



Stand Alone Power Systems – Design and Installation Course

NEW

PDUs to be awarded by Professional Engineers Board, Singapore

Date : 8, 9, 10, 11, 12, 15, 16, 17, 18, 19 July 2013

Time : 9.00 am to 5.30 pm

Venue : Seminar Room at Cleantech One
1 Cleantech Loop
Singapore 637141

Introduction

This course is offered to people who want to be able to:

- Design Stand Alone Power systems that include PV solar modules, batteries, inverter, back-up fuel generator, battery chargers and associated equipment.
- Install the above systems up to the inverter. (Note, in many countries the electrical connection between the inverter and loads can only be undertaken by licensed or registered electricians.).

To successfully complete the course, each candidate must show that they are competent in all skills and tasks as defined by the following GSES ISPQ Asia/Pacific task Analysis:

- Design stand-alone power systems
- Install stand-alone power systems

Course Assessment

The assessment of the candidate includes:

- Completion of a Multiple Choice Assignment prior to undertaking the 10 day training course
- Active participation in exercises conducted in the class during the 10 day training course.
- Active participation in the practical session and practical installation work conducted during the 10 day training course.
- Completion of an assignment which is handed out on the first day of the course and must be submitted on the morning of the examination.
- An open book examination on the last day.

To be awarded a certificate stating then candidate has successfully completed the design and installation course the candidate shall :

- Complete the multiple choice assignment;
- Successfully install a small solar system;
- Competently answer the questions in the one-on-one interview;
- Obtain a mark 90% or higher in the assignment however if the candidate obtains a mark above 65% and below 90% in initial assignment the candidate is provided a follow up assignment (see below);
- Obtain a mark 90% or higher in the examination however if the candidate obtains a mark above 65% and below 90% in examination the candidate is provided a follow up assignment (see below).
- Obtain a mark over 90% in the follow up assignments.

Pre-requisites for Course Admittance

As a minimum all course attendees should have the following skills:

- some knowledge of safe work practices;
- Minimum Senior Secondary School maths (or in country equivalent) skills for solving standard problems; and
- Minimum Senior Secondary School English (or in country equivalent) and reading skills.

It is preferred that the attendees already have knowledge and skills in:

- Electricity, electrical terms, and common formulae
- Working knowledge of tools and meters used in installation, and maintenance of electrical systems.
- Basic customer education and service practices

Programme Outline

This course is for design and installation. Sessions relating to design e are marked with a (D), relating to installation are marked with an (I). At the start of each day and sometimes immediately after lunch exercises are undertaken based on the previous work. Start times and finish times will vary depending on requirements in the country.

The course programme includes the following main topics:

- Session One: Introduction
- Session Two: Solar Resource (D) & (I)
- Session Three: Electrical Basics (D) & (I)
- Session Three part B: System Components PV Cells & PV Modules (D) & (I)
- Session Four: System Components :Batteries (D) & (I)
- Session Five Part A: Exercises based on previous days work
- Session Five Part B : System Components :Batteries Continued (D) & (I)
- Session Six: Workshop: Testing Batteries (D) & (I)
- Session Seven: Workshops System Components (D) & (I)
- Session Eight: System Components -Controllers (D) & (I)
- Session Nine: Exercises based on previous days work
- Session Ten: Inverters (D) & (I)
- Session Eleven: Workshop Inverter Demonstrations (D) & (I)
- Session Twelve: Fuel Generators and Battery Chargers (D) & (I)
- Session Thirteen :Exercises based on previous days work
- Session Fourteen: Load Assessment (D)
- Session Fifteen: Load Assessment Exercises (D)
- Session Sixteen : System Sizing Part 1 (D)
- Session Seventeen: Exercises based on previous days work
- Session Eighteen: System Design Part 2- (D)
- Session Nineteen : System Design Exercises (D))
- Session Twenty : Session Twenty : System Design- Continued (D)
- Session Twenty One: Exercises on previous weeks work on system sizing
- Session Twenty Two Part A : System Wiring (D) & (I)
- Session Twenty Two Part B : System Installation Part 1 (D) & (I)
- Session Twenty Three: System Design Exercises (D)
- Session Twenty Four: Continue exercises (D) & (I)
- Session Twenty Five : Voltage Drop Exercises (D) & (I)
- Session Twenty Six Part A : System Installation Part II
- Session Twenty Six Part B : Exercises on Wiring Diagrams
- Session Twenty Seven: Session Twenty Eight : System Maintenance, Fault Finding (I)
- Session Twenty Eight : Exercises
- Session Twenty Nine : Connecting up a whole system (I)
- Session Thirty: Open Book Examination (D) & (I)

Organised by:



Supported by:



Sustainable Energy Association of Singapore (SEAS)

9 Penang Road #08-02 Park Mall Singapore 238459 Tel: (65) 6337 9886 Fax: (65) 6337 6658 www.seas.org.sg

About SEAS

Sustainable Energy Association of Singapore (SEAS) an industry association launched in 2006, today has 160 members in the area of Energy Efficiency, Solar, Wind, Biomass, Carbon and Clean Energy Financing. SEAS aims to be the voice of sustainable energy industry and promote the business of its member companies.

Today, SEAS is also specializing in running trainings, courses and conferences only in the area of sustainable energy. SEAS aims to be the one stop, information and training provider, in the area of sustainable energy. Our trainers and lectures are not only highly qualified academic professionals but also industry specialists and professionals that are successful and sought after practitioners in the area of Sustainable Energy. Majority of Key Qualified Personnel(KQP) and Accredited Energy Services Companies are members of SEAS. They have, as a group successfully executed a multitude of energy projects with varying complexities both locally and regionally.

About the Trainer

Mr Geoffrey James Stapleton has more than 20 years of experience in solar energy: solar cell design and PV application. He is the founder of Southern Solar Australia Pty Ltd (formerly Southern Solar) which specialises in the design, sales, installation and maintenance of remote power systems within rural New South Wales (NSW). At the same time, he is also the Managing Director of Global Sustainable Energy Solutions Pty Ltd and a part-time senior lecturer at University of NSW.

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Registration Form

- Yes! I would like to register for this programme.
- I am unable to attend but please put me on your mailing list.

Course Fee: S\$ 3210 (inclusive of GST)

Participant's Details

Name (*Dr/Mr/Mrs/Ms):

NRIC:..... Email:

Company Name:

Designation:..... HP No:

Preferred Mailing Address:

*Please delete accordingly

To apply, please submit the following required documents:

- NRIC (front and back)
- Educational or Professional Certificate
- CV

* Fees are inclusive of GST.

* Fees include refreshments, lunch and programme collateral.

Administrative Information

Registration and Payment

Please complete the enclosed registration form and forward it together with your **cheque at least 7 days** before the commencement of the programme to

**Sustainable Energy
Association of Singapore
9 Penang Road
#08-02 Park Mall
Singapore 238459**

Crossed cheque should be made payable to
"Sustainable Energy
Association of Singapore"
Application will close on **05 April 2013**.

Cancellation

SEAS reserves the right to change programme venue, cancel or reschedule the programme if necessary or warranted by circumstances beyond our control.

There will be no refund of fees for withdrawal. However, if the registration participant is unable to attend, a representative may be allowed to attend at no extra cost. Please inform us of the changes by fax or via email 3 days before the commencement of the programme.

Confirmation of Registration

Confirmation of registration will be given 5 working days before the commencement date via email. Registration is confirmed only upon receipt of payment.

If you do not hear from us
Please contact Ms Sherlene Lim at:
Tel: 63379886
Email: training@seas.org.sg
Fax your registration form to 6337 6658