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ON-LINE COURSE " SOLAR POWERED WATER SYSTEMS"

GLOBAL SOLAR AND WATER INITIATIVE
(OXFAM and IOM)

LIFELONG LEARNING CENTER

UNIVERSIDAD POLITÈCNICA DE VALÈNCIA



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STUDENT GUIDE: " SOLAR POWERED WATER SYSTEMS" (ONLINE COURSE)

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Introduction of the course

The on-line course "Solar Powered Water Systems" is offered by the Polytechnic University of Valencia (official name: "Universitat Politècnica de València" or UPV). This course is the result of a collaboration between the Universitat Politècnica de València (UPV or Polytechnic University of Valencia) and the Global Solar and Water Initiative (i.e. a programme developed by the International Organization for Migration -IOM- and Oxfam with funds from USAID through its Office of U.S. Foreign Disaster Assistance -OFDA).

The course introduces the use of photovoltaic (PV) energy solutions for water supply systems. The course describes the different configurations and components used in solar powered water systems (SPWS) and the criteria used to select, assemble and use them in order to provide water through the use of solar energy. Additionally, cost economic comparisons between solar and other pumping technologies are explained.

The different modules are based on real field experience collected through onsite visits in more than 80 refugee camps and communities in 12 developing countries and therefore, it is especially suited for humanitarian and development workers willing to get the necessary expertise to start using SPWS in their projects worldwide. Remember that our objective with this course is to transmit you our knowledge in this field. We also apologize in advance for any spelling or grammatical mistakes that may be present throughout the course.

In this **Student guide** you will find the information needed to follow satisfactorily the training program that we have developed. You will need to complete an online test on the more important points of this guide (multiple-choice type test). The exam is available in the "**Tests & Quizzes**" menu (left bar in PoliformaT) or in the **first page of the tool tilted LESSONS SOLAR POWERED WATER SYSTEMS**. You can do the exam of the student guide in several days (remember to save the exam each time you solve some part of it) as you read the student guide. Access to the following modules is conditioned to take a scoring greater than 9 (over 10) in this test. The test may be repeated as many times as necessary to meet the above condition. You can use the tool "DISCUSSIONS" for any query on the exam questions. You can contact the directors of this course and leave any comments regarding the contents of this guide (please, use "Messages" menu in PoliformaT or send an e-mail to ssegui@upv.es if the web site is not available). Once you have reached this score you will have access to the following module of the course.

The title of the course (Solar Powered Water Systems or SPWS) is equivalent to the title "Photovoltaic Water Pumping Systems" (or PVWPS). The acronyms used in the bibliography for these systems are SPWS, PVWPS, SPWPS (Solar Powered Water Pumping Systems), etc.



Structure

The online course "Solar Powered Water Systems" is organized into 11 modules with a total duration of 3 ECTS (equivalent to a course of 30 classroom hours and 75 hours of personal work of the student). The main features of the course are:

- The course is an in-depth introduction to solar powered water systems, conceived with a focus on use for humanitarian and development contexts.
- The course is online (self-paced training) with asynchronous tutorials and tests (continuous evaluation) on the UPV training platform.
- The teaching-learning process is carried out using videos recorded at the UPV and a book containing all the subjects, topics, graphics contained in the videos. Additionally, a number of documents, made-for-purpose solar pumping tools and Excel sheets, are provided for different modules.
- The training material includes practical exercises proposed and solved (in Excel and using software).

Objective

The course will enable water supply practitioners to independently lead the planning, design, implementation, operation and maintenance of solar water pumping systems. Moreover, the participants will become conversant on how to perform economic Life Cycle Cost Analysis of solar pumping systems, so that costing comparisons between solar and other pumping technologies can be easily established.

Teaching Staff

The course is developed by Alberto Ibanez Llario (IOM) and Asenath Kiprono (OXFAM), both them involved in the Global Solar and Water Initiative (i.e. IOM and Oxfam with funds from USAID).

The teaching staff responsible for the organization of the online course "Solar Powered Water Systems" belongs to the Department of Electronic Engineering, in the Polytechnic University of Valencia. They develop their research activities at the Institute of Molecular Recognition and Technological Development.

Access to the online training platform: PoliformaT

The teaching material used in the online course "Solar Powered Water Systems" will be available to the students in the online training platform of the Polytechnic University of Valencia, called



PoliformaT. The access to PoliformaT is in <https://poliformat.upv.es/portal/site/!gateway-es/tool/351c5e3d-c2e5-45ba-b34b-8814e7e01e27/selectlogin> selecting the menu “Usuario CFP” from the list of options:

Identificación

Seleccione la forma de acceso

Accesos

Como Profesor o Personal UPV

Como Alumno UPV

Usuario CFP

Como EXTUPV (Externos)

Acceso Usuario PoliformaT

Write your **user name (Usuario)** and your **personal password (Clave)** and press the “Entrar” bottom.

Inicio de sesión con usuario y clave del CFP

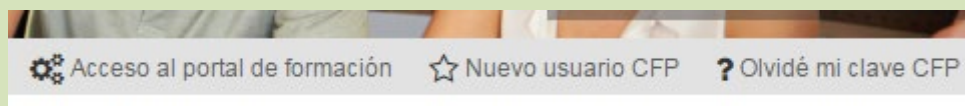
Usuario: Clave:

Entrar

? [Olvidé mi clave](#)

Your user name and personal password are provided during the registration process in the Centro de Formación Permanente (CFP or Lifelong Learning Center) of the Polytechnic University of Valencia.

If you select “Acceso al portal de formación” in www.cfp.upv.es, you will arrive to the main page of the CFP, where an access to PoliformaT appears at the end of the page.





Commonly used options

Control teaching hours

Acceder a secretaría virtual

Create a new training activity

Courses offered ICE

Poliformat

If you cannot remember your password, go to <https://www.cfp.upv.es/formacion-permanente/registro/recordarclaveMail.jsp?idioma=en&> and fill in your email and you will receive an e-mail about how to set your password:

Fill in your email and you will receive an e-mail about how to set your password.

E-mail address: *

Remember password

After registration in the PoliformaT has been validated, the student will have access to a Web page where there are different menus available: Resources, Messages, Modules, etc. The upper part shows the active courses/subjects for each student. In **Mi PoliformaT** site (left side of the upper bar), in “**Preferencias**” tool, you can modify the language (“**Idioma**” menu – select Reino Unido for English-UK (United Kingdom) or Estados Unidos for English-US (United States) used in PoliformaT (Remember to click on “**Actualizar Preferencias**” to **save the changes**”). After changing the language, all the tools and menu texts will appear in English. The site of the course will have all the information in English although information in My PoliformaT is in Spanish (they correspond to news given by the managers of the systems that are not important for the course development)



The training material of the course is located in the site SPWS-2020. To show this site in the upper bar you must click in the menu “Sites” (right side of the upper bar) and click over the star that appears in the left side of the name SPWS-2020 (it will include this site in your favourites).

Due to synchronization task between the host computers of the UPV, PoliformaT is not working from 4:00 to 5:00 (Spain time zone).

You have **3 months** from the registration date **to complete the studies**. After this time has passed, the access to the teaching platform will be interrupted. Students who have not been able to conclude studies within 3 months can register again in the course with a reduced fee of 100 euros, which are due to administrative expenses. The student will then have another 3 months to complete the studies.

Training material

The contents taught in the online course "Solar Powered Water Systems" are structured in 11 modules:

- Module 0: Introduction to Solar PV energy and Solar Powered Water Systems in Humanitarian and Development Contexts
- Module 1: Main Definitions and Principles of Solar Energy Production
- Module 2: Solar powered water system configurations and components
- Module 3: Factors influencing solar photovoltaic energy production
- Module 4 –: Design of a Solar Powered Water Scheme:
 - Part 1. – system planning
 - Part 2. – manual calculation
 - Part 3. – using solar design software



- Module 5 – Electrical and mechanical installation
 - Part 1. – equipment and control
 - Part 2. – installation process
- Module 6: Practical aspects related to solar powered water pumping
- Module 7: Calls for proposal and bidding
- Module 8: Economic analysis: life cycle cost for different pumping technologies
- Module 9: Testing and commissioning, operation and maintenance
- Module 10: Long term management of SPWS

After completing each module and the corresponding exam, the platform will give access to the following module.

Once the student has completed the 11 modules that make up the course, they will have access to the course material until the Lifelong Learning Centre of the UPV issues the course certificate.

The dates of issue of the certificates are detailed in the welcome page of the course (**SPWS-2020**).

The modules are accessed via the '**Lessons**' menu in PoliformaT. The different modules include references to technical appendices (in '**Resources**' menu) that allow the student to get closer to the existing photovoltaic water pumping market.

Due to the nature of online training; the student can work at their own pace and schedule. It is estimated that each of the modules can be completed in 3-5 hours (one to two months to carry out the entire course of 3 ECTS).

The "**Resources**" menu gives access to the documents that make up the course "Solar Powered Water Systems". We have used file names that identify the corresponding module as well as the topic developed. The student can **access and download** the following **documents**:

- PDF files where the **contents of the modules** are developed.

- Excel files with proposed problems.
- PDF files with the slides **used in the audiovisual presentations** (teleconference sessions, polimedia videos, etc.) and which can be viewed in the "**LESSONS**" menu (you can watch the videos in PoliformaT as many times as necessary but their download is not permitted).
- **Complementary files** which provide technical information of products, application notes, technical reports, and other materials related to training. There are around 200 MB of information that must **be considered additional information to expand the contents** according to the area of interest of each student. Their **reading is not mandatory**, but some of them will be used in the proposed exercises.



PoliformaT "Resources" menu screen

To **download the course documents** located in the "Resources" menu you can use the option "**Download zip**". By clicking on this menu you'll access an application that generates a zip file with all the folders and files existing in "PoliformaT/Resources" and which you can download in a local directory of your personal computer.

The "**Lessons-SWPS**" menu (**Lessons Solar Powered Water Systems**) includes audiovisual material that covers all the content of the units that make up this online course "Solar Powered Water Systems". The audiovisual material for this online course has been developed in the studios of the Polytechnic University of Valencia, using the real field experience collected by Alberto Ibanez Llario and Asenath Kiprono through onsite visits in more than 80 refugee camps and communities in 12 developing countries. The approach used is the most approximate to what is done in a face-to-face course and we hope that it will be a good medium to work with and progress. Lessons pages also include links to some files available in "Resources" and the test of each module. Using the menu "INDEX OF PAGES" (right corner of the Lessons page), the student can move fast to the section under study.



- Announcements
- Assignments
- Forums
- Lessons Solar Powered Water Systems**
- Messages
- Resources
- Tests & Quizzes
- UPV's Survey

[Return to Lessons Solar Powered Water Systems](#)

Pages in Current Site

[Show items](#)

- ✓ [Lessons Solar Powered Water Systems](#)
- ✓ [Module 0: Introduction to Solar PV energy and Solar Powered Water Systems in Humanit](#)
- ✓ [Module 1: Main Definitions and Principles of Solar Energy Production](#)
- ✓ [Module 2: Solar powered water system configurations and components](#)
- ✓ [Module 3: Factors influencing solar photovoltaic energy production](#)
- ✓ [Module 4: Design of a Solar Powered Water Scheme](#)
- ✓ [Section 4.1.- Design of a SWPS: system planning.](#)
- ✓ [Section 4.2.- Design of a SPWS: manual calculation.](#)
- ✓ [Section 4.3.- Design of a SPWS: using solar design software](#)
- ✓ [Module 5: Electrical and mechanical installation](#)
- ✓ [Section 5.1.- Electrical and mechanical installation: equipment and control](#)
- ✓ [Section 5.2.- Electrical and mechanical installation: installation process](#)
- ✓ [Module 6: Practical aspects related to solar powered water pumping](#)

"Lessons" menu screen after pressing in "INDEX OF PAGES"

If you have problems viewing the videos, it is recommended that you try accessing PoliformaT using another Internet browser: Google Chrome, Firefox, Safari, Internet Explorer, etc. If problems persist, start a new conversation in the tool **DISCUSSIONS / Organization and structure of the course/** to find out if the problem is common to more students or if it is just a particular problem.

The table below summarize the contents of each of the modules that make up the course.

Modules	Content
Module 0: Introduction to Solar PV energy and Solar Powered Water Systems in Humanitarian and Development Contexts	- Solar PV water pumping in humanitarian and development Contexts - Why the renewed interest in solar PV water pumping? - Guidance and rationale for using solar PV water pumping
Module 1: Main Definitions and Principles of Solar Energy Production	- The Solar Resource (note: include map with yellow areas). Sun-Water Fit. Solar irradiance, solar insolation, STC, PSH. Solar Map (example of PSH) - Basic DC Electric Concepts: I, V, R, P. Analogy with Hydraulics - Solar module I-V curve and maximum power point.
Module 2: Solar powered water system configurations and components	- SPWS configurations and components - Equipment features and quality considerations - Types of solar modules - PV module characteristics



	- SPWS controls and switchgear - Balance of system components
Module 3: Factors influencing solar photovoltaic energy production	- Energy losses due to cell temperature - Wiring energy losses - Energy losses related to the sun irradiance - Energy losses related to the PV module - Energy losses related to power converters and the balance of system - Estimation of the energy yield
Module 4 – part 1: Design of a Solar Powered Water Scheme (system Planning)	- Solar pump design data - Important design concepts and considerations - Steps to design a solar powered water scheme: water demand assessment, design period, water source assessment, borehole construction and pumping test, design month and design flow rate, water tank sizing - Location of main components - System layout: stand-alone solar vs hybrid systems
Module 4 – part 2: Design of a Solar Powered Water Scheme (manual calculation)	- Determination of pump duty point (total dynamic head (TDH) and Flow) - Pump selection - Controller selection - Solar PV array sizing, layout and selection
Module 4 – part 3: Design of a solar water scheme (using solar design software)	- Design using solar pumping sizing tools - Step by step examples of SPWS design - Real field examples of SPWS design
Module 5 – part 1: Electrical and mechanical installation (equipment and control)	- Equipment nameplates - Inspection prior to installation - Physical installation checklist
Module 5 – part 2: Electrical and mechanical installation (installation process)	- Pump Installation - Installation of controls and cables - Support structure and module installation - Electrical lightning and earthing protection
Module 6: Practical aspects related to solar powered water pumping	- Chlorination in solar pumping schemes - Tank automation - Sun tracking - Measures to prevent vandalism and theft - Over-pumping of aquifers due to solar powered schemes - Solar PV in hot climate zones and hot water pumping - Frequently asked questions
Module 7: Calls for proposal and bidding	- Quality criteria for products & services - Selection of quality solar products - Supplier selection - Bidding process - Technical terms of reference - Quality of solar modules
Module 8: Economic analysis: life cycle cost	- Pricing of solar schemes



for different pumping technologies	- Life cycle cost analysis: real interest rate, net present value, payback period - Economic appraisal using life cycle costing for water pumping - Examples comparing LCCA of solar and generator systems - Financing solar schemes
Module 9: Testing and commissioning, operation and maintenance	- Testing, commissioning and hand over - Operation and maintenance of equipment - Service and maintenance contract frameworks - Training - Health & safety - Spare parts management
Module 10: Long term management of SPWS	- Warranties and warranty management - Social models of management - Data logging and advance system monitoring and diagnosis tools - Importance of monitoring SPWS

Teleconference sessions (webinars)

Some webinars can be planned using the multimedia classrooms available in the Lifelong Learning Center of the Universitat Politècnica de València. The **dates and timetables of the meetings** will be indicated in advance by using the tool **"Announcements"** in PoliformaT. The webinars will develop topics related to solar powered water systems. Attendance to webinars is voluntary and the exposed contents represent an **extension of the course contents**.

All sessions will be recorded (if there are no technical problems that impede it) and can be seen later in the "Lessons" menu (Webinar section). **Webinars** can be followed **via Internet** for the students registered in the course. Students who follow the webinar via Internet will have access to a chat for questions; while with the recorded session, it will be possible to use the tool **"DISCUSSIONS"** to raise questions about the exposed contents.

Webinars are usually done in the evenings, starting at 15:30 during the winter period (at 16:00 in summer time UTC/GMT + 2 h - <http://www.horlogeparlante.com/spanish/>). The webinars will be done in the classroom assigned in the Lifelong Learning Center and can be followed via Internet in the virtual classroom. The web address to access the virtual room address will be provided to students by using the "Announcements" tool. Webinars are scheduled to be between 2 and 3 hours in duration.

Consultations and Tutorials

Students in the online course "Solar Powered Water Systems" will have access to **queries and online tutoring** with the teachers through the PoliformaT tools called **"DISCUSSIONS"** and **"Messages"**. During the webinars, students can ask questions through the chat window available.



In the event of failure or error accessing PoliformaT and their tools, you can contact the organizers of the course to solve any doubt that you may have whilst carrying out the course:

Salvador Seguí Chilet

Dept. Ingeniería Electrónica

Edificio 7F – 3a planta (<http://www.upv.es/plano/directorio-es.pdf>)

Univ. Politècnica de Valencia

Camino de Vera 14

46022 Valencia

Spain

Tel: + 34 96 387 7007 Ext. 76077

Or sending an email to ssegui@eln.upv.es

By using the tool "**DISCUSSIONS**" the student can ask the **questions they wish regarding the contents** developed in each module unit. These questions will be answered here by the teachers in the shortest time possible. The tool DISCUSSIONS is the common medium used to answer any **doubts about the course content**. The information found in the tool DISCUSSIONS is visible to all participants of the course. All registered students may participate in each of the threads developed in '**DISCUSSIONS**' giving their own point of views and concerns, where all comments posted will remain registered.

PoliformaT has an internal mail system to allow communication between the participants in the course: teachers and students. By using the menu "**Messages**" students may contact with teachers and with other students **to address technical or non-technical queries as well as share information**. Internal mail allows you to choose the recipient of the mail, not being visible to the other participants. There is the possibility of sending collective mail to all participants of the course, only to professors, only to students or to individual recipients of your choice. For the mail to reach the teachers and directors of the course, you must include the recipients "**Admin Role**" and "**Professor Role**".

The e-mail account used by PoliformaT to send messages can be modified in My Workspace – Preferences.

Internal mail can be used for all types of consultations, although it is preferred that questions about the course contents is done using the 'DISCUSSIONS' tool. Queries through DISCUSSIONS and internal mail will be answered from Monday to Friday from 9:00 to 14:00 (schedule of Spain - UTC + 1, UTC + 2 summer time change with) within a period not exceeding the 48 h. Queries made during Saturdays, Sundays and public holidays in Spain, should be dealt with in a period of 48 hours from the next business day.



During the **special festivities** (Christmas, Easter, week of Fallas in Valencia, the month of August which is the official holiday period for Spanish universities) there will not be any academic activity. However, there will still be responses to the questions from students, but will take a larger response time than usual.

If delays occur in responses, higher than indicated above, it may be some kind of technical problem. In that case, if deadlines stretching and you get no reply, let us know of the situation by sending an e-mail to ssegui@eln.upv.es and mrecasen@eln.upv.es. Remember that you must include recipients "**Admin Role**" and "**Professor Role**" in your internal mail.

Evaluation and certification of studies

An **exam is scheduled to assess each module of the course**, which will be graded between 0 and 10. The exam will consist of a **test with multiple choice questions** covering the different parts of the module and you can do the exam as you study each module. Only one submission is accepted for each test (except the student guide exam which must be taken until a minimum score of 9 out of 10 is achieved).

All the **examinations are carried out via Internet** and it is not necessary to carry out any type of test at a given time and location. The tests can be carried out at any place with an Internet connection, using your hand notes and during several days, within the period indicated. Students will be able to ask questions about the contents of the exam through the "DISCUSSIONS" tool.

Remember that if you are going to perform the test in several sessions, new responses should be saved at each new session (remember to press the "**save**" button). After completely finishing the examination, you must choose the option "**Submit for Grading**".

Once each exam is finished **the next module of the course will be activated**, until completing the 11 existing modules. **Grades obtained** may be seen by the student in the "**Gradebook**" menu.

In the **Test&Quizzes** tool can be seen the Submitted Assessments (bottom part of the web page) and review the assessment feedback: correct questions, wrong questions, scoring in the questions, etc.



Assessments

Take an Assessment

The assessments listed below are currently available for you to take. To begin, click on the assessment title.

Title	Time Limit	Due Date/Time
PVWPS_M00	No time limit	n/a
PVWPS_M01	No time limit	n/a
PVWPS_M02	No time limit	n/a

Top part of the Test&Quizzes page (above)

Bottom part of the Test&Quizzes page (below)

Submitted Assessments

You have completed the assessments listed below. Unless Feedback Available displays "n/a" (not applicable), feedback will be available at the time shown. If feedback is available for past submissions, it will be seen under "View All Submissions/Scores".

[View All Submissions/Scores](#) | [View Only Recorded Scores](#)

Title	Statistics	Recorded Score	Feedback Available	Individual Score	Time	Submitted
PVWPS_00_Student_Guide_Ex_V2*	n/a	9.48 (Highest)	Immediate			
			Feedback	9.48	n/a	2020-04-07 5:41 PM

The total score in the case of questions with multiple correct answers will be proportional to the total number of correct answers selected by the student.

Please note that depending on your screen resolution you may not be able to see the marks obtained for each question, as you can see below.



The image displays two screenshots of the online course interface for the 'PVWPS_00_Student_Guide_Exam'. The interface includes a sidebar with navigation links (Overview, Announcements, Forums, Gradebook, Lessons Solar Power..., Messages, Resources, Tests & Quizzes, Site Info) and a main content area. The top screenshot shows the quiz progress with a score of 0.4 for Question 1 of 25. The bottom screenshot shows the same quiz with a score of -0.13 for Question 2 of 25. Both screenshots show the quiz questions and options.

Top Screenshot:

- Header: My poliformaT, SPWS-Sept21
- Section: TESTS & QUIZZES
- Quiz Title: PVWPS_00_Student_Guide_Exam
- Return to Assessment List
- Part 1 of 1 - PVWPS_00_Student_Guide_Exam (0.03 / 10.0 Points)
- Question 1 of 25: 0.4 (circled in red), 0.4 Points. Point(s) deducted for incorrect answer: 0.125
- Question Text: PVWPS_00_Student_Guide_Ex01 Studies of the online course Solar Powered Water Systems are organized for:
- Options:
 - ☒ A. E-learning training.
 - ☐ B. The student has to go to the Polytechnic University of Valencia for one week in each of the modules in which the studies are structured.
 - ☐ C. The student has to go to the UPV to do the examinations.
 - ☐ D. It is a face-to-face course with classes on Friday afternoon each week.

Bottom Screenshot:

- Header: My poliformaT, SPWS-Sept21
- Section: TESTS & QUIZZES
- Quiz Title: PVWPS_00_Student_Guide_Exam
- Return to Assessment List
- Part 1 of 1 - PVWPS_00_Student_Guide_Exam (0.03 / 10.0 Points)
- Question 1 of 25: -0.13 (circled in red), 0.4 Points. Point(s) deducted for incorrect answer: 0.125
- Question Text: PVWPS_00_Student_Guide_Ex01 Studies of the online course Solar Powered Water Systems are organized for:
- Options:
 - ☒ A. E-learning training.
 - ☐ B. The student has to go to the Polytechnic University of Valencia for one week in each of the modules in which the studies are structured.
 - ☐ C. The student has to go to the UPV to do the examinations.
 - ☐ D. It is a face-to-face course with classes on Friday afternoon each week.

After reviewing the test included in each module, the student can **start the exam named "PVWPS_Final-EXAM (M0 to M10)"**. If the final grade in this exam is greater than 5 (over 10),



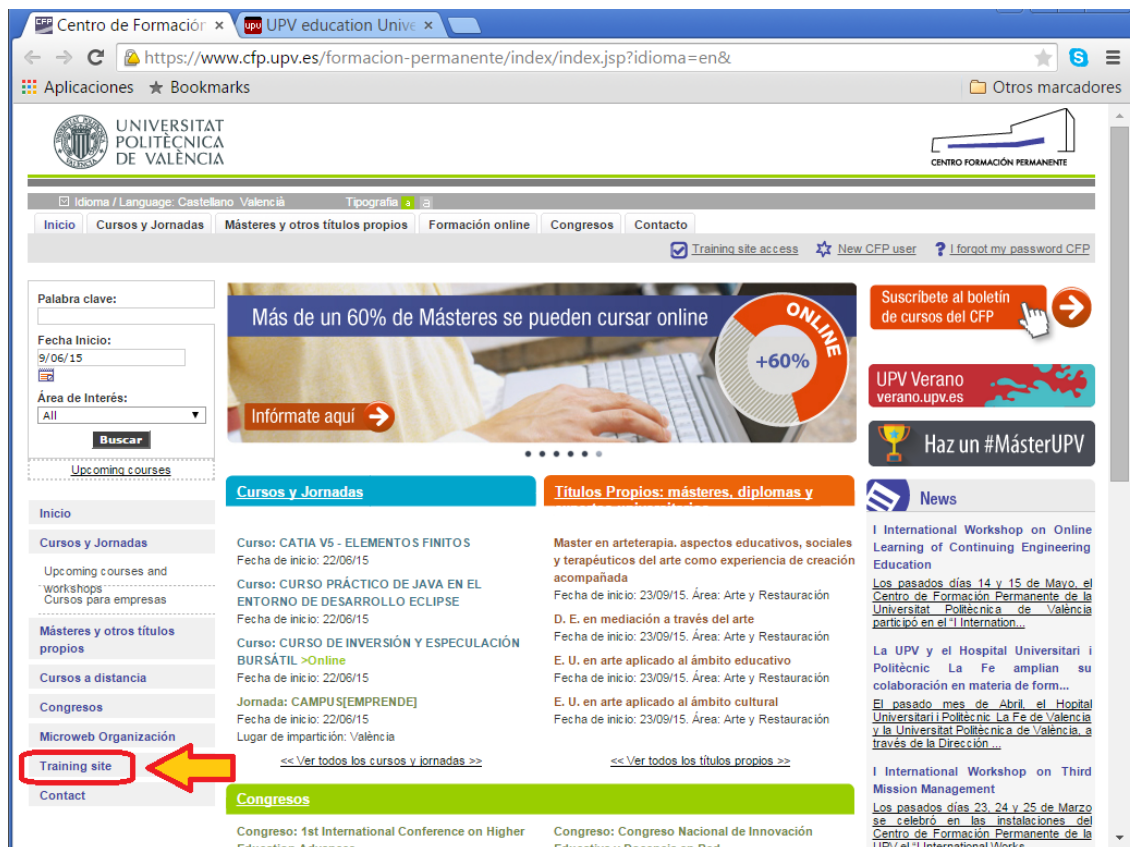
an **"Achievement" certificate** will be issued by the **Lifelong Learning Center of the Polytechnic University of Valencia** (the certificate of ACHIEVEMENT will not include a numerical score). Those which do not reach the minimum scoring of 5 will not obtain a certificate. Certifications of the completed studies will be issued in the dates detailed in the main site of the course (we will send an internal message to notify the issuance of the certificates). With the issuance of each student's certificate, the course will be considered as concluded and **the student will no longer have access to the training material**.

The Lifelong Learning Center is delivering only electronic certification that will be available on the intranet of each student in the Lifelong Learning Center. For any problem with the certificates (after it has been issued), please contact certificados@cfp.upv.es detailing your problem. Also, the Lifelong Learning Center has launched a web service for requesting documents that credit the undertaking of training activities carried out in the UPV. When requesting a certificate, you can download a digital document that comes with a code that allows the digital validation of this certificate.

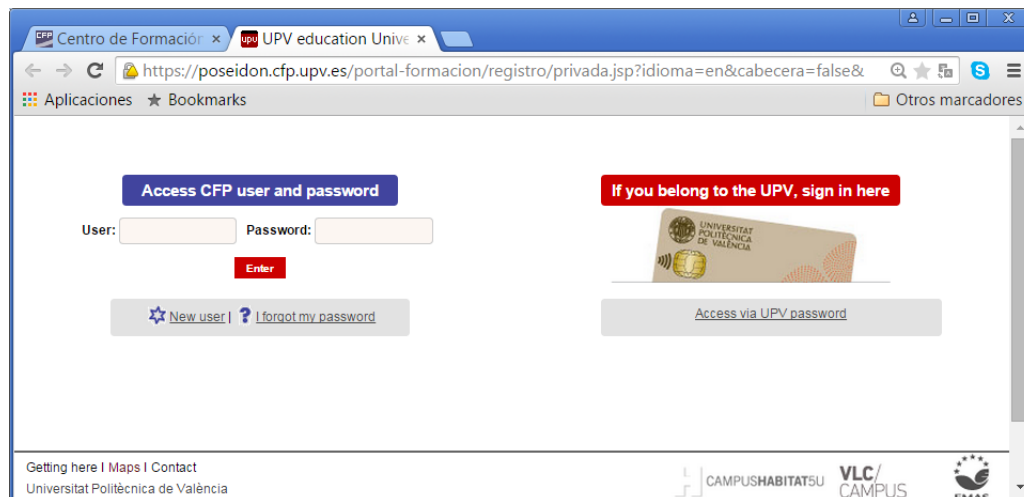
To download the certificate, you have to log in to the CFP intranet. Access the "eCertificate" tool and click on "Request student certification - Solicitar certificación de alumno". You will see a list of the courses approved with the CFP-UPV and you will be able to download the electronic document that certifies your studies. Apologies because some menus are only in Spanish.

The student records.

It is the obligation of each student to verify that all the documentation provided for the registration is included in their personal file in the Lifelong Learning Center of the Polytechnic University of Valencia. At the address <https://www.cfp.upv.es/formacion-permanente/index/index.jsp?idioma=en&> you can access the web page below, where you need to click on the link "Training site" (left side menu):



Then you can access your personal page using your login information. The screen that appears is as follows;



After gaining access, you will find a screen with all the data related to the record of the student in the Lifelong Learning Center. You can modify the language used in the menus in the upper menu showed below:



☐ Inicio

☐ Mis actividades

☐ Currículum

☒ Oferta formativa

☒ Enlaces de interés

☒ eCertificado

Bienvenido ★★★★★



★★★★★

e-mail and ID

[Ver todos mis datos](#)



[Cursos que te pueden intere:](#)

[Horas de docencia disponibi](#)
75h

Within the intranet, it is possible to review all documentation associated with each student, including payments made, the request of invoices for these payments, certificates, etc.: (Note: The page or parts of the page may not be available in English). By clicking on the link: "See all my data" we can access or modify to all our personal and professional information.



☐ Index

☐ My activities

☐ Curriculum

☒ Courses offer

☒ Enlaces de interés

☒ eCertificado

Wellcome ★★★★★



your name



[Courses that may interest you](#)

[Horas de docencia disponibles](#)
75h

[e-mail and ID number](#)

[See all my data](#)



Activity	Start D.	Type	Role	State
DIPLOMA DE EXTENSIÓN UNIVERSITARIA EN ENERGIA SOLAR FOTOVOLTAICA	1/10/14	CFP	Student	Accepted
ENERGÍA SOLAR FOTOVOLTAICA – UNA APUESTA DE FUTURO SOSTENIBLE.R.2	22/11/14	CFP	Student	Accepted
PHOTOVOLTAIC IN SPAIN (Group 1)	18/06/15	CFP	Teacher	Provided
INTRODUCCIÓN A LA ENERGÍA SOLAR FOTOVOLTAICA	15/09/14	CFP	Student	Canceled

[View all my activities](#)

June 2015						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Wednesday 10 June 2015

The students of the online course "Solar Powered Water Systems" will have to verify that their file contains the correct personal data: full name, address, email, etc. The existing address will be used for sending documents whilst the email is used to communicate with the student. It is convenient to use an e-mail address that does not depend on the institution in which you are at, whilst undertaking the course (company, University, etc.). It is **important to always have both fields** updated, even if the course has finished (you will still have access to the intranet of the Lifelong Learning Center, after finishing the course).

Please, be sure to enter your name and surname as they should appear on the certificate (which will be issued at the end of your studies, on the dates indicated within the course). If you need to change any of your name or surname, you must send to cfp@cfp.upv.es a copy of an official document with the correct data, including a screen shot of the CFP login page where your data appears (as in the figure above).



Surveys

To evaluate the online training provided, there will be a **survey at the end of the course**. The Polytechnic University of Valencia uses a type of evaluation from the imparted training, which is done through targeted surveys:

- To participating teachers.
- To the student.
- The teaching platform (PoliformaT).
- The contents of the course.

Any comment, suggestion, opinion or point of view that you want to give about the organization or content of the online course in Photovoltaic Power Systems will be welcomed and taken into account. You can do it through the internal mail in PoliformaT or sending an email to ssegui@eln.upv.es.

Continuation of studies

If you want to expand your knowledge in photovoltaic technology you can complete your studies with the course "**Introduction to photovoltaic power systems**" that is taught in English and has a duration of 6 ECTS (equivalent to 60 classroom hours). More information about this course is available in <https://www.cursofotovoltaica.com/introduction-to-photovoltaic/>. The price of this course is €300.

Also, you can complete your studies with the **Diploma of Specialization in Photovoltaic Power Systems**. With 30 ECTS (equivalent to 300 classroom hours and 750 hours of student work.) and taught in Spanish, the diploma is offered in online format by the Polytechnic University of Valencia. In www.cursofotovoltaica.com you can find more information about this course. The price of the Diploma of Specialization in Photovoltaic Energy Systems is €1500, with a special price of €1200 for specific groups (students UPV, unemployed).

If you want to expand your knowledge in the area of renewable energies and energy efficiency you can complete your studies with specific training offered **in Spanish** through the Lifelong Learning Center:

- Practical Photovoltaic Systems: includes 25 hours of face-to-face training in the UPV and some online tasks related with the practical parts (ssegui@eln.upv.es).
- Wind Energy (open all year - online fgimeno@eln.upv.es).
- Energy Efficiency (open all year - online - fgimeno@eln.upv.es).



The Course "**Practical Photovoltaic Systems**" has 6 ECTS and part of it includes face-to-face time, whilst other parts are online. The face-to-face parts are developed in the Nexus photovoltaic plant in the UPV during 1 week in April/May (25 hours of work with teacher). **Students who have completed** the Diploma of Specialization in Photovoltaic Energy Systems (in any edition) **or who are studying any of the modules** at the time of the practice week, will have a reduced enrollment of 200 € which will include insurance and material for the practical work. For the students who can travel and stay in Valencia during the scheduled dates for the class activities, the following is available:

- A photovoltaic plant of 4 kW_{pk} of crystalline silicon modules and 1 kW_{pk} of amorphous silicon modules located on the roof of the Nexus building (building 6G) where activities will be undertaken related to the installation, starting up and monitoring of a grid connected system.
- A computer classroom of the Lifelong Learning Center where the students will carry out activities to process and analyze data acquired in the photovoltaic plants of the Polytechnic University of Valencia (stand-alone and grid-connected). This will help solve doubts from the practical cases studied.

There are 25 hours spent working on the photovoltaic plants of the UPV (if weather conditions allow) and in the computer classroom (with data stored at our installations). The sessions can take place in the morning or in the evening, according to the agenda of the external teachers who teach in some of the classes. This will be determined a few weeks before the week of practices. During the week of practices, it will be promoted with the participating students an open **debate on the topics raised**. There will be a specific forum for each topic raised, so that students can exchange ideas on the best solution to each question and reflect on possible solutions.

For students who cannot attend the practice week developed at the Polytechnic University of Valencia, we have prepared material that will allow equivalent work to be carried out:

- Visits to the facilities will be replaced by virtual guided tours (video Polimedias) which will be available in "**Modules**" of PoliformaT.
- Exercises developed in the computer classroom can be carried out in their own computers since there is no need of any special software.

Problems with access to the PoliformaT platform.

In case of any problem with the platform, remember that in the PoliformaT home page (<https://poliformat.upv.es/portal/site/!gateway-en/tool/9d61d2a6-5102-4570-bdac-c92c458eac77>) there is an icon that indicates "ISSUES" in which when you click on it, a form comes out that you have to fill in with your data and the problem in question. If after 1 week you see that you do not receive any mail from the UPV information center, you can send me a copy of the problem to ssegui@eln.upv.es.



Here is a description of some of the problems we have encountered:

Access has been cut off after you have been working for some time.

If you remain more than 45 minutes (approx.) without activity in PoliformaT, you will be automatically logged out and you will have to log in again.

It is also possible that the platform will be closed because due to synchronization tasks between different servers in the computing center, PoliformaT is not operational every day between 4:30 and 5:00 a.m. (Spanish time). During this time, it will not be possible to access the platform and those who were already on the platform will no longer be able to access it.

Access has been cut off after one minute inside.

This case occurred to a student taking the course from a post-Soviet state in Central Asia, but it has also happened to students in Spain.

The problem is that the IP address from which the session is established with PoliformaT was not constant. This is probably due to the way your internet provider works.

When PoliformaT establishes a session, it notes the IP address from which it was created and as soon as it detects that the session tries to be used from a different IP address than the original one, it closes the session abruptly, so when trying to perform any action, it asks us again to identify ourselves.

You can check the IP with which you go outside from <http://www.cualesmiip.com/> (or other web pages, as <https://www.iplocation.net/find-ip-address>), as it shows the IP from which you are connected together at the moment.

Since maintaining a stable IP is a prerequisite for using PoliformaT, you should talk to your Internet provider or find another one without this problem.

if you are unable to solve the problem and wish to receive a refund, you can request it on the CFP intranet.