

ANTRIKSH PHOTONERGY

SMART CONSULTING	: SMART CITY & RENEWABLES
DESIGN	: DESIGN & ENGINEERING, CONSULTANCY, SKILL DEVELOPMENT
BUSINESS	: BUSINESS DEVELOPMENT –TECHNOLOGY, PRODUCT, SERVICE
PROJECT	: PROJECT MANAGEMENT & EPC SERVICES
SOLUTIONS	: IDEATING PRODUCT, PROJECT, SERVICE SOLUTION, START-UP'S

We look towards **Smart Planet** and would like to take any opportunity which gives us pleasure of enriching our environment and making it a better place for living for all generations.

Our collaborative team of **Experienced Professionals** has expertise in rendering solutions for optimum utilization of resources.

ENERGY EFFICIENT CAMPUS

SMART – ENERGY, POWER, CITY, LIGHT, WATER, LIVING

- ENERGY MANAGEMENT, RENEWABLES (SOLAR)
- POWER T&D MANAGEMENT
- GREEN BUILDINGS & INTEGRATED SOLUTIONS
- LIGHTING MANAGEMENT
- WATER MANAGEMENT
- HOME & BUILDING AUTOMATION

NET ENERGY POSITIVE / GREEN BUILDING / SOLAR ROOFTOP

COLLABORATE WITH US : COMMITMENT WITH QUALITY

Our expert's professionals are passionate to make the world beautiful around us. Contact us to collaborate for **Consultancy services, Project execution, Competency enhancement, New Technology introduction, Business Development** or any **idea** worth pursuing together.

Don't hesitate to get in touch with us, even if it's just to find out how we can add value to your life.

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www.photonergy.weebly.com

OUR SERVICES AND OFFERINGS

SMART CONSULTING

Commitment with Quality

SMART DESIGN : DESIGN & ENGINEERING, CONSULTANCY, SKILL DEVELOPMENT

- **Smart Home, City, Planet, Citizen | Energy Optimized Designs**

Energy efficient, Energy Positive, Green building concept and designs in collaboration with leading architects to design and build societies with optimum utilization of resources and minimum disturbance to environment with best quality of life.

- **Energy Management | Energy Audit, Consulting, Solution and Services | Electrical & Automation**

Services by professionals to optimize your energy consumption and Management.

- **Water & Waste Management | Audit, Conservation Consulting, Solution and Services**

Conservation & optimum utilization planning - Rainwater, drinking water, waste water. Design engineering & project management Services by professionals.

- **Skill Development | Professional Trainings**

We provide consultancy in our areas of expertise and also trains professionals towards Smart Planet, a lifestyle which use optimum resources and minimize disturbance to environment.

SMART BUSINESS : BUSINESS DEVELOPMENT –TECHNOLOGY, PRODUCT, SERVICE

- **Smart Products & Innovations | Technology, Products, Services which changes lives**

Innovation, distribution & Trading of products (Solar Lights, LED Lights, Lanterns, Carts, Back Packs ...).

- **Business Consulting | Business Strategy & implementation**

Go to market Planning and placement, Marketing & Promotion, Distribution & service network.

SMART PROJECT : PROJECT MANAGEMENT & EPC SERVICES

- **Project Management & EPC | Electrical & Automation**

Services for feasibility study, technical specification, tendering, vender selection, project execution, O&M etc. With team of experts and professionals we deliver customer satisfaction by managing projects from concept to completion.

- **Solar Photovoltaic Solutions | Residential, Commercial, Utility**

Concept to commissioning of Solar projects for all applications (Grid / Off Grid / Hybrid, Rooftop / Ground).

- **Smart Automation | Lifestyle enhancement solutions**

Home Automation & Comforts (Light, Devices, Security, Home theatre ...).

SMART SOLUTIONS : IDEATING (PRODUCT, PROJECT, SERVICE) SOLUTION, START-UP'S

- **Innovation Support to ideas | Energy Conservation**

Cultivate ideas to reality which can help in energy optimization and sustainable societies.

OUR SERVICES AND OFFERINGS

SKILL DEVELOPMENT : PROFESSIONAL TRAININGS

We are passionate about constantly adding values to professionals by enhancing their knowledge collaborating with leaders in rendering quality education. The goal of the interactive course from our team is to improve the ability of Personnel and help them to work in better way.

Sharing is enriching and **together we build our world, better place for future**. We are expanding our expertise profile and work on improving skills in many areas. Our panellist & experts are sought speakers in most seminars & workshops to deliver guest lectures. Please contact us for **customized Training, workshops** or participate in the **regular training sessions** organised by us.

Giving below an indicative list of subjects, please connect back if your choice of topic is not covered in this list :

- **SOFT SKILLS | Better employability, aptitude and attitude building**
 - Counselling for School Students on Career Opportunities
 - Soft Skills for Young Professionals
- **TECHNICAL SKILLS | improving quality of operations, functional working in technical areas**
 - Solar PV
 - Electrical Power System Fundamental
 - Electrical Power T&D Equipment's Fundamental
 - Medium Voltage Switchgears
 - Power & Distribution Transformer
 - Power T&D Protection Fundamental
- **TRAINING PROGRAM STRUCTURE | Basic / Fundamental / Advance / Comprehensive / Customised**

In *Foundation*, most elementary level information is covered in various sessions while in *Basic* 3-4 sessions are covered with importance so that the participant understand the concept and can start practicing it but in *Advance* only 2-3 sessions are covered in details with case study and practice to sharpen the skills. The *Comprehensive* will include elementary information of all relevant session compressed to give complete overall perspective.

 1. **FOUNDATION** : **General overview and high level understanding of the solar sector**
Batch of 20-30 participants, 6 sessions in a day (8Hrs) for all beginners in Solar
 2. **BASIC** : **Give overview and broad understanding**
Batch of 15-20 participants, 3-4 sessions in a day (8Hrs) for all beginners in that specific field
 3. **ADVANCE** : **Detail understanding & practice**
Batch of 10-15 participants, 2-3 sessions in a day (8Hrs) for advances professionals in that specific field
 4. **COMPREHENSIVE: Broad overview of all relevant topics**
Batch of 20-30 participants, 10-12 sessions in a 2 day (8Hrs) for all beginners in that field

For ex. **Comprehensive Solar power projects design & development**, 2 days training course for start-ups, entrepreneurs and managers of project developers, implementing agencies and EPC companies will cover rooftop and large scale PV power projects.

The participants will gain knowledge on site & resource assessment, system sizing, project planning, accurate energy yield assessment, best practice in design and installation, detailed feasibility report/ DPR preparation, bid preparation and evaluation, O&M planning, documentation and knowledge management etc.

We have recently launched “*Swablamban – Comprehensive Solar Training program*” with NSEFI which is designed for Solar Professional & Entrepreneurship capability building.

Customized program based on the research and Industry feedback with objective to give complete comprehensive overview, which has 12 sessions spread in 2 days covering most aspects of Solar (Technology, Sector overview, Policies, Electricity consumption, Designing – Ground / Rooftop / Off-Grid, Proposal building, Finance, Legal & contracts and how to start in Solar etc.). *Please refer program detail in next pages.*

You can refer our training catalogue for sample of training and download sample training booklet provided as participant’s handout <http://photonergy.weebly.com/skill-development.html>

5. **CUSTOMIZED** : **Specific to corporate, client or set of participants** as per the mutual agreement. We can build the customised training module with agreed expectations /scope of knowledge sharing and structure that in a 2-3 days course mix with theory and practice.

○ **LIST OF SESSIONS | SOLAR PV (Sample List)**

1. Sales & Marketing
2. Bid & proposal Management
3. Design & Engineering
4. Legal & Contract Management
5. Finance & Investment
6. Project Management
7. Site work (Installation, Testing & Commissioning)
8. O &M

○ **LIST OF SKILL DEVELOPMENT TOPICS | SOLAR PV (Sample list)**

1. Ground Mount – DC Side design
2. Ground Mount – AC Side design, Switchyard & Substations
3. Rooftop – DC & AC Side design
4. Off-Grid – Mini / Micro Grid design
5. Off-Grid – Solar Pumping design
6. Product Technology – Solar PV Module
7. Product Technology – Solar PV Inverters
8. Product Technology – Power & Distribution Transformer
9. Product Technology – HT & LT Switchgears
10. Product Technology – Protection & Relay
11. Product Technology – Switchyard & Substation
12. Product Technology – BoS
13. System design optimization – Simulation & evaluation
14. Solar PV technology - overview
15. Solar project development - phases and issues
16. Project planning - schedule of activities in solar power project development
17. Site assessment & feasibility study - MW scale solar power projects
18. Site assessment & feasibility study - rooftop solar power projects
19. Solar resource assessment - Methodology and approach
20. Energy yield Assessment - Loss estimation and calculation
21. System design - Capacity or system sizing, ensure safety and performance
22. Preparation of Bill of Materials (BoM)
23. Project cost estimation
24. Economic analysis
25. Preparation of Detailed Feasibility Reports/ DPR - solar power projects sample reports, bankable DPR, bid document, BoM etc.

26. Preparation of tender document for solar power projects
27. Ability to make power point presentations and prepare case studies
28. Customer management Soft Skills – customer presentation, negotiation, closing order, Order Management etc.
29. Preparation of Contract agreement
30. Bid evaluation – methods and technics
31. Vender Bid evaluation guidelines and contract agreement.
32. Project Risk evaluation and Management
33. Project Management - Standard operating Procedure, Pre & Post Installations planning, Process checklists and progress monitoring Forms
34. Project Installation Check list – site readiness & Post Installation Completion certification
35. Interpreting Installation Manuals and project documentations
36. Document management – Contracts, Warranty Certificates, AMC renewal documents
37. Adopt to Solar Kits, Equipment, accessories and tools for demonstration
38. Installations of Smaller Solar Projects-1-5 KW
39. Site Management – Medium size projects 10kW-1000kW
40. Site warrantee services Management
41. O&M Planning

○ **LEARNING METHODS**

These are mostly instructor led interactive seminar Involving group discussion with participants, learning by sharing experiences and best practices.

○ **TEACHING METHODS**

Content is presented as audio-visual presentation in classroom with a print copy to each participant. Optional to include demonstration in few cases.

○ **TEACHING LANGUAGE**

The language of the course is English.

○ **COURSE DURATION**

Short duration course (1-5 days). Each day sessions max 8 hrs which includes training, 2-3 tea breaks – 15' each and 1Hr lunch break.

○ **COURSE COMMERCIALS | Fee Structurer, preparation time, payment terms etc.**

1. **AP's Trainings** : For a batch size of 20-30 participants in New Delhi, the cost of first training shall be Rs. 7,500.00 per participant per day which includes training arrangements (Venue, Lunch & tea), preparation of course content and one set of handout hard copy.
Full course fee to be paid in advance for registration in the training.

2. **Corporate Trainings** : For a corporate in-house yearly assignment or multiples assignment min Rs. 1,00,000.00 per day training as the faculty fee (one presenter and 1-2 assistant) while Faculty Travel from New Delhi, lodging & boarding either arranged by client or paid extra at actual.
Payment 30% advance with formal contract and balance payment cheque to be given before start of the training. The time required shall be min 2 weeks post contract to build / customise the content, curriculum and course material and make first training.

○ **FURTHER INFORMATION**

Team – Skill Development

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SKILL DEVELOPMENT : PROFESSIONAL TRAININGS

BE A SOLAR PROFESSIONAL OR ENTREPRENEUR

TRAINING MODULE (APSD_SCO)

SOLAR - COMPREHENSIVE ORIENTATION

Course Goal	: To improve overall sector understanding for Solar professionals responsible for sales, marketing, Project proposal & tendering, engineering, commissioning, O&M.
Participant's	: Anyone working in Solar PV Industry or General awareness on Solar PV
Learning Objective	: Upon completion of this course participants will be able to understand the critical elements of Solar PV, operation of Solar PV project, Solar PV proposal and "do's & don't" for Solar PV.
Program	: The 2 days program begins with participation registration, inaugural session by eminent guest addresses followed by 6 technical sessions one hour each per day. Program concludes with self-assessment test and certification.
Course Duration	: The course is structured for 12 Sessions - 1 Hour each spread over 2 days, 9.30AM-5:30PM, each day with 1Hour lunch break and 2 tea breaks (15' each).
Certification	: by NSEFI (National Solar Energy Federation of India, www.NSEFI.in)
Facilities	: Lunch & High Tea included.
Support	: 1. E4U (Knowledge portal) one year basic membership. 2. Up to 20% discount for next advance courses.
Opportunity	: Networking & interaction with Industry leaders
Technique	: Instructor led interactive, Collaborative Knowledge Sharing using Presentation, Case studies involving group discussion of participants, learning and sharing experiences and best practices. Content is presented as audio-visual presentation in classroom with a print copy to each participant.
Teaching language	: The language of the course is English.
Participation	: Participation for this course is open to all on first come first serve basis, Limited seats offered by prior registration . Participation fee is to be paid in advance for registration.
Fee per person	: Rs. 15,000 (Corporates), Rs. 12,500 (Individuals), Rs. 10,000 (NSEFI Members & Students). Rs. 2,500 Early-bird discount, ends two weeks before the start date of training. Rs. 1,000 Group discount on 3 or more registrations, write to us for any other considerations.
Registration	: Online http://photonergy.weebly.com/e4u.html or Contact NSEFI : Ms. Sumedha Nidhi, +91 11 26215236, sumedhansefi@outlook.com
Further information	: Team – Skill Development (E4U) Antriksh Photonergy, Smart Consulting – Smart City & Renewable Projects RZ-D1/100, FF, St # 5, Mahavir Enclave, New Delhi-110045 +91 9013248005; photonergy@outlook.com ; www.photonergy.weebly.com

TRAINING MODULE (APSD_SCO)

SOLAR - COMPREHENSIVE ORIENTATION

The sessions will cover **most aspects of Solar PV Industry**, refreshing **fundamental understanding** with diverse views and analysis, topics such as:

Day - One

- 1. INAUGURAL SESSION**
 - Views by eminent persona guest speakers
- 2. BASICS OF SOLAR TECHNOLOGY**
 - Understanding various Solar Applications (On-Grid, Off-Grid, Hybrid)
 - Types of Solar Projects (Rooftop, Ground Mounted & Utility Scale)
 - Understanding of Various products used in the Solar
- 3. BASIC UNDERSTANDING OF SOLAR SECTOR**
 - Overview of Solar Sector in India & International
 - Market dynamics
 - MNRE vision, 100 GW by 2022 Policy
 - Role of Nodal Agencies, CERC and SERCs in shaping Solar sector in India
 - Govt. Support to the sector, Subsidies
- 4. BASIC UNDERSTANDING OF POLICIES**
 - Solar Metering in India (FIT, Gross Metering, Net-Metering)
 - Concept of Net-Metering and Understanding the Policy
 - Sale of energy (PPA, Open Access etc.)
 - Best Practices in Solar Policies
 - REC framework
- 5. BASIC UNDERSTANDING OF ELECTRICITY CONSUMPTION**
 - Understanding Power Consumption, Electricity Tariff structure)
 - Electricity Bill Analysis (Residential, Commercial & Industrial)
 - Case study / Tariff structures of few states
- 6. BASICS OF GROUND MOUNT PROJECT DESIGN**
 - Concepts, Solar System options
 - Sizing & Equipment selection
 - Costs variations of different designs

Day – Two

- 7. BASICS OF ROOFTOP PROJECT DESIGN**
 - Defining Solar System
 - Sizing & Equipment selection
 - Costs variations of different designs
- 8. BASICS OF OFF-GRID, MINI GRID DESIGN**
 - Concepts, Solar System options
 - Sizing & Equipment selection
 - Costs variations of different designs
- 9. BASICS OF PROPOSAL BUILDING**
 - Solar System Bill of Material, budget
 - Creating Solar Proposals and making Savings Charts
- 10. BASICS OF SOLAR INVESTMENT**
 - Overview on Making Solar Investment (Public Sector and Private)
 - Evaluating Returns and Risk Matrix
 - Project financing, Debt / Equity, Financial Models
 - Basic Financial Analysis, Understanding & Calculating ROIs
- 11. BASICS OF LEGAL AND CONTRACTS**
 - Understanding laws
 - Terms of contracts in PPA
 - Terms of EPC contract, O&M Contracts
 - Terms of procurement etc.
- 12. BASICS OF STARTING SOLAR BUSINESS**
 - Entering Solar Sector- Various Business, Job and Freelancing Opportunities
 - Business Models
 - Channel Partnership & Registration Process for MNRE under New Entrepreneur scheme
- 13. SELF-ASSESSMENT TEST**
 - Test
 - Answers & Self Evaluation
 - Certification