



Course Information Letter ---- OP403

PRINCIPLES OF POWER PLANT THERMODYNAMICS OP403

This course offers a basic study of the theories of thermodynamics as it applies to operating power plants. Discussion includes application to unit systems, heat transfer, and tables of properties. Emphasizes operational problem solving and the understanding of steam cycles throughout the power plant in relation to the principles of thermodynamics.

Topical Outline: Thermodynamic Properties, Temperature/Pressure Measurements, Energy, Work, Heat, Thermodynamic Systems and Process, 3-Phases of Water, Thermodynamic Laws, Power Plant Steam Cycle as a Application of Thermodynamics

OBJECTIVES:

At the completion of this course the participant will be able to:

1. Describe the Thermodynamic Laws as they apply to an operating power plant.
2. Define the terms entropy, enthalpy, superheat, latent heat, and sensible heat.
3. List the thermodynamic processes involved with each component in the power plant cycle.
4. Of those thermodynamic processes listed above, describe the thermodynamic process and how it is reasonably controlled.
5. Describe the natural limitations imposed upon power plant operation.

WHAT YOU WILL RECEIVE:

1. 1 copy of HPC Technical Services' textbook, OP403, [Principles of Power Plant Thermodynamics](#).
2. A "Certificate of Completion" with 1.9 CEUs, authorized for issue by the International Associate of Continuing Education/Training.

COURSE DATES/LOCATION/FEE

For current dates / locations / prices, please see HPC's website, www.hpcnet.com.

FREQUENTLY ASKED QUESTIONS

- Will HPC Technical Services bring this course to our location for our personnel only? YES, call or email Stephen Parker, stparker@hpcnet.com for a price quotation.
- Will HPC Technical Services customize the presentation at our site to suit our particular needs? Yes.
- Is HPC Technical Services' textbook available for purchase as a reference document? No, but it will be in the near future.
- What is the cost for HPC Technical Service to deliver this course at our location? Well, of course that can vary, but generally speaking, if you're planning on having 6+ attend, when considering your T&L, it is to your advantage to perform the course at your plant (office). You gain from the customization and price.
- Can HPC Technical Services provide "Technical Assistance" in conducting functional checkouts or troubleshooting problems, or performance audits? Yes we can. Call or contact Harold Parker, hparker@hpcnet.com for our rate sheets and any further information required.

Principles of Power Plant Thermodynamics OP403

POWER PLANT OPERATOR & BOILER ENGINEERING CERTIFICATION:

This is one of the courses required for Power Plant Operator Certification Program and the Boiler Engineering Certification Program.

Those who attend this course are automatically qualified to take HPC Technical Services' Certification Examination. This examination is offered at no additional expense to the participant. An 80% passing grade is required. The examination length will not exceed 2-hours. Those who complete this examination will receive a revised "certificate of completion" that recognizes this accomplishment along with two-copies of a "To Whom It May Concern" letter that states their accomplishment. (Two copies are provided, one for the participants' employer and one for the participants' personal file.)

Consult HPC's website, www.hpcnet.com, for detail on this certification program.

INSTRUCTOR (S):

Dana Elrod

Mr. Elrod has near 30-years experience in operating large electrical power plant facilities. From 1979 thru 2000, MidAmerican Energy Company in Council Bluffs IA employed Dana. Positions held include that of Operations Superintendent, Shift Supervisor, Training & Safety Supervisor and Environmental Specialist. From 1974 thru 1979 Mr. Elrod was employed as an Environmental Specialist for the State of Iowa Department of Environmental Quality. Mr. Elrod holds a BS in Management from Drake University, 1985

Hayes, Robert

Mr. Hayes instructs HPC's Balance-of-Plant O&M courses as well as our popular "Power Plant Blackout Preparedness" course. Mr. Hayes, prior to early retirement, held several positions during his long tenure at Illinois Power: (1) Results Engineer, Results Supervisor. Mr. Hayes had responsibilities, which included equipment performance testing, and rotating machinery vibration analysis and correction. (2) Supervisor Plant Operations. Mr. Hayes had responsibilities which included startup and checkout of new equipment, supervision of four operating shifts, and coal receiving and handling group. (3) Power Plant Operations Specialist. Mr. Hayes had responsibilities, which included frequent visits to all five fossil power stations, participation in control replacement projects, participation in development and implementation of clean air compliance plans, and served as an internal consultant for fossil power generation operations. He led several technical teams that identified and recommended protective system improvements to the large generating units. He conducted root cause analysis of several major equipment failures.

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HPC TECHNICAL SERVICES
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Website: www.hpcnet.com

REGISTRATION FORM

Company: _____

Plant: _____

Address: _____

City/State/Zip: _____

Telephone: _____ FAX: _____

Course Number/Title: _____

Course Dates: ____/____/____ Thru ____/____/____

Course Location: _____ Course Fee: _____

Please enroll the following individual(s) listed below:

Student #1: _____

Student #2: _____

Taking advantage of HPC's 3-4-2 Policy: Send 3, Pay for 2 when paying in advance.

Student #3: _____

Enrolled by: _____ **Date:** _____

METHOD OF PAYMENT

- Check to Follow
- Check Enclosed #: _____
- MC/Visa/AMEX #: _____
Expiration Date: _____ CV Code: _____
- Purchase Order #: _____

HOW DID YOU LEARN OF THIS COURSE?

- Attended HPC courses before
- Magazine advertisement
- Received a fax
- Received an email
- Other: _____