

# Finance, Accounting, Engineering Economics, and Project Management Best Practices for Engineers and Technical Managers

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

**Credit:** 16 PDH's (2-Day); 1.6 CEU's

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

## Seminar Hours:

Both Days: 8:00 AM – 5:00 PM. 1/2-hour lunch break\*

\* Subject to Change.

## Program Description

Learn about finance, accounting, corporate reporting requirements, engineering economics and project management best practices. Learn about fundamental book keeping or accounting methods: The Income Statement and the Balance Sheet. Learn about the widely used and accepted capital investment performance metrics, such as financial ratios, payback period, NPV/NPW, annuities, EUAC, present worth and future value. Understand asset depreciation methods and their influence on net profit and taxes. Get a better appreciation of the role played by inventory systems in the control of net income, net profits and tax liability. Learn about life cycle cost and other cost classifications in industrial and commercial organizations. Learn about proven and successful project management best practices.

## Course Outline

1. **Accounting and Finance Concepts:** Definitions, Discussion and Examples of Calculations.
  - a) Economics and engineering economics
  - b) Common Organizational Structures - Role of Financial Analysts, Accountants, Controllers and CFO's
2. **Income Statements and Balance Sheets.** Cash Flow and Working Capital Concepts
3. **Financial Reporting Requirements**
4. **Financial Metrics and Ratios:** Payback Period, FV, PV, Time Value of Money Conversions. IRR, ROI, NPV, ROE, ROR, Current Ratio, Acid Test Ratio, Plant Turnover Ratio
5. **Engineering Economics and Breakeven Analysis**
6. **Depreciation Alternatives:** S/L, Prod. Based, SOY Digits.
7. **Inventory Concepts:** FIFO, LIFO, EOQ, Inv. Turnover Ratio, WIP Inv., Inv. Carrying Costs.
8. **Lease vs. Buy Decisions.** Repair vs. Replace Decisions
9. **Costs:** Life Cycle Cost. Period Costs, Direct and Indirect Costs.
10. **Project object and goal formulation**

11. **Project Team Organization**
12. **Importance of effective communication and protocol**
13. **Importance of safety on projects**
14. **Factory and on-site tests** and associated specifications
15. **Project closure**

**Take Away: After participating in the seminar, you will:**

- Understand accounting and finance concepts through explanation of definitions and examples of calculations.
- Understand basic economics principles and engineering economics related analyses
- Know more about common organizational structures and understand the role of Financial Analysts, Accountants, Controllers and CFO's
- Understand income statements, balance sheets, concepts of cash flow and working capital better
- Have a better appreciation of different types of financial reports and financial reporting requirements
- Have better understanding of financial metrics and financial ratios, including: Payback Period, FV, PV, Time Value of Money Analysis, IRR, ROI, NPV, ROE, ROR, Current Ratio, Acid Test Ratio, Plant Turnover Ratio
- Know more about depreciation alternatives such as: S/L, Prod. Based, SOY Digits.
- Understand inventory concepts such as: FIFO, LIFO, EOQ, Inv. Turnover Ratio, WIP Inv., and Inv. Carrying Costs.
- Have better understanding about Lease vs. Buy Decisions, and Repair vs. Replace Decisions
- Know more about different types of costs, including: Life Cycle Cost, Period Costs, Direct and Indirect Costs
- Know how to screen or develop clear and complete project objectives, goals and scopes.
- Have better appreciation of importance of project leadership, communications and transactional protocols.

**Who Should Attend?**

- Engineers
- Licensed Professional Engineers (PE's)
- Manufacturing Managers
- Facility Managers
- Project and Program Managers
- Maintenance Managers
- Energy Engineers and other Energy Professionals
- Engineering Managers
- Construction Managers
- Architects

**Optional Reference Material:**

Finance and Accounting for Energy Engineers, By S. Bobby Rauf, The Fairmont Press.

## **Instructor Bio:**

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

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, Math, Business Administration and MBA courses, seminars and workshops. Professor Rauf is registered (PE) **Professional Engineer**, in the State of North Carolina and is a **Certified Energy Manager**.

Mr. 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.

Professor Rauf is certified to instruct various engineering, ergonomics, and industrial safety courses. He has conducted certification training and trained engineers for Professional Engineering licensure exams in the United States, The United Kingdom, Kingdom of Saudi Arabia, The Netherlands and Ukraine, over the past ten years.

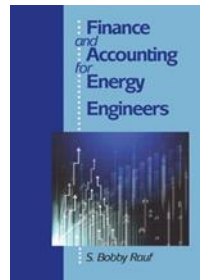
Mr. Rauf develops and instructs PDH (Professional Development Hour) and, continuing education, engineering skill building courses. He conducts these courses in form of webinars, live on-site presentations, workshops, pre-recorded audio and self-study texts. Some his major clients include **Texas A&M 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, PDH Engineers, CED, and PDH Source**. He is also an Adjunct Professor at Gardner-Webb University.

Professor Rauf has also developed and published several self-study books that cater to the continuous professional development needs of Engineers, Technicians and Technical Managers.

Mr. Rauf’s last full-time engineering employment, in the corporate world, was at PPG Industries, Inc. where he served as a **Senior Staff Engineer**. During his long career at PPG, his responsibilities included development and management of energy and ergonomics programs for multiple manufacturing plants, in the US and overseas. He also provided consultation and training services in, energy, electrical engineering, industrial safety, ergonomics and arc flash arena. His extensive engineering experience includes, power design, control system design, project management, process management, energy and utilities management, energy audits/assessments, plant maintenance, robotics, manufacturing automation, HVAC audits, and design of ergonomic equipment.

**Professor Rauf’s publications include** (Available through AEE, Amazon.com, and Barnes and Noble):

- 1) 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.
- 2) Text book titled “**Thermodynamics Made Simple for Energy Engineers,**” Published in 2012 through Fairmont Press and CRC Press – Worldwide distribution.
- 3) Text book titled “**Finance and Accounting for Energy Engineers,**” Published in 2011 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. **NEG, Nippon Electric Glass**
14. **PDHengineer,**
15. **PPI, Professional Publications**
16. **University of Maryland Baltimore County,**
17. **EPIC (Canada)**
18. **Y-F Asia - Singapore**

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

### **Testimonials from clients:**

- 1) Timothy M., CEM, CDSM: “Bobby: I wanted to pass on my thoughts concerning the recently completed, Electrical Engineering for Non-Electrical Engineers. I found it to be very helpful, especially the section on Power Factor. I have had it explained to me a number of times, but your explanation was the best.
- 2) 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 class (EE for Non-EE). You have helped me to dissect and visualize some of the terms and concepts that were not tangible to me prior to this class.
- 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) Dr. A. P., Professor and Dean, 2013: “Dear Bobby, it was such a pleasure to meet you and having you as the great instructor of our Electrical Engineering seminar. As I understood from the attendees, they really enjoyed your course and learned a lot...”