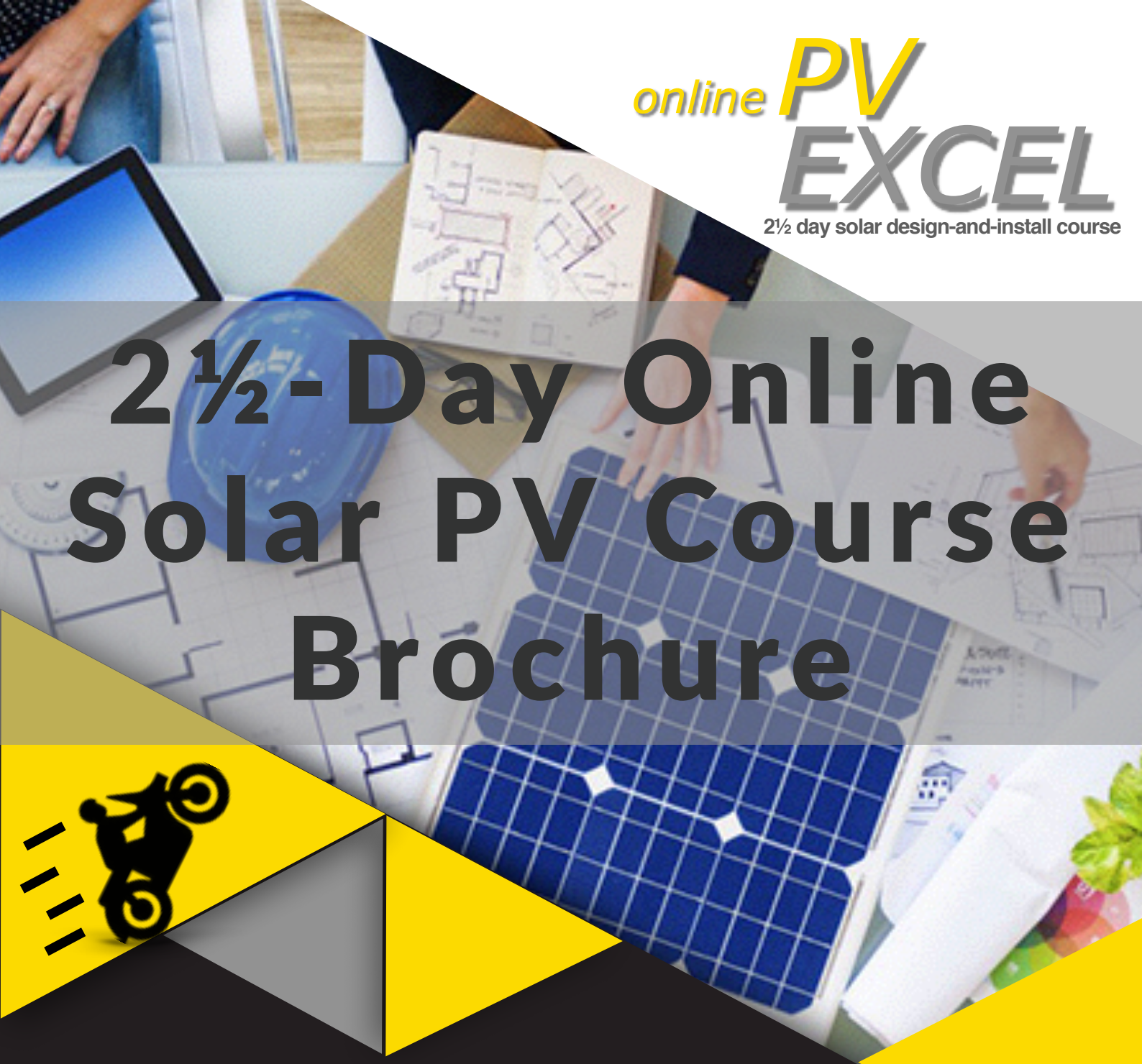
online PV EXCEL

2½ day solar design-and-install course

2½-Day Online Solar PV Course Brochure



P Q R S

DATA

MARKET INTELLIGENCE

TRAINING

DESIGN INSTALL EXCEL *online*

- Design and installation standards
- Post training supporting documentation, guides and reports
- P4 — Access to P4 accreditation and online PV knowledge test

THE AUDIENCE

"Internationally I have attended many courses throughout my career. This was one of the best courses I have ever attended."
Marthinus - Engineer

"Thank you, indeed a very comprehensive course. It's great to have the knowledge to be able to understand the principles behind the design as well as the guidance to be able to do the actual installation"
Tobias - Electrician

"Thank you for the great course and all the post-training resources. The course has definitely highlighted what we needed to know in order to approach the sector and technology with a greater margin of success"
Adrian - Business owner and entrepreneur

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PV EXCEL online

QUICK FACTS

P4 Course is aligned with P4 online PV test criteria

The course is registered with ECSA and carries 2 CPD points for attending professionals

Since 2015 more than 4000 candidates have been trained across 4 African countries

WHO THEY ARE

- ENGINEERS
- ELECTRICIANS AND OTHER ARTISANS
- BUSINESS OWNERS AND ENTREPRENEURS
- PEOPLE AND ORGANIZATIONS WITH AN INTEREST IN RENEWABLES, i.e. utilities, universities, municipalities

ONLINE COURSE OUTLINE

Course Outline

How the course works

Course material is broken down into 'Modules' and 'Chapters' which is then covered in greater detail per 'Topic'. The 'Topic' section of the material can form part of a pre-recorded video, live streaming webinar session, downloadable document; or a combination of the above.

Candidates that register for the online course are expected to watch a series of videos ***before*** attending a live webinar where various principles are discussed and example calculations are done.

Timing & Duration

Total course content for the online Excel is in the region of 20 hours broken down as follows:

1. Live Webinar ± 17 Hours
2. Pre-recorded Video Content ± 2 Hours
3. Online Test (AREP P4 Level 1) Maximum 1 Hour

Interaction

Live interaction in the form of dialogue and questions between the presenter and attendees is encouraged during the live webinar session. Interaction could affect the timing and duration of the course.

Accreditation

- The course carries 2 CPD points for engineers and is registered with ECSA (Engineering Council of SA). CPD points can only be awarded to candidates having attended the webinar, completed watching the videos, as well as, having written and passed the online test.
- Course material is aligned with the P4 Level 1 test with the Association for Renewable Energy Practitioners.

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PV EXCEL

ONLINE COURSE CONTENT

Course Outline

Chapters covered with the live webinar

- Irradiation
- Modules
- PV Technology
- Circuit breakers
- Conductors
- Couplers
- Enclosures
- Fuses
- Inverters
- Batteries
- System Calculations & Design
- Standards & Regulations
- Electrical principles

Topics covered in Pre-recorded Videos

Module	Chapter	Video nr.	Topic
Overview	Components	**A1**	Intro to 5 most common PV system components
The Sun as a resource	Irradiation	**B1**	Lifetime energy generation and irradiation Lifetime energy Calculation
	Irradiation	**B2**	Peak Sun-hours vs daytime hours Peak Sun-hour calculation
Electricity	Electrical Principles	**S1**	Power vs Energy Calculate lead-acid battery energy capacity
	Electrical Principles	**S2**	Series and Parallel
Components	Batteries	**C1**	General storage technology principles
	Inverters	**H1**	Intro to Hybrid, Off-grid & UPS systems
	Modules	**D1**	IV curves & MPPT
	Modules	**D2**	Impact of temperature on solar module voltage Calculate Summer and winter voltages
	Fuses	**F1**	Fuse identification and standards
	Fuses	**F2**	PV Module Fuse sizing Calculate fuse sizing

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PV EXCEL

Solar PV Excel Online

Course Outcome

online PV EXCEL
2½ day solar design-and-install course

Depending on ***previous qualification and experience***, candidates that have completed the course should be able to:

- Understand how solar irradiation affects solar PV systems
- Understand the principles associated with sizing and designing a solar system
- Size and design a PV system
- Size and design a storage solution
- Better understand fault finding on solar PV systems
- Know which standards are applicable to the various components associated with a solar PV plant
- Install a solar PV system provided they have already passed an electrical trade test and are qualified electricians

P Q R S
online

For pricing & more information:

Visit: www.pqrs.co.za

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DESIGN
INSTALL
EXCEL *online*