals
- **Cost:** 495,00 €
- **Type Action:** Other
- **CSP training duration:** 300 hours
- **Website:** http://www.trainingquality.es/

5. ANNEX I

Country	Institution Responsible	Name Course	Type Action	Audience	Attendance	Venue	Duration	Practical Training	Advanced tools
COURSES TAUGHT IN ONE COUNTRY									
Argentina	Universidad Nacional de Salta	Enegía Solar II	University course	Industry, R&D, Students	Classroom course	Salta - Argentina	40 hours	Yes	Use of software tools, Use of research infrastructure, Visit to infrastructure
Chile	Universidad de Antofagasta	Diplomado Energía	University course	Industry, Students	Classroom course	Chile, Antofagasta	160 hours	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
	Universidad de Antofagasta	Magister Desarrollo Energético	University course	Industry, R&D, Students	Classroom course	Chile, Antofagasta	960 hours	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
Cyprus	Cyprus Institute, Cyprus Chamber of Commerce and Industry	The Cyprus Institute – CCCI Training programme on Concentrated Solar Energy Systems, Multi-Generation Plants and Further Applications	Seminar/Workshop	Industry, Professionals	Classroom course	Cyprus Institute	2 days	Yes	Visit to infrastructure
	Cyprus University of Technology (CUT)	Master (MSc) in Energy Systems: module on Solar Energy Engineering	University course	Students	Classroom course	Limassol, Cyprus	900 hours	No	
Egypt	Faculty of Engineering, Cairo University	Solar Energy Devices	University course	Students	Classroom course	Faculty of Engineering, Cairo University	150 hours	No	Theoretical calculations, Use of software tools
	Faculty of Engineering, Cairo University	Development of Renewable Energy Projects	University course	Students	Classroom course	Faculty of Engineering, Cairo University	125 hours	Yes	
	Academy of scientific research and technology	Concentrating Solar Multi-Generation Plants	Technical training	Industry, R&D, Students	Classroom course	Cairo, Egypt	5 days	Yes	Theoretical calculations, Use of research infrastructure, Visit to infrastructure

	Academy of Scientific Research and Technology	STS-MED project: Training Program for Profesional Concentrating Solar Multi-Generation Plants	Seminar/Workshop	Industry	Classroom course	Higher technical institute in 10th of Ramadan, Sharkeyah, Egypt	4 days	No	
	Deutsches Zentrum für Luft- und Raumfahrt	eM-Project (ENERMENA)	Technical training	Industry, R&D	Classroom course	Cairo, Egypt	4 days - 24 hours	Yes	Use of software tools, Visit to infrastructure
France	University of Perpignan Via Domitia	EUREC Master Solar Thermal specialization	University course	Students	Classroom course	Odeillo and Perpignan, France	1 semester - 240 hours	Yes	Theoretical calculations, Use of research infrastructure, Visit to infrastructure
	Polytech' Montpellier	Energétique Energies Renouvelables	University course	General public	Classroom course	Perpignan, France	3 years		
	University of Perpignan	Master Energie Solaire	Technical training, University course	General public	Classroom course	Perpignan, France	2 years		
	European Renewable Energy Research Centers (EUREC)	EU Renewable Energy Master	Technical training, University course	General public	Classroom course	Perpignan, France	1,5 years		
	Université Paris Diderot	Ingénierie physique des énergies	Technical training, University course	General public	Classroom course	Paris, France	1 year		
	Mines Paristech	Mastère spécialisé Energie Renouvelables	Technical training, University course	Industry, General public	Classroom course	Perpignan, France	16 months		

	Mine Paristech	Renewable Energy Science & Technology	Technical training, University course	General public	Classroom course	Palaiseau, France	2 years		
Germany	Univ. Freiburg, ZEE (Centre for Renewable Energies)	MSc Course Renewable Energy Management	University course	Students	Classroom course	Freiburg, Germany	2 years		
	Renewable Academy RENAC	Large-Scale Solar Thermal Systems: Design and Installation	Technical training	Industry, R&D, Students, General public, Professionals	Classroom course	Berlin, Germany	32 hours	Yes	Theoretical calculations, Use of software tools
Israel	Tel Aviv University	Solar Energy	University course	Students	Classroom course	Tel Aviv, Israel	Semester	No	
Italy	Università di Bologna	Renewable Energy and Biofuels L	Technical Training	Students, Industry	Classroom Course	Bologna, Italy	100 hours	Yes	
	Università degli studi di Cagliari	RENEWABLE ENERGY TECHNOLOGIES	University course	Students	Classroom course	Cagliari, Italy	1200 hours	Yes	
	Politecnico di Torino	Technology for renewable energy sources	University course	Students	Classroom course	Torino, Italy	81,5 hours	Yes	Theoretical calculations, Use of software tools, Final project
	CSP-F Solar Systems and Solutions	Primo impianto solare termodinamico per la produzione di calore di processo	Seminar/Workshop	Industry	Classroom Course	Oristano, Italy	2 hours	No	
	ENEA, Consorzio ARCA	STS-MED: Impianti solari a concentrazione multi-generativi.	Seminar/Workshop	Industry	Classroom Course	Palermo, Italy	18 hours	No	
	ENEA, SFERA II	Molten Salt Systems: Collector Loop, Thermal Storage and Heat Transfer Fluids	Seminar/Workshop	Industry	Classroom Course	Rome, Italy	5 days	Yes	
Jordan	Al-Balqa Applied University	Design and Modeling of Multi-Generation Concentrated Solar Plants	Technical training	Industry, R&D, Students	Classroom course	Jordan	3 days	No	

	JUST, GJU	CSP technology	University course	Industry, Students	Classroom course	Irbid (JUST) and Madaba (GJU)	One semester (4 months)	No	
México	Renewable Energy Institute UNAM	Postgraduate Programme on Energy	University course	Students	Classroom course	At IER's UNAM facilities in Temixco, Mor. Mexico	2 years (Master) 4 years (PhD)	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure
Morocco	Cadi Ayyad University	Solar Energy	University course	Students	Classroom course	Morocco, Marrakesh	6 months		
Portugal	Faculdade de Ciências da Universidade de Lisboa	Energia Solar Térmica	Seminar/Workshop	Students	Classroom course	Faculdade de Ciências da Universidade de Lisboa	3 hours		
	Universidade de Évora	Renewable Energy Engineering	University course	Students	Classroom course	Évora, Portugal	3 years		
	Universidade de Évora	Master in Solar Energy Engineering	University course	Students	Classroom course	Évora	2 years		
	Universidade de Évora	Doctoral Program in Mecatronics and Energy Engineering	University course	Students	Classroom course	Évora, Portugal	4 years		
Saudi Arabia	King Saud University	Solar Energy	University course	Students	Classroom course	Riyadh, Saudi Arabia	One semester (15 weeks)	No	
South Africa	Department of Mechanical and Mechatronic Engineering, Stellenbosch University (STERG)	Thermal Energy Systems	University course	Students	Classroom course	South Africa, Stellenbosch	6 days	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
	Centre for Renewable and Sustainable Energy Studies	Renewable Energy Systems	Seminar/Workshop	Industry, R&D, Students, General public	Classroom course	South Africa, Stellenbosch	5 days	Yes	Theoretical calculations, Use of software tools, Tutorials

Spain	Deutsches Zentrum für Luft- und Raumfahrt	eM-Internship (ENERMENA)	Technical training	Students	Classroom course	Almeria, Spain	2 weeks	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure
	EOI Escuela de Organización Industrial (www.eoi.es)	Máster en Energías Renovables y Mercado Energético	Other	Industry, Students	Classroom course	Madrid-España	700 horas	Yes	Use of software tools, Visit to infrastructure, Real practical cases, Final project
	EOI Escuela de Organización Industrial (www.eoi.es)	Master Executive en Energías Renovables on line	Other	Industry, Professionals	Mixed	On line- fase presencial en Madrid (España)	650 hours	Yes	Use of software tools, Visit to infrastructure, Real practical cases, Final project
	CIEMAT	Sistemas Solares Térmicos de Concentración	Technical training	Industry, R&D, Students	Classroom course	Madrid, Spain	2 weeks	Yes	
	SIALSOL TU ENERGÍA SOLAR, S.L	Solar Thermal Power Plants	Technical training	Students	Classroom course	Granada (Spain)	1 week		
	SIALSOL TU ENERGÍA SOLAR, S.L	Training course on CSP	Technical training	Students	Online course	Granada (Spain)	5 days	Yes	
	ABENGOA Solar	Informative Workshop on CSP	Seminar/Workshop	Students	Classroom course	Escuela de Ingeniería Química de la Universidad de Castilla-La Mancha	1 day		
	Universidad de Huelva	Grado en Ingeniería energética	University Course	Students	Classroom course	Huelva, Spain	2400 hours	Yes	
	Universidad de Malaga	Grado en Ingeniería de la Energía	University Course	Students	Classroom course	Malaga, Spain	2400 hours	Yes	
	Universidad de Sevilla	Grado en Ingenieria de la Energia	University Course	Students	Classroom course	Seville, Spain	2490 hours	Yes	
	Universidad de Zaragoza	Master thermoelectric generation, zero emission technologies	University Course	Students	Classroom course	Blended	1 year	Yes	Theoretical calculations, Use of software tools
	Universidad Rovira I Virgili, Fundacion URV Tarragona	Sistemas Solares Térmicos y Termoeléctricos	University course	Students	Classroom course	Tarragona, Spain	240 hours		

	Proy3cta, Centro Superior de Edificación, Arquitectura e Ingenieria. Universidad Europea de Madrid	Master Universitario en Energias Renovables	Other	Students, Industry, Professionals	Classroom course	Proy3cta premises, Spain	1500 hours	Yes	
	Proy3cta, Centro Superior de Edificación, Arquitectura e Ingenieria. Universidad Europea de Madrid	Master Universitario en Energias Renovables	Other	Students, Industry, General public	Mixed	Proy3cta premises, Spain and On-line	1500 hours	Yes	Theoretical calculations, Final project
	Universidad de Sevilla	Master en Sistemas de Energía Térmica	Other	Students, Industry, Professionals	Mixed	Seville University, Spain	2250 hours	Yes	Theoretical calculations, Final project
	Universidad de Zaragoza	Master on-line de Generación Termoelectrica, Tecnologías de Cero Emisiones	University Course	Students, Industry, Professionals	Mixed	On-line and Zaragoza University, Spain (only for exams)	600 hours	Yes	Theoretical calculations, Final project
	Universidad de Barcelona. IUSC, Estudios Superiores presenciales y a distancia	Curso de postgrado en Energias Renovables	University Course	Students	Classroom course	Barcelona, Spain	900 hours	Yes	
	Renovetec, Renove Tecnología SL Madrid	Curso Director de Obra	Other	Students, Industry, Professionals	Classroom course	Seville, Spain	112 hours		
Sweden	Erasmus Mundus KTH Royal Institute of Technology	ME3: Management and Engineering of Environment and Energy	University course	Students	Classroom course	Stockholm, Sweden		Yes	Theoretical calculations, Use of software tools
	Dalarna University	Solar Energy Engineering	University course	General public	Classroom course	Borlängue, Sweeden	2 years	No	
Switzerland	École Polytechnique Fédérale de Lausanne , EPFL	INTEGRATED APPROACHES TO ENERGY SYSTEMS	Winterschool	Industry, R&D, Students	Mixed	Lausanne, Switzerland	2 weeks full time	Yes	Theoretical calculations, Use of software tools, Use of research infrastructure, Visit to infrastructure
	École Polytechnique Fédérale de Lausanne , EPFL	Emerging Renewable Power	University course	Students	Classroom course	Lausanne, Switzerland	14 weeks a 3 hours	Yes	Theoretical calculations
	ETH Zurich	Renewable Energy Technologies	University course	Students	Classroom course	ETH Zurich	6 weeks	No	

	ETH Zurich	Energy Systems & Power Engineering	University course	Students	Classroom course	ETH Zurich	6 weeks	No	
Turkey	METU	ME 514	University course	Students	Classroom course	Ankara, Turkey	1-semester (14 weeks)	No	Theoretical calculations
United Arab Emirates	Masdar Institute	Desalination Sustainability	Seminar/Workshop	Industry, R&D, Students	Classroom course	Abu Dhabi, United Arab Emirates	1 week	No	
United Kingdom	Cranfield University	Concentrating Solar Power (CSP)	University Course	Scientists, engineers, managers, technologists, and postgraduate researchers from the energy sector	Classroom course	Cranfield University, United Kingdom	3 days	Yes	Theoretical calculations, Use of software tools
COURSES TAUGHT IN SEVERAL COUNTRIES									
Kassel (Germany) and Cairo (Egypt)	The University of Kassel and the Cairo University	REMENA: Renewable Energy and Energy Efficiency for the MENA Region	University course	Students, General public	Classroom course	Kassel (Germany) and Cairo (Egypt)	21 months divided into three semesters of 6, 6 and 9 months respectively	Yes	Theoretical calculations, Use of software tools
Almeria, Spain or North-African and Arabian Countries	Deutsches Zentrum für Luft- und Raumfahrt	eM-Expert (ENERMENA)	Seminar/Workshop	Industry, R&D	Classroom course	Almeria, Spain or North-African and Arabian Countries	5 days	No	
	Deutsches Zentrum für Luft- und Raumfahrt	eM-CB (ENERMENA)	Technical training	Industry, R&D	Classroom course	Almeria, Spain or North African and Arabian Countries	4 weeks or 1 week on demand	Yes	Use of software tools, Use of research infrastructure
North African and Arabian Countries	Deutsches Zentrum für Luft- und Raumfahrt	eM-University (ENERMENA)	Seminar/Workshop	Professionals (University Professors of North African and Arabian Countries)	Classroom course	North African and Arabian Countries	2 days	No	

Cape Town, Mexico city, London, Ssantiago, San Francisco	Green Power Academy	The Green Power Mini MBA	Seminar/Workshop	Students, Industry	Classroom course	Cape Town, Mexico city, London, Ssantiago, San Francisco	5 days	Yes	Theoretical calculations, Use of software tools
Universities associated with KIC Innoenergy	KIC Innoenergy	MSc Renewable Energy - RENE	University course	Students	Classroom course	Universities associated with KIC Innoenergy	1200 hours	Yes	Theoretical calculations, Use of software tools
	KIC Innoenergy	MSc Environomical Pathways for Sustainable Energy System (SELECT)	University course	Students	Classroom course	Universities associated with KIC Innoenergy	1200 hours	Yes	Theoretical calculations, Use of software tools
	KIC Innoenergy	MSc Energy Technologies (ENTECH)	University course	Students	Classroom course	Universities associated to KIC Innoenergy	1200 hours	Yes	Theoretical calculations, Use of software tools
	KIC Innoenergy	SENSE: Smart Electrical Networks and Systems	University course	Students	Classroom course	Universities associated with KIC Innoenergy	1200 hours	Yes	Theoretical calculations, Use of software tools
COURSES TAUGHT AROUND THE WORLD									

	CNRS (Sollab)	SFERA Summer School	Technical training	Professionals	Classroom course		2-3 days	Yes	Theoretical calculations, Use of software tools
	Renewable Academy RENAC	Integration of Large Amounts of Renewable Energy in Grids (ReGrid) the Electricity Grids	Technical training	Industry, R&D, Students, General public, Professionals	Online course		60 hours	Yes	
	Sialsol s.l	Solar Thermal Power Plants implementing Parabolic Trough Collectors	Technical training	Students	Online course		2,5 months		
	RENOVETEC	General Technical Course on Thermosolar Plants	Technical training	Industry, Professionals	Online course		16 hours		
	Green Power Academy	Understanding Concentrated Solar Power (CSP)	Other	Industry	Classroom course		2 days	Yes	
	Acedis Formacion	Master en Energia Solar Termoelectrica	Other	Students, Industry, Professionals	On-line		600 hours	No	
	Enfoc, Escuela de Negocios y Formacion Continua	Master en Energía Solar Termoelectrica	Other	Students, Industry, Professionals	On-line		900h hours	No	
	TrainingQuality	Master en Energía Solar Termoelectrica	Other	Students, Industry, Professionals	On-line		600 hours	No	Theoretical calculations
	Acedis Formacion	Curso en Energia Solar Termoelectrica	Other	Students	On-line		100 hours		
	Acedis Formacion	Curso Tecnico de Cálculo, Diseño y Simulación de Plantas Solares Termoeléctricas	Other	Students, Industry, Professionals	On-line		300 hours		Use of software tools

	Acedis Formacion	Curso Tecnico de Instalación y Mantenimiento de Plantas Solares Termoeléctricas	Other	Students, Industry, Professionals	On-line		250 hours		
	ADR Formacion	Curso Energía Solar Termica	Other	Students	On-line		40 hours		
	AECED, Centro Enseñanza a Distancia	Curso Técnico Superior de Diseño, Construcción y Explotación de Centrales Solares Termoeléctricas	Other	Students, Industry, Professionals	On-line		300 hours		
	AULA 7 Formación	Curso de Calculo, Diseño y Simulación de Plantas Solares Termoelectricas	Other	Students, Industry	On-line		250 hours		
	AULA 7 Formación	Curso de Tecnico de Instalación y Mantenimiento de Energía Solar Termoelectrica	Other	Students, Industry, Professionals	On-line		250 hours		
	Euroinnova	Curso de Tecnico Superior de diseño, construccion y explotación de centrales solares termoelectricas	Other	Students, Industry, Professionals	On-line		300 hours		
	Renovetec, Renove Tecnología SL Madrid	Curso de Campo Solar	Other	Students, Industry, Professionals	On-line		50 hours		
	Renovetec, Renove Tecnología SL Madrid	Curso de ciclo de agua-vapor en centrales termosolares	Other	Students, Industry, Professionals	On-line		50 hours		
	Renovetec, Renove Tecnología SL Madrid	Curso del sistema HTF	Other	Students, Industry, Professionals	On-line		50 hours		
	Renovetec, Renove Tecnología SL Madrid	Curso Director de Obra	Other	Students, Industry, Professionals	On-line		300 hours		

	TrainingQuality	Curso Tecnico de Instalación y Mantenimiento de Plantas Solares Termoeléctricas	Other	Students, Industry, Professionals	On-line		250 hours		
	TrainingQuality	Curso de Energía Solar Termoeléctrica	Other	Students, Industry, Professionals	On-line		100 hours		
	TrainingQuality	Curso Instalacion y Mantenimiento de Energía Solar Termoelectrica	Other	Students, Industry, Professionals	On-line		250 hours		
	TrainingQuality	Curso Tecnico de Cálculo, Diseño y Simulación de Plantas Solares Termoeléctricas	Other	Students, Industry, Professionals	On-line		300 hours		

List of abbreviations and definitions

DoW	Description of Work
EC	European Commission
EU	European Union
FP	Framework Programme
FP7	Seven Framework Programme
RTD	Research and Technological Development
SME	Small and Medium Enterprise
WP	Work Package
P	Planned
Al	Already
STE	Solar Thermal Electricity