

Certified PV Professional

Online programme overview



COURSE OVERVIEW & ENROLLMENT INFORMATION

INTRODUCTION

This online programme is designed to develop the skills of future PV professionals. The first three courses in the programme provide basic knowledge on PV system components, configuration and sizing, as well as on the economics of various types of PV systems. The following four courses expand on these topics and explore how PV power plants and PV-diesel systems are planned and operated. Additionally, the programme also contains optional courses on energy and electricity topics, making it suitable to participants with less experience in the energy sector as well.



SCHEDULE & ORGANISATION

STARTING DATES	Spring I Fall semester each year Start date: 1 April / 1 October
ESTIMATED WORKLOAD	• 150 hours in total • 5 - 10 hours study time per week • 3 Live webinars • 3 Assignments
FEES	€ 1275 Payment method: VISA, MasterCard, American Express, PayPal, Invoice
DISCOUNTS	Early Bird 10%, Alumni 10%, Group 5% (min. 2 courses)
REGISTRATION	You can register online: Shop - RENAC

DEADLINES

Early bird deadline: 20 August / 20 February
Registration deadline: 30 September / 31 March

THIS PROGRAM IS SUITABLE FOR THOSE WHO:

- Work as electricians, electrical engineers, or are new to the PV field, and are interested in installing their own PV system or working on rural electrification with solar PV
- Will be managing stakeholder interactions in PV project appraisals
- Are involved in planning or supervising the implementation of PV plants
- Have a basic understanding of financial management, business administration and PV technology

LEARNING OBJECTIVES

- Determine optimal PV system sizes and estimate their energy yield
- Categorise PV-diesel hybrid systems and evaluate their viability
- Identify the PV system type (off-grid, grid-connected or hybrid) best suited to any given setting
- Define the planning and implementation steps to ensure the success of a PV project

LEARNING OBJECTIVES & CONTENT OF THE COURSES



OPTIONAL **INTRODUCTORY** COURSES

Participants will have access to short introductory courses on energy and electricity topics to learn or revise the basics. These courses are not mandatory, and will not be covered in the exam.

Content

- Introduction to energy
- Introduction to electricity
- Introduction to the solar resource
- Introduction to electric grids
- Introduction to RE projects

MANDATORY COURSES

PV - Application

After completion of this course, participants will be able to:

- Describe a range of grid-connected and off-grid PV applications and how they are useful
- Visualise how onsite PV electricity generation can meet daily electricity demand
- Describe solar irradiation around the globe; calculate the required spacing between PV module rows to avoid self-shading
- Calculate the basic energy yield from a PV system using peak sun hours and performance ratios
- Explain which factors influence the capital and operational expenditures of PV systems, and give examples of system costs in different countries around the world
- Perform basic calculations of payback time and unit cost of electricity for gridconnected and off-grid PV systems

Content

- Grid -connected PV applications
- Off -grid PV applications
- Energy flow and metering options
- Solar irradiation and space requirements
- PV system energy yield
- Economics of PV systems

PV technology

After completion of this course, participants will be able to:

- Explain the principles of photovoltaic electricity generation
- Identify the key components of PV and storage systems and explain their interdependence
- Evaluate the quality of a PV system
- Contribute to the successful realisation of PV projects

Content

- Photovoltaic cells and modules
- PV inverters
- Battery storage
- Other PV system components
- How to implement a good PV system

LEARNING OBJECTIVES & CONTENT OF THE COURSES



MANDATORY COURSES

PV-Diesel Hybrid systems

After completion of this course, participants will be able to:

- Estimate the potential of, and identify suitable locations for, PV-diesel hybrid systems
- Describe the main system components and what they are used for
- Explain the basic parameters for system sizing and dynamic system behaviour
- Evaluate PV-diesel hybrid systems from an economic perspective

Content

- System components
- System sizing
- Dynamic system behaviour
- Economic evaluation
- Case studies

PV-off grid systems

After completion of this course, participants will be able to:

- Distinguish between different off-grid PV system applications and configurations
- Name and explain the required components for off-grid PV systems
- Manage the design, sizing, installation and commissioning of an off-grid PV system
- Analyse the economic viability of off-grid PV systems

Content

- Applications
- System configurations
- System components
- System design and sizing
- Installation, commissioning, operation & maintenance
- Economics of off-grid PV systems

Small and medium-scale PV grid-connected systems

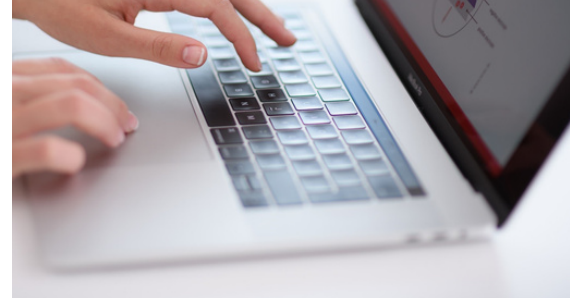
After completion of this course, participants will be able to:

- Distinguish between Feed-in-Tariffs (FiTs) and Net-metering remuneration schemes for PV systems
- Name and explain the required components for grid-connected PV systems
- Manage and supervise the design, sizing and installation of a grid-connected PV system
- Describe the tasks during commissioning, operation and maintenance of a grid-connected PV system

Content

- Feed-in tariffs and net metering
- Grid-connected PV system components
- Design and sizing of grid-connected PV systems
- Installation of grid-connected PV systems
- Commissioning of grid-connected PV systems
- Operation and maintenance of grid-connected systems
- Case Study

LEARNING OBJECTIVES & CONTENT OF THE COURSES



MANDATORY COURSES

Planning of large-scale PV grid-connected systems

Content

After completion of this course, participants will be able to:

- List and describe the main components making up a PV power plant
- Describe the contracts, studies and permissions required for PV project development
- List the main project steps from project planning through to system operation
- Describe the key tasks in assessing and supervising the implementation of a large-scale PV power plant

- Project mission
- Main system components
- Project development
- Project planning
- Construction and installation
- PV plant operation

Planning of PV-diesel hybrid systems (mandatory)

Content

After completion of this course, participants will be able to:

- Distinguish between different system designs and understand their most suitable applications
- Lead a feasibility study to integrate PV into an existing diesel power system
- Explain the functioning of a PV-diesel hybrid system's components, its operating strategies and its optimising potential
- Assess and supervise the planning and implementation of a PV-diesel power plant

- Introduction to PV-diesel hybrid power stations
- Introduction to feasibility case study
- Feasibility study – PV integration and conclusions
- Technical aspects of conversion from diesel-only to PV-diesel hybrid
- Additional options to optimize system
- Financial analysis – key parameters
- Installation, commissioning, operation and maintenance

LEARNING METHODS & ONLINE PLATFORM FEATURES



IMPORTANT FEATURES

- Multilanguage platform
- Discussion Forums
- Integrated Glossary
- Stream/Download videos
- Live webinars (EN, ES)
- Self-quizzes
- Online exams
- Personalised feedback on assignments

EARN YOUR CERTIFICATE

- Digital Certificate of Completion
(final grade 70% or above)
- Digital Certificate of Attendance
(final grade below 70%)

DEMO COURSE

For a first impression of our online platform, have a look at our demo course: [Demo Course](#)

For an introduction to the programme: [Watch here](#)

TECHNICAL REQUIREMENTS

- An e-mail address, which is regularly checked
- A stable internet connection (at least 2 Mbit/s)
- We use Zoom for webinars
- Headset or speakers are required to participate on webinars



Programme certified by ZFU (German Central Office for Distance Learning – official quality standard for distance learning in Germany)

Contact

Cintia Guerrero
RENAC Online Academy Manager
Schoenhauser Allee 10-11, 10119 Berlin, Germany
Tel: +49 30 587 08 70 03
E-Mail: onlineacademy@renac.de

**Scan to start your
learning journey**



Editors

Renewables Academy (RENAC) AG

Graphic Design

Renewables Academy (RENAC) AG

Cover Picture Credit

Envato/ Canva Stock