Stand Alone Power Systems, Design and Install Micro-credential

Domestic Fees
2025 - $1,355.00
2026 - $1,436.00

International Fees
2025 - $4,382.00
2026 - $3,815.53

Duration
3 days

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Stand Alone Power Systems (SAPS) can be a viable option for many applications, from a remote monitoring station to an off-grid household right up to village electrification.

With climate change being a huge environmental issue worldwide, clean energy to power communities is needed. Solar can help lower our carbon footprint and can make a huge contribution to the environment's health.

For the reliable, long-term supply of power to off-grid users, electrical workers involved with these systems fully understand the operating theory and safety requirements in order to design and install safe and effective systems, as well as adequately manage customer expectations.

This course builds upon the basic knowledge provided in Grid-Connected Photovoltaic Systems and expands upon that in Grid-Connected Battery Systems.

Course Structure

The delivery of this course is designed for busy tradespeople who do not have the time to attend lengthy face-to-face courses. The online component is fully flexible to allow students to complete the theory in their own time.

Pre-course learning: Online self-directed learning at your own pace, with tutor support (100 hours)

Three day course at the WITT Campus, New Plymouth (24 hrs)

Post-course assignment (16 hrs)

With successful completion of the course, the applicant achieves the following NZQA framework registered micro-credential: Stand Alone Power Systems: Design & Installation

At the end of the course, participants will have the knowledge to:

- Assess a site's suitability for a Stand Alone Power System and calculate an estimated energy yield at each month of the year for the client.
- Assess a client's energy consumption, create a load vs renewable energy resource profile and estimate renewable energy % vs fuel generator energy %
- Determine best battery technology for a given scenario based on a variety of factors.
- Determine best mix of energy resources for a given site.
- Select appropriate components and assess their suitability.
- Design and Install a Stand-Alone Power System
- Commission and Fault-Find Stand-Alone Power Systems.
- Optimise Stand Alone Power Systems.
- Stand Alone Power Systems: Design & Installation

Topics include:

- Commonly used off-grid battery chemistries and their characteristics
- Battery charging, PWM regulators and MPPT charge controllers
- Battery Inverters, Inverter/Chargers, hardware differences between hybrid inverters and specifically designed off-grid capable inverters.
- AC and DC coupled battery inverter architectures
- Cable sizing, fault level calculations and selection of protective devices.
- Balance of System components
- Site suitablility and Load assessment
- System Design and Yield calculations
- Backup generators
- Integration of muliple energy sources.
- Wind and Micro-Hydro generation (introductory info only)
- Applicable Regulations, Standards – in particular AS/NZS5033, AS/NZS4509.1 and AS/NZS4509.2, various battery standards including a look at the new AS/NZS5139 (not yet cited in Regs) and examples of lines company connection requirements in New Zealand
- Installation, testing, commissioning and fault-finding

Last updated: 22 August 2025

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of Stand-Alone Power Systems
- Hazards associated with batteries and Stand-Alone Power Systems
- Energy consumption assessment, detailed load profiling and optimisation strategies.
- Multiple scenarios where Stand-Alone Power Systems can be of use:
  - Remote Monitoring and Control
  - Baches and Tiny Houses
  - Off-grid homes
  - Off-grid workshops and industry
  - Remote village electrification

Who should attend?

- Electricians
- Electrical Engineers
- Electrical Inspectors

N.B. Completion of Grid-Connected PV Systems: Design & Installation is a pre-requisite for this course. Completion of Grid-Connected Battery Systems is highly recommended.

All applicants must be registered electrical workers and hold a current practicing licence.

Cancellation policy:

Participant withdrawals must be notified in writing. Any withdrawals after 30 working days of receiving the online login details will be charged the full course fee, including text book fee. If a participant requests to be transferred to a practical course on a different date, or fails to complete the required online modules and WITT is required to transfer the participant to a different date, the participant will be charged an additional fee of $300. Non-attendance of participants on the course date will be charged the full course fee. These cancellation fees are non-transferrable.

Additional Information

(Minimum numbers apply before a course is confirmed)
* Applicants must supply a verified copy of either their NZ Passport, NZ Birth Certificate or Residency Visa, as well as a copy of their current electrical practicing licence

Text Book fee - $200