

Renewable Energy Hot Topics

A Live Seminar on Essential Fundamentals of Renewable Energy

Credit: 7.5 PDH's (1-Day); 0.75 CEU's

Lead Instructor: Professor Bobby Rauf, PE, CEM, MBA

Course description

This course caters to Engineers, Technicians, Facilities Managers, Energy Professionals, Architects and others who are interested in enhancing their understanding of renewable energy, and would like to learn about methods, best practices and strategies for selection of the most suitable renewable energy alternative, with technical, geographic and financial feasibility in mind. Introduction to a few important fundamentals of energy and the “grid” sets the tone for better comparison of current source of energy with optimal renewable energy alternative. Importance of the concept of most *direct* application of renewable source to the final energy demand point is highlighted. After the introduction, this seminar dives into some of the more proven and mainstream renewable energy topics. Current footprint and relative cost differences between some of the major renewable energy systems are examined. Strengths, weaknesses, opportunities and threats pertaining to some of the mainstream renewable energy solutions are discussed. Some of the cutting edge, and yet unproven, renewable energy systems are introduced. The discussion on the topic of renewable energy is sustained by diagrams, schematics and pictures pertaining to major renewable energy systems.

Learning Objectives - Upon successful completion of this course, participants will be able to:

- Perform technical/engineering and cost comparisons between energy obtained from the grid versus the energy harnessed from renewable sources. Identify and quantify technical and financial benefits of renewable energy systems.
- Specify and implement renewable energy systems that leverage direct application of renewable energy sources to the point of use, thus maximizing the efficiency and net benefit of renewable energy systems.
- Examine and assess alternative renewable energy technologies on the basis of physics and engineering principles. Assess the performance of renewable energy systems on the basis of physics and engineering equations that correlate physical parameters to the power and energy output of wind turbines. These equations serve as tools in design, analysis, suitable location selection and application of wind turbines. Utilize physics and engineering principles and equations to evaluate the performance of hydroelectric turbines.
- Evaluate technical/engineering strengths and weaknesses of major renewable energy technologies like: hydroelectric, tidal, wave, wind, geothermal, solar heat, solar light, solar PV, solar chimney and biomass.

- Follow progress on some of the major, more recent, notable renewable projects in the world. Benefit from the lessons on these projects in avoiding pitfalls in the design/specification of renewable energy systems.
- Identify some of the more unbiased and reliable technical and commercial information sources in the renewable energy arena; thus, staying abreast of progress and current data in the renewable energy realm, beyond this seminar.

Topics

Morning:

1. Energy Facts
2. Energy Basics
3. Electricity Basics
4. Electrical Bill Calculation and Load Factor
- *Morning Break – 15 Mins.*
5. Overview of Renewable Energy Technologies
6. Hydroelectric Power
7. Tidal Energy
8. Wind Energy
9. Geothermal Energy Technology
10. Solar Technologies

Afternoon:

11. Solar Heating
12. Solar Heat – Renewable Electrical Energy Technologies
13. Photovoltaic Renewable Energy
14. Major Solar Energy Projects – Domestic and International
- *Afternoon Break – 15 Mins.*
15. Biomass Renewable Energy Technologies
16. Emerging Renewable Energy Technologies
17. Financial Justification and Implementation of Energy Projects
18. Renewable Energy Information Sources

Why you shouldn't miss this seminar – How this seminar can benefit your organization or clients; what is unique about this course:

- Are you **responsible for identifying the most suitable renewable energy alternative**, for your operations or those of your clients', and you feel inadequately prepared to lead the effort; or perhaps you don't know where to begin? Then, this seminar is a must.

- Do you **manage or lead a group of energy or engineering professionals** responsible for identifying renewable energy solutions and managing renewable energy projects, but you **feel that your knowledge and understanding of renewable energy is somewhat inadequate**, needs enhancement and greater breadth? Then you must not miss this proven and frequently updated seminar.
- Do you feel that **financial justification of renewable energy – or energy conservation projects, in general, is an “uphill battle”** in your organization? Then, this seminar will give you the opportunity to air your challenges and frustrations. You will learn about some **proven approaches – both technical and financial – for successful renewable energy project funding and implementation.**
- As an engineer or energy professional, **do you feel inadequately equipped to comprehensively compare various renewable energy alternatives – from technical and financial feasibility vantage point?** Then, this seminar will present an excellent opportunity to remedy that.
- How often do you get a chance to attend a course or a seminar that is presented by the author of books on relevant subject matter - in person? In this seminar, you will have the opportunity to interact and learn from **Prof. Bobby Rauf, the author of the texts, titled: (1) Thermodynamics Made Simple for Energy Engineers, and (2) Finance and Accounting for Energy Engineers.** (Copies of these books are available at additional cost).
- Some seminars and courses end up being monotonous monologues from the presenter to the audience. Not this one. In this seminar, you will get an opportunity to air questions, share your success stories – as well as, frustrations - in the energy arena. You will learn how to avoid costly mistakes, **and engage the instructor and other attendees in discussions.**

Who should attend:

- **Licensed PE’s, Professional Engineers, and CEM’s, Certified Energy Managers,** who need to meet the license or certification renewal PDH (Professional Development Hour) or CEU (Continuing Education Unit) requirements. This energy seminar **couples engineering concepts and knowledge** with renewable energy concepts and best practices.
- **Facility Managers, Plant Engineers, Engineering Managers, Energy Professionals, Architects, Project Managers and other Executives** who feel a need to enhance their renewable energy engineering knowledge, to make informed decisions on renewable energy projects or programs.
- **Professionals,** who do not possess prior experience or knowledge in the renewable energy realm, including **Project Management Staff, Energy Project Financial Analysts and Technical Writers.**
- **Procurement/Purchasing Professionals** who are responsible for obtaining renewable energy project proposals.
- **Construction managers** who manage renewable energy project installations.

- **Other professionals** whose annual **PLP, Performance and Learning Program**, include energy engineering courses, training, or seminars.

List of Past and Current Clients:

Mr. Rauf of Sem-Train has provided training and/or consulting services to over 5000 engineers and non-engineers through some of the following organizations, over the last fifteen years:

1. **BHP Billiton**
2. **Saudi Aramco (Dammam, Kingdom of Saudi Arabia)**
3. **US Bureau of Reclamation (Hoover Dam)**
4. **US Dept. of State (SemTrain, LLC, is SAM/CAGE approved for Federal Contracts).**
5. **CED**
6. **Balfour Beatty**
7. **Shaw Group**
8. **McNeese University**
9. **University of North Carolina, Charlotte**
10. **Texas A&M University,**
11. **Clemson University,**
12. **PPG Industries, Inc.,**
13. **PDHengineer,**
14. **PPI, Professional Publications**
15. **University of Maryland Baltimore County,**
16. **EPIC (Canada)**
17. **Y-F Asia – Singapore**
18. **Duke Energy**

Sem-Train is an Approved sponsor of PDH (CPC and CEU) Engineering and Energy Courses at the following Board of Examiners for Engineers & Land Surveyors:

- 1) **North Carolina (NCBELS)**
- 2) **New York (NYSED)**
- 3) **Florida (FBPE)**
- 4) **Maryland –**
- 5) **New Jersey – Approval expected by Oct. 20, 2017.**

Testimonials from clients:

- 1) **Kimberly T.:** Bobby, I would like to say that even though I am not an engineer, I am really glad that I took this. You have helped me to dissect and visualize some of the terms and concepts that were not tangible to me prior to this class.

- 2) Jim L. S. PE, CMRP, Manager Engineering: “....Bobby is an outstanding instructor and the material was very well presented.....We will want to do this again next year...
- 3) Gregory (Greg) V. D., P.E.: “Hi Bobby, I've enjoyed both of your pdhengineer.com webinars that I've attended.....I don't know how you get through a full 8 hours at such a high energy level!”
- 4) See other testimonials at our website.

Lead Instructor's Phone: (704) 477-9166. *Note: Interested potential attendees are encouraged to call the instructor, directly, with technical seminar content related questions.*

Instructor Bio:

Professor S. Bobby Rauf, P.E, C.E.M, MBA; Member, ASEE, American Society of Engineering Education.

Professor Bobby Rauf is the President, Chief Consultant and a Senior Instructor at Sem-Train, LLC. Bobby has over 25 years of experience in teaching undergraduate and post graduate Engineering, Science, Math, Business Administration and MBA courses, seminars and workshops. Prof. Rauf is registered (PE) **Professional Engineer**, in the State of North Carolina, a **Certified Energy Manager** and a **certified ergonomist**.

Prof. Rauf was inducted as “**Legend in Energy**” by AEE, in 2014. He is a published author of multiple engineering and energy books, and professional development courses. He holds a patent in process controls technology.

Prof. Rauf develops and instructs PDH (Professional Development Hour) and, continuing education, engineering skill building courses. He conducts these course in form of webinars, live on-site presentations, workshops, pre-recorded audio and self-study texts. Some his major clients include **Texas A&M University, Saudi Aramco – KSA, University of North Carolina at Charlotte, McNeese University, Lamar University, Clemson University, Association of Energy Engineers, EPIC College - Canada; US Bureau of Reclamation, BHP Billiton, PDHengineer, CED, Y-F Asia, and PDH Source.**

Prof. Rauf's last full-time engineering employment, in the corporate world, was at PPG Industries, Inc. where he served as a **Senior Staff Engineer**. He brings to this program more than 25 years of hands-on experience in a broad spectrum of areas within large industrial plant engineering and plant maintenance departments, including electrical, controls, energy and mechanical projects. Professor Rauf has served as **Adjunct Professor at Gardner-Webb University** since 1989, where he has instructed classes in both the B.A. and M.B.A. programs.

Professor Rauf's publications include (Available through AEE, Amazon.com, and Barnes and Noble, Google: Bobby Rauf):

- 1) Text book titled “**Thermodynamics Made Simple for Energy Engineers,**” Published in 2012 through Fairmont Press and CRC Press – Worldwide distribution.

- 2) Text book titled “**Finance and Accounting for Energy Engineers,**” Published in 2011 through Fairmont Press and CRC Press – Worldwide distribution.
- 3) Text book titled “**Electrical Engineering for Non-Electrical Engineering,**” The Second Edition of this book was published in 2016 through Fairmont Press and CRC Press – Worldwide distribution.

Lead Instructor’s Phone: (704) 477-9166. *Note: Interested potential attendees are encouraged to call the instructor, directly, with technical seminar content related questions.*

Important Notes for Participants:

- In order to enhance the learning experience, the class size is limited – register early.
- Seminars are subject to cancellation if the minimum registration threshold is not met. ***Registration fees will be refunded in entirety if a seminar is cancelled.***
- Name on the attendance certificate will be as it appears on the registration documents. **Please Note:** If an admin associate registers you, have them enter **YOUR** name on the registration/payment form.
- Verify exact location of venue before the seminar date. *
- Bring valid ID and copy of registration information. *
- Light refreshments will be served. *
- Certificates of attendance will be provided.
- The handouts for the course will be provided via “Drop Box.”
- Venue Wi-Fi where available. *

**** This information applies to in-person, face to face, seminars only.***

SEMINAR HOURS

Sign-in and Onsite Registration: 7:30 am – 8:00 am

- Seminar Hours: 8:00 am – 5:00 pm. One-hour lunch break.

Cancellation Policy: Full refund granted if registration is cancelled **30 days** or more prior to the scheduled date of the seminar; otherwise, registrant can apply the course credit toward attendance at another, scheduled, equivalent event, in the region, at a later date.

SemTrain, LLC, reserves the right to cancel the seminar when minimum registration threshold is not met. In such case, SemTrain, LLC, will issue full refund to the registrant. Registrants, in some cases, may be given the option to attend the on-line, live, webinar, version of the seminar.

Sem-Train LLC ©
All Rights Reserved

Prices are subject to change without notice.