

# **Plant Maintenance Engineering and Management (Facilities Management)**

## **Program/Course Information**

**By: S. Bobby Rauf, P.E., C.E.M, MBA**

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

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

## **Program Description**

This course caters to Plant Engineers, Professional Engineers, Maintenance Engineers, Facilities Managers, Architects and other Professionals who are interested in enhancing their knowledge and exposure to a broad spectrum of engineering disciplines involved in maintenance and facilities management of modern industrial and commercial facilities. This course shares some proven and effective plant maintenance engineering best practices that are learned through experience and are not an explicit component of engineering curricula. This seminar introduces the participants to computer based maintenance work order systems, their core functions/features and their pros and cons. For those professionals who are experienced in the industrial and commercial technology, this course provides an opportunity to refresh and expand their knowledge on making “repair versus replace” decisions on capital intensive plant equipment; real yet obscure costs of energy and other vital utilities; preventive maintenance of mechanical and electrical equipment, vibration testing and predictive maintenance; increasing MTBF, mean time between failures, on HVAC and other plant equipment; maintenance troubleshooting and problem solving. Participants are refreshed on and introduced to fundamental electrical terms and principles, followed by a virtual tour of electrical equipment found commonly in industrial plants and commercial facilities. Attendees are reminded of importance of workplace safety and introduced to common electrical and electronic safety equipment.

## **Topics to be covered**

- Maintenance Engineering and Management
- Fundamentals of Electricity. Electrical and Control Systems
- Heating, Ventilation and Air Conditioning
- Preventive and Predictive Maintenance, and Cost Savings Opportunities
- Energy Management and Conservation.
- Safety in Industrial Environment
- Plant Project Engineering and Management
- Life Cycle Cost and Economic Justification of Capital Projects

## **Learning Objectives & Take-Aways – After Attending this Course:**

1. You will have a better appreciation of **challenges** associated with sustaining and maintaining large industrial and commercial facilities, effectively and efficiently.
2. You will be able to apply proven best practices that can help you **maintain/sustain large industrial, institutional and commercial equipment** and other critical assets in a cost effective, efficient and lean manner.
3. You will gain familiarity with major types of **electrical and mechanical equipment**.
4. You will be able to apply proven and effective **energy and other utilities conservation** ideas to reduce the operating costs in large industrial, institutional and commercial facilities.
5. You will be able to apply proven best practices for effective **interface** and management of maintenance, energy and utilities technicians.
6. You will be able to apply proven and effective **safety** best practices in large industrial, institutional and commercial environment.
7. You become aware of **plant engineering project** mapping and project flow.
8. You will know the gravity of workplace harassment, **team morale and positive reinforcement**.
9. You will know how to develop project life cycle cost and how to perform basic **financial analysis**.
10. You will **get answers** to your plant maintenance, facilities management, and plant engineering related questions.

### **Who should attend:**

- Engineers of all disciplines
- Licensed Professional Engineers, who need to meet the annual or biennial license renewal PDH (Professional Development Hour) or CEU (Continuing Education Units) requirements.
- Facilities Managers
- Energy Professionals

- Purchasing/Procurement Professionals
- Technicians with Plant Maintenance Responsibility in Industrial, Commercial or Institutional Environment
- Other professionals whose annual PLP, Performance and Learning Program, includes acquisition of facilities management knowledge.

***“SemTrain, LLC, is an approved sponsor and course provider with NY, NYSED, Maryland, NCBELS, North Carolina Board of Examiners for Engineers, New Jersey, and FBPE, Florida Board of Professional Engineers, for the provision of CPC, Continuing Professional Competency, courses.”***

***“SemTrain, LLC, is approved for US Federal Government Contract Work, and is SAM and CAGE registered.***

### **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.”
  - Seminar Hours – Each Day: 8:00 am - 5:00 pm. One hour for lunch. \*
  - Venue Wi-Fi where available. \*
- \* This information applies to in-person, face to face, seminars only.

### **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**.

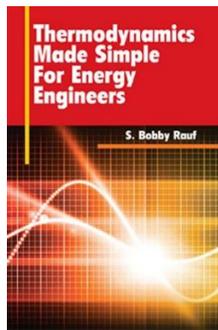
Prof. Rauf was inducted as “**Legend in Energy**” by AEE, in 2014. He is a published author of multiple engineering and energy books, and professional development courses. He holds a patent in process controls technology.

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.**

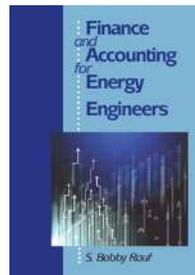
Prof. Rauf’s last full-time engineering employment, in the corporate world, was at PPG Industries, Inc. where he served as a **Senior Staff Engineer**. He brings to this program more than 25 years of hands-on experience in a broad spectrum of areas within large industrial plant engineering and plant 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):

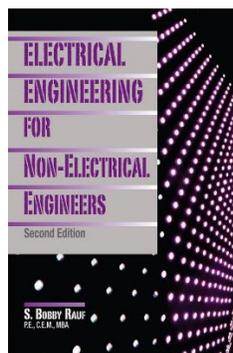
- 1) Text book titled **“Thermodynamics Made Simple for Energy Engineers,”** Published in 2012 through Fairmont Press and CRC Press – Worldwide distribution.



- 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.



Mr. Rauf of Sem-Train has provided training and/or consulting services to 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. CED
5. Balfour Beatty
6. Shaw Group
7. McNeese University
8. North Carolina State 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

### Testimonials from clients:

- 1) Kimberly T., 2011: 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!”

**Lead Instructor's Phone:** (704) 477-9166

**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.

Sem-Train, LLC, reserves the right to cancel the seminar when minimum registration threshold is not met. In such case, Sem-Train, 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 subject to change without notice.