

Heat Exchanger Design in an Energy Conscious World

Location: Your Computer **Offering #** 0911-705 **Priority Code:** 520

WHO SHOULD ATTEND

This online training will benefit professionals in the following industries: Refining, Chemical and Fuels Processing, Alternative and Renewable Energy Production Industries, and industry/academia/government heat integration programs and initiatives.

Job functions that would benefit from the online training include: Process Engineers, Fuel and Energy Specialists, Process Energy Auditors, Process and Technical Services Managers, Plant Engineers and Operations, and Technicians.

In departments such as: Research and Development, Commercial Development, Process Evaluation and Design, Manufacturing and Operations.

LEARNING OBJECTIVES

Upon completion of this training, you will be able to:

- Explain the importance of energy balances and heat integration in industrial facilities
- Identify the various types of indirect heat exchangers
- Evaluate specific process options for heat exchange and energy recovery
- Estimate the operational, environmental and economic performance of a HX network

COURSE DESCRIPTION

This 90-minute **accredited** online training provides an overview of the equipment used for the transfer of heat energy in the process industries, including that used in chemical plants, refineries, conventional power plants and cogeneration facilities. The transformation of the basic heat balance into a T-Q curve and the resulting zone analysis to produce an effective design is covered. Selection of the appropriate TEMA designation, as well as economic and environmental considerations will be addressed. The seminar will conclude with a discussion of the techniques, such as Pinch Technology, in developing a heat exchanger network.

Module 1:

- Energy Balance
 - Heat and cooling requirements in a typical chemical plant and refinery
 - Indirect or direct heat transfer
- Various types of heat exchangers
 - Mechanical design and process arrangement
 - Key vendors and producers
 - Tubular Exchanger Manufacturers Association (TEMA) designations

Module 2:

- Designing a heat exchanger
 - Representing the energy balance on a T-Q diagram
 - Flow patterns in a shell and tube (S-T) heat exchanger
 - Theoretical temperature driving force and correction factors
- Heat transfer coefficients
 - Individual film coefficients
 - Fouling
 - Composing an overall heat transfer coefficient
- Tubes and required surface area
 - Number of tubes
 - Tube pitch

Module 3:

- Assessing the performance of a heat exchanger
 - Value of energy transferred
 - Capital cost of the heat exchanger
 - Economic performance
- Economic sensitivity
 - Leveraging issues, such as the level of energy transferred
 - Fouling, cleaning and sparing philosophy
- Future of heat exchanger design
 - New technology
 - Breakthrough design options

Question and Answer Session

**CfPA**

The Center for Professional Advancement
Accredited Technical Training Worldwide

For more information see reverse side →

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www.cfpa.com

COURSE DIRECTOR

Gennaro J. (Jerry) Maffia, Professor Emeritus of Chemical Engineering at Widener University and Consultant to the Chemical Processing Industry

After twenty years as a principal process engineer and manager in the petrochemicals industry, mostly with Atlantic Richfield, Inc., Professor Maffia joined Widener University in the fall of 1992 as Chairman of the Department of Chemical Engineering. He retired in 2006 and is now Professor Emeritus of Chemical Engineering at Widener University and Adjunct Professor of Chemical and Biological Engineering at Drexel University. Professor Maffia is an active consultant in chemical and bio-based processes, and is an associate of several consulting firms. He has offered short courses and training seminars on process engineering and related topics at industrial and academic sites around the world. Professor Maffia has degrees from Dartmouth College (DE), NYU (MBA), and Manhattan College (BE, ME). He is the holder of six patents with another pending and has supervised forty graduate theses.

TUITION AND REGISTRATION

TUITION* – **Single Rate: U.S.\$295.00 per person** **Group Rate: U.S.\$245.00 per person****

Register at www.cfpa.com. Enter **Course Offering #0911-705** into **Quick Jump**. To register use **Priority Code: 520**.

For Questions and Information call Customer Service at 732-613-4500.

Please Note: Multiple participants are not authorized to share access provided to a single registrant, a single dedicated seat license must be purchased for each individual. CfPA reserves the right to cancel access or collect the group rate payment if this requirement has been violated. Only registered participants will receive accreditation.

ACCREDITATIONS



The Center for Professional Advancement has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 8405 Greensboro Drive, Suite 800, McLean, VA 22102. In obtaining this approval, The Center for Professional Advancement has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, The Center for Professional Advancement is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

WHO WE ARE

The Center for Professional Advancement (CfPA) is the largest accredited technical training organization in the world with a curriculum of approximately three hundred and fifty short courses in 18 industries including Pharmaceutical, Biotechnology, Medical Device, Chemical, Cosmetics, Food and more.

Since our founding in 1967, we have successfully trained nearly a half million people worldwide in topics ranging from basic and introductory concepts to new advances and cutting-edge technology, and current U.S. and European regulations. CfPA courses are offered in a variety of formats – Public offering, Client Site and Online – to fit you or your company's training needs.

For more information visit our website at www.cfpa.com

COURSES OF INTEREST

- **Clean Coal Technology: A Clear Picture–An Online Course**
course ID# 2331
- **Corrosion Control in the Oil and Gas Industry**
course ID# 1198
- **Current Applications and Future Potential of Biofuels–An Online Course**
course ID# 2328
- **Fired Process Heaters**
course ID# 259
- **Introduction to Petroleum Refinery Processing**
course ID# 289
- **Sulfonation and Sulfation Technology**
course ID# 356

ABOUT ON-DEMAND:

Our pre-recorded on-line training courses are available for viewing at your convenience at your computer. Register for a CfPA on-demand course, your registration will be processed within two (2) business days, after payment and registration are complete you will receive an email from olinetraining@cfpa.com with your password to access the on-demand course. You will have two (2) business days to view the course. You MUST complete all polls and the course evaluation to receive your accreditation certificate for this course.

TERMS AND CONDITIONS

***Payment:** Tuition payable in US funds net of all charges. Payment is due at time of registration in the form of a credit card. Please contact CfPA's Customer Service for other payment options.

****Group Rate:** The Group Rate is for two or more enrollments, up to five registering from the same company at the same time. For groups of six or more, please contact Customer Service for group pricing.

Cancellations/No Show: "Live" - Registrants may cancel up to two working days prior to the course start date and will receive a letter of credit to be used towards a future course up to one year from date of issuance. No credit will be issued for no-shows and/or cancellations less than two working days prior to the course. : **"On-Demand"** - No refund or credit will be issued for no-shows and/or cancellations of on-demand training courses. CfPA is not responsible for any outside related costs incurred by registrant's cancellation.

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