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NORTH AMERICA EDITION

TRAINING COURSES

AUTUMN 2014

FOR ENGINEERS AND TECHNICAL PROFESSIONALS

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Welcome to the world of ASME Training & Development

ASME appreciates that a company's most valuable asset is its workforce. As a recognized leader in workforce learning solutions for engineers and technical professionals, our goal is to help individuals expand their knowledge and organizations develop their core assets.

Our guiding principles are reflected in the depth, breadth and quality of highly accessible courses and training programs, specifically developed to boost technical competence and heighten managerial expertise.

All ASME Training & Development programs are delivered by ASME-approved instructors who are recognized experts within their professional disciplines. Importantly, most code courses are developed and taught by ASME Code Committee members who understand and can communicate code or standard relevance and their impact on safety, quality and integrity.

Explore the wide range of learning solutions that will help you handle the demands of today's increasingly challenging environment, presented in training formats that best fit your business needs and meet your budget and time constraints:

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If you are looking for a topic but don't see it in these pages, please let us know. ASME Training & Development is continually developing new courses to meet constantly changing professional and industry needs.

ASME Training & Development has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this approval, ASME Training & Development has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. Their Authorized Provider status, ASME Training & Development is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

AUTHORIZED IACET PROVIDER

ABOUT ASME

ASME helps the global engineering community develop solutions to real world challenges. Founded in 1880 as the American Society of Mechanical Engineers, ASME is an international not-for-profit professional organization that enables collaboration, knowledge sharing and skill development across all engineering disciplines, while promoting the vital role of the engineer in society. For over 130 years, ASME codes and standards, publications, conferences, continuing education and professional development programs have provided a foundation for advancing technical knowledge and a safer world.

For more information visit: www.asme.org

TABLE OF CONTENTS

Boilers and Pressure Vessels....2
Bolting....10
Certificates....12
Certification....14
Design and Materials....16
Elevators and Escalators....22
Fluids and Heat Transfer....24
Gas Turbines....30
Geometric Dimensioning and Tolerancing....32
Legal Issues for Engineers....35
Managing People....36
Managing Projects....40
Nuclear....44
Ocean, Offshore and Arctic Engineering....56
Petroleum....59
Piping and Pipelines....60
Process Safety....72
Rick and Reliability....74
Welding....78
ASME MasterClass Series....80
ASME eLearning Courses....84
Instructors....86
ASME Autumn 2014 Public Course Calendar and Index....90
ASME In-Company Training Programs....95
Venues and Hotels....96
General Information....Inside Back Cover

Special Offer to Non-ASME Members

Attendees of any ASME Training & Development public courses registered as non-ASME members will receive a FREE one-year membership to ASME following submission of an application form available at the program.

All ASME members will continue to enjoy special "Member Only" discounts off the List Price on most ASME Training & Development public courses and elearning programs.

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Statements made by the speaker do not necessarily represent the position of ASME. No recording or videotaping may be conducted by the participants without consent from ASME.

ASME does not assume responsibility for any missing or damaged articles for any of its registrants. Registrants are responsible for all personal belongings during the length of the course while in hotel meeting rooms – this includes all breaks, lunch and overnight.

All requests for training records information is processed by the ASME Customer Care department. All records of course enrollment and completion are stored in the ASME database and are available to the student by contacting ASME Customer Care at customercare@asme.org.

BPV CODE, SECTION VIII DIVISION 1 COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $645!

PD443 ASME CODE COURSE **TOP SELLER**

Created to save participants time and money, this course is a back-to-back offering of "Section VIII, Division 1 - Design & Fabrication of Pressure Vessels" (**PD442**) and "Inspections, Repairs, and Alterations of Pressure Equipment" (**PD441**). If you opt to take this combination course, you could **save up to $645**.

INSTRUCTOR: Kamran Mokhtarian **5 Days, 3.8 CEUs, 38 PDHs**
MEMBER $3,050 / List Price $3,150

BPV CODE, SECTION VIII, DIVISION 1: DESIGN AND FABRICATION OF PRESSURE VESSELS

PD442 ASME CODE COURSE **TOP SELLER**

Based on the rules for pressure vessel design and construction, this course is a comprehensive introduction to the requirements of Section VIII, Division 1 including background, organization, design, materials, fabrication, inspection, testing and documentation of pressure vessels. It covers the more commonly applied subsections and paragraphs, and includes a practical discussion of individual problems and situations. Designed primarily for beginners, experienced vessel designers, who would like to update their knowledge of the Code, will also benefit.

Special features include: an overview of Code organization, offering of updated editions, and expert instruction on how to prepare and submit an inquiry to the Code Committee for Code Interpretation, Code Cases or Code Revision.

You Will Learn To

- Describe the background of the Code
- Explain how to apply the Code rules to more common design and fabrication situations
- Identify the calculations for some of the loadings and situations not addressed by the Code
- Describe the preparation of design specifications, design reports, data reports and other documentation

Who Should Attend

Those involved with the purchase, design, fabrication or inspection of pressure vessels. Some technical background will be helpful, but attendees are not required to have an engineering degree or previous work experience in the subject matter.

Special Requirements
A calculator is required. It is suggested (but *not* required) that participants bring the latest edition of the ASME codebook, *BPVC Section VIII - Rules for Construction of Pressure Vessels Division 1.*

INSTRUCTOR: Kamran Mokhtarian **3 Days, 2.3 CEUs, 23 PDHs**
MEMBER $2,050 / List Price $2,150

Save up to $645 by enrolling in PD443; a combo course consisting of this course (PD442) and PD441, "Inspection, Repairs, and Alterations of Pressure Equipment."

Also available as Online Instructor-Supported course EL501.

INSPECTIONS, REPAIRS AND ALTERATIONS OF PRESSURE EQUIPMENT

PD441 ASME CODE COURSE **TOP SELLER**

This course is a comprehensive introduction to the requirements of various codes and standards regarding inspection, repairs and alterations of pressure equipment, and in particular, pressure vessels. The requirements of the National Board Inspection Code and the API-510 will be covered in detail. A brief introduction to API-579, Fitness-for-Service will also be included. Simple flaw evaluation procedures will be evaluated. The activities of ASME's Post Construction Committee will be explained and documents published by this Committee will be discussed.

You Will Learn To

- Describe the latest developments in the rapidly advancing field of pressure equipment inspection and repairs
- Identify the work being performed by API, ASME, and PVRC in the related areas.
- Identify the post-construction Codes and Standards and the interrelation of various documents
- Explain the responsibilities of the users, manufacturers, repair organizations, regulatory agencies and authorized inspectors
- Explain how to obtain a National Board stamp
- Identify detailed requirements of the NBIC
- Explain the differences between the NBIC and API-510
- Identify and provide examples of repairs, alterations and the documentation requirements for each
- Describe introductory portions of the ASME post-construction standards
- Provide examples demonstrating the application of the rules

Who Should Attend

Individuals from users, manufacturers, repair organizations, inspection agencies and other organizations involved with maintenance and repair of pressure equipment. This course is intended for beginners, as well as experienced personnel wishing to update their knowledge.

INSTRUCTOR: Kamran Mokhtarian
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

Save up to $645 by enrolling in PD443, a combo course consisting of this course (PD441) and PD442, "BPV Code: Section VIII, Division 1 - Design & Fabrication of Pressure Vessels."

Also available as Online Instructor-Supported course EL503.

BPV CODE, SECTION VIII, DIVISION 2: ALTERNATIVE RULES – DESIGN AND FABRICATION OF PRESSURE VESSELS

PD448 ASME CODE COURSE **TOP SELLER**

This course provides a practical comparison of the new rules with the former rules of Division 2. It also covers other international codes, including a discussion of why the new requirements were instituted; this course explains the design margins and their effect on required thickness. While emphasizing design and analysis rules, it covers all aspects of construction.

You Will Learn To

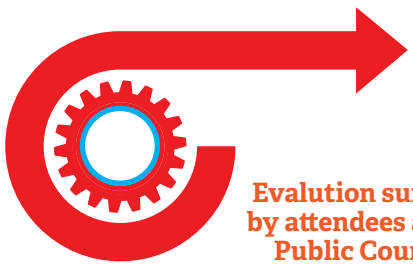
- Explain how the requirements of Divisions 1 and 2 of Section VIII compare
- Explain theories of failure and design margins of various codes
- Describe the general requirements of the new Division 2
- Identify design rules and stress analysis methods
- Describe fatigue analysis
- Identify materials and fabrication requirements
- Explain Nondestructive Examination (NDE) requirements, pressure testing and pressure relief requirements

Who Should Attend

Individuals involved with design, analysis, fabrication, purchasing, repair, and inspection of pressure vessels should attend, as well as supervisory and regulatory personnel. Although some degree of background with design and fabrication of pressure vessels is desirable, no previous experience is required for attending this course. Both the beginners and experienced personnel involved with pressure vessels will benefit from this course.

INSTRUCTOR: Kamran Mokhtarian
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

Also available as Online Instructor-Supported course EL502.



Did you know...

Evalution surveys completed by attendees after each ASME Public Course over the past two years indicate that

97%

rate the course they attended as "very or extremely relevant to my job."

* ASME Course Evaluation Survey completed between July 2011 and June 2013 by 4,401 participants

PRESSURE RELIEF DEVICES: DESIGN, SIZING, CONSTRUCTION, INSPECTION AND MAINTENANCE

PD583 ASME CODE COURSE

Possibly the most important single safety device on a boiler or pressure vessel, the pressure relief device is all that stands between overpressure conditions and catastrophic explosions. This comprehensive review of the design, construction, installation, operation, inspection and maintenance of pressure relieving devices currently in use on boilers and pressure vessels details how to protect pressurized equipment from exceeding the maximum allowable working pressure.

Each participant will receive a copy of the ASME codebook, PTC - 25 - 2008 Pressure Relief Devices; and a copy of the book, Pressure Relief Devices: ASME and API Code Simplified, by Dr. Mohammad A. Malek.

The code requirements for pressure relief devices are covered by the following ASME Boiler and Pressure Vessel (B&PV) Codes:
ASME Section I – Power Boilers
ASME Section III – Nuclear Systems
ASME Section IV – Heating Boilers
ASME Section VIII, Div. 1 – Pressure Vessels
ASME Section XII – Transport Tanks
ASME B31.1 – Power Piping

You Will Learn To

- Explain the Code requirements for pressure relief devices covered by the ASME Boiler and pressure Vessel Code
- Describe the API RP 520 Part I, Sizing and Selection of Pressure Relieving Devices, and API RP 520 Part -2, Installation of Pressure Relief Devices
- Explain the construction and installation processes
- Identify the requirements for testing and testing facilities
- Describe the records and maintenance and the VR (valve repair) certification program

Who Should Attend

Process engineers, testing and inspection personnel, maintenance and reliability engineers, managers and operators

INSTRUCTOR: Mohammad Malek
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

BPV CODE: PLANT EQUIPMENT REQUIREMENTS

PD622 ASME CODE COURSE

This 4-day course provides comprehensive instruction on design, fabrication and operation requirements for pressure vessel, boiler, steam generator and associated equipment. The Code provides the owner the option to extend Code rules beyond pressure vessel boundary limits to attached mechanical equipment. The list includes pressurized components, welded and bolted flange connections.

The course focuses attention on a wide range of topics, including design, material and manufacturing responsibilities for Code compliance, circulation in and design of boiler evaporator, superheater, economizer, heat balance in waste heat recovery steam generator, furnace chamber design and boiler safety attachments, boiler tube toughness, corrosion resistance, affinity laws, performance curves, efficiency, proportional flow and safety valve control mechanism, bolted flange pre-load, joint behavior, leakage, welded joint pre- and post-weld heat treatment, distortion, cracking, NDE (nondestructive examination) test requirements, as well as over-pressure and over-speed tests.

You Will Learn To

- Understand design procedures for components for structural integrity, superior efficiency, reduced exhaust pollution
- Explain hydraulic, thermal, and fluid theories
- Gauge severity of operating loads and mitigate unwelcome failures due to pressure surge, cavitation, water hammer and other rapid energy transfer mechanisms

Who Should Attend

Individuals responsible for design, purchase, manufacture, inspection and sales of plant equipment. Some technical background will be helpful, but an engineering degree or work experience is not needed.

Special Requirements
It is recommended that participants bring a laptop to the course.

INSTRUCTOR: Abdulla Rangwala
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

TURBO MACHINERY DYNAMICS: DESIGN & OPERATION

PD432

This course presents a detailed and comprehensive treatment of operation and maintenance of turbo-machinery.

Starting with the fundamentals of thermodynamics and cycle design, the latest trends in development and production of many different types of turbo-machines are covered. In-depth methods to analyze and explore new operation and maintenance procedures, minimize exhaust emissions and maximize structural integrity and operating efficiency are presented.

The ever-increasing quest for electrical and mechanical power, coupled with stricter restrictions on environmental pollutants, require exacting consideration of natural resources. Creative technological solutions are needed to optimize operation and achieve, often times, conflicting goals. This course teaches methods, which help one understand the wide range of parameters, as well as how to take advantage of the latest technical advances. Emphasis is placed on controlling operating parameters, interpreting and comparing alternatives, and obtaining realistic solutions.

Specially prepared notes and the instructor's textbook, *Turbo-Machinery Dynamics: Design and Operation* will be provided to all participants on a computer disk, as well as a bound copy of the course notes. The electronic notes and textbook are linked for instant access and in-depth study from the notes directly to the specific page of the book through electronic bookmarks. Attendees will also receive computer codes with instructions for simulating and analyzing rotating machinery problems, parameter measurement and balancing of rotors.

You Will Learn To

- Describe fuel consumption, power output, and exhaust gas emissions
- Explain structural integrity and component life evaluation
- Identify operating loads, component deflections, rotor-to-stator rub
- Explain the process of manufacturing and assembly methods, balancing of rotors
- Explain the test verification of design parameters and fault diagnosis
- Identify failures arising from cyclical loads and thermal distortion
- Identify material requirements and selection

Who Should Attend

Design and development engineers, plant engineers,field service engineers and technical managers with product and/or project responsibility

Special Requirements
Individuals familiar with calculus and personal computers – along with a Bachelor's degree or equivalent work experience -- will have sufficient background for this course. It is recommended that participants bring a laptop to the course.

INSTRUCTOR: Abdulla S. Rangwala
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $2,645 / List Price $2,745

HOW TO PREDICT THERMAL-HYDRAULIC LOADS ON PRESSURE VESSELS AND PIPING

PD382

When a vessel, pipe or other component fails in a fluid transport or storage system, a thermal-hydraulic load probably exceeded design limits. Excessive pressure change, fluid acceleration, water hammer or rapid energy transfer mechanisms are often the cause. Such problems can be avoided if an engineer correctly anticipates the magnitude and time response of the loads that could occur.

This course summarizes numerous thermal-hydraulic loads that can be exerted on vessels, pipes, components and structures. It provides a greater awareness of thermal-hydraulic loads, demonstrates how to use a variety of handout tools for estimating load characteristics while at the same time instilling confidence in making either reasonable bounding estimates or rigorous predictions of loads.

Participants receive a comprehensive course notebook, which includes a "tool-kit" complete with tables, graphs, rules-of-thumb, useful formulations for estimating thermal-hyrdraulic loads for a range of applications, example problems, exercises plus a reference textbook useful for advanced self-study.

You Will Learn To

- Explain how to anticipate steady and unsteady thermal-hydraulic loading phenomena in the design or modification of vessel, piping and component systems
- Estimate dominant characteristics of thermal-hydraulic forces
- Describe how to avoid or mitigate unwanted forces by selecting appropriate design parameters or restructuring a procedure

Who Should Attend

Engineers, technical and project managers as well as engineering instructors wishing to upgrade their understanding of thermal-hydraulic phenomena and associated loads, including individuals whose business or professional interests involve pressure vessels, piping and thermofluid system components, as well as researchers and inventors seeking new ideas to help improve components and processes.

Special Requirements
A degree in engineering, engineering science, physics or other scientific discipline is recommended.

INSTRUCTOR: Frederick J. Moody
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

API 579-1/ASME FFS-1 FITNESS-FOR-SERVICE

PD395

Fitness-for-service assessment is a multi-disciplinary engineering approach that is used to determine if equipment is fit to continue operation for some desired future period. The equipment may contain flaws, may have sustained damage or may have aged so that it cannot be evaluated by use of the original construction codes.

API 579-1/ASME FFS-1 is a comprehensive consensus industry recommended practice that can be used to analyze, evaluate and monitor equipment for continued operation. The main types of equipment covered by this standard are pressure vessels, piping and tanks. This course is timely, emphasizing the practical application of a recently updated standard.

This course will help participants understand and apply the API/ASME fitness-for-service standard in their daily work. The material presented in the course shows how the disciplines of stress analysis, materials engineering and nondestructive inspection interact and apply to fitness-for-service assessment. The assessment methods apply to in-service pressure vessels, piping and tanks.

The course includes an extensive set of notes to supplement the contents of the recommended practice, with numerous example problems that illustrate fitness-for-service assessment.

You Will Learn To

- Analyze, evaluate, and monitor pressure vessels, piping, and tanks for continued operation
- Explain how to apply background information on fitness-for-service assessment, especially as it applies to the refining and chemical process industries, which are the primary focus of API 579
- Identify the main parts of the API/ASME standard, as well as the annexes
- Explain the practical application of the techniques incorporated in API 579-1/ASME FFS-1

Who Should Attend

Engineers and engineering management engaged in the operation, design, analysis and maintenance of plant facilities

Special Requirements
The participant should have at least a BS degree or equivalent and experience in engineering. A general knowledge of stress analysis, materials behavior and fracture mechanics will be helpful.

INSTRUCTOR: Greg W. Brown
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

SEISMIC DESIGN AND RETROFIT OF EQUIPMENT AND PIPING

PD394

Several National Standards and regulations (such as the National Hazard Reduction Program -NEHRP by FEMA, the ASME and UBC Codes) have recently introduced explicit requirements for the seismic design or retrofit of critical plant and facility systems and equipment.

This course provides plant owners in earthquake-prone areas who are concerned about reducing public risk and financial loss caused by earthquakes, with ways to implement cost-effective preventive upgrades to essential equipment. It covers the explicit requirements of the latest national standards and regulations, including FEMA's National Hazard Reduction Program (NEHRP), as well as ASME and UBC Codes, for the seismic design or retrofit of critical plant and facility systems and equipment.

Each participant will receive a copy of the B31E - 2008 Standard for the Seismic Design and Retrofit of Above-Ground Piping Systems codebook.

You Will Learn To

- Identify requirements for the seismic design or retrofit of critical plant and facility systems and equipment to comply with the latest national codes
- Explain how to evaluate plant piping and equipment to ensure those requirements are met, and practical methods to resolve items which do not meet requirements
- Demonstrate a theoretical and practical understanding of seismic design and analysis and the applicable codes, standards and practices
- Explain how to apply the engineering methods necessary to assess the seismic ruggedness of structure

Who Should Attend

Senior engineers, structural managers and engineers as well as design piping and stress engineers.

Special Requirements
Participants should have at minimum a Bachelor's degree in Mechanical or Civil-Structural Engineering or the equivalent.

INSTRUCTORS: George Antaki, Fred Loceff, Michael W. Salmon
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

FAILURE PREVENTION, REPAIR & LIFE EXTENSION OF PIPING, VESSELS AND TANKS

PD077 ASME CODE COURSE

Purchasing, fabricating, maintaining and repairing equipment at the lowest possible cost while assuring non-failure are always a priority. The causes of damage and failure of piping, vessels and tanks are described throughout the course as well as how to prevent these incidents. The risk-based inspection planning process and inspection techniques for operating equipment are also reviewed.

Practical case studies and course material are used to illustrate how the ASME Post-Construction and Fitness-for-Service codes should be applied to evaluate inspection results and understand the technical basis and techniques for making run-or-repair decisions to prevent failures of degraded equipment. Participants are taught how to select the cost-effective and technically valid repair options, as well as their implementation (including design of the repair, field construction, examination as well as pressure or leak testing).

Participants will receive the textbook, Fitness for Service & Integrity of Piping Vessels and Tanks by George Antaki, and the codebook, PCC-2 Repair of Pressure Equipment and Piping.

You Will Learn To

- Detect types and causes of failures
- Identify the differences between design code margins and fitness-for-service margins
- Make run-or-repair fitness-for-service decisions
- Explain the requirements of post-construction codes
- Explain how to make the right decision on equipment life extension
- Analyze financial and technical considerations before you repair or replace equipment
- Review repair options and techniques in accordance with ASME PCC-2

Who Should Attend

Operators, manufacturers, design engineers, maintenance engineers and inspectors involved in repair of alterations of pressure vessels, boilers, piping and tanks

INSTRUCTORS: George Antaki, Jack R. Cole
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

BPV CODE, SECTION I: POWER BOILERS

PD665 ASME CODE COURSE

ASME codes and standards are the most widely used in the world for the design, operation, maintenance and repair of power boilers, pressure vessels and nuclear facilities.

This course will provide the participant with a detailed knowledge of the responsibilities of personnel involved in the manufacturing, fabrication and examination of new power boiler plant components and new construction activity as defined by Section I of the ASME Boiler & Pressure Vessel Code (BPVC).

The objective of the course is to enhance your knowledge and understanding of the requirements for design and construction of power boilers in accordance with Section I of the ASME Boiler & Pressure Vessel Code.

Participants will receive the most recent edition of the BPV Code Section I: Rules for Construction of Power Boilers.

You Will Learn To

- Describe the purpose of the Sections of the ASME Boiler & Pressure Vessel Code
- Explain the rules and requirements in Section I for the design and construction of power boilers
- Describe the use of Section II Materials and their allowable stresses
- Explain the basic rules for fabrication of power boilers
- Describe the process for quality control and certification in Section I

Who Should Attend

Engineers, managers and quality personnel who are involved in manufacturing, fabrication and examination of components or parts for power boilers or the construction of power boilers built to the requirements of U.S. Codes & Standards, as well as individuals who are or will be directly or indirectly involved in the design, analysis, construction, maintenance or operation of power boilers.

INSTRUCTOR: Bill Lowry
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $3,050 / List Price $3,150

FLOW-INDUCED VIBRATION WITH APPLICATIONS TO FAILURE ANALYSIS

PD146

Problem-solving methodologies are the main focus of this comprehensive course on practical applications of flow and vibration theory. The latest design and analysis tools for the prediction and prevention of vibration in structures exposed to high-energy fluid flow are covered in practical detail.

With a review of flow and vibration theory fundamentals, attendees will discover additional benefits from practical problem-solving activities at the conclusion of each section. Topics such as vortex and turbulence induced vibration, galloping, flutter, sonic fatigue and fluid-elastic instability will be covered in-depth. Attendees are introduced to state-of-the-art analysis tools for the prediction and prevention of vibration in structures exposed to high-energy fluid flow. Case studies and a workshop create an interactive course that aid engineers at various levels.

Each participant will receive a copy of the book, *Flow-Induced Vibration* (2nd Edition), by Dr. Robert Blevins.

You Will Learn To

- Describe vortex-induced vibration, galloping, flutter, sonic fatigue and fluid elastic instability
- Explain the latest vibration theory
- Demonstrate analysis and test techniques in conjunction with strategies for successful design
- Explain how to evaluate examples of heat exchanger vibration, strumming of cables as well as vibration and fatigue of panels

Who Should Attend

Engineers in the design, mechanical, product development, system, R&D, noise, maintenance and diagnostics fields, as well as supervisors and managers responsible for the economic impact of flow-induced component damage

INSTRUCTOR: Robert Blevins
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

NONDESTRUCTIVE EXAMINATION - APPLYING ASME CODE REQUIREMENTS (BPV CODE, SECTION V)

PD389 ASME CODE COURSE

This three-day course is designed for individuals who require an understanding of the principles, techniques and applications of the key Nondestructive Examination (NDE) methods. This program uses PowerPoint to present the principles of Nondestructive Examination enhanced with practical applications that will provide a basic comprehensive knowledge of the major methods.

Emphasis is placed on basic procedures, techniques, applications, advantages and limitations as related to the ASME Boiler & Pressure Vessel Code, Section V for each method. Examples of NDE devices supplement classroom lectures to help participants gain a better understanding of the general theory, uses and variables of the methods presented.

Charles Hellier, the instructor, is also the author of the Handbook of Nondestructive Evaluation, 2nd Edition, which will be given to each attendee.

You Will Learn To

- Describe the applications of the basic NDE methods and the various materials to be examined
- Explain the principles, procedures, evaluation, reporting and ASME Code requirements of the basic NDE methods
- Identify the techniques of the visual, penetrant, magnetic particle, radiographic, ultrasonic, and eddy current testing methods

Who Should Attend

Design, structural, maintenance and materials engineers, and management, supervisors, regulators, auditors and project managers

INSTRUCTOR: Charles J. Hellier
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

eLEARNING BOILERS AND PRESSURE VESSELS

BPV CODE, SECTION VIII, DIVISION 1: DESIGN AND FABRICATION OF PRESSURE VESSELS

Online Instructor-Supported Course EL501

Based on the rules for pressure vessel design and construction, this course is a comprehensive introduction to the requirements of Section VIII, Division 1 including background, organization, design, materials, fabrication, inspection, testing and documentation of pressure vessels. It covers the more commonly applied subsections and paragraphs, and includes a practical discussion of individual problems and situations. Designed primarily for beginners, it will also benefit experienced vessel designers who would like to update their knowledge of the Code.

Special features include: an overview of code organization, code updates and addenda, as well as expert instruction on how to prepare and submit an inquiry to the Code Committee for Code Interpretation, Code Cases or Code Revision.

You Will Learn

- The background of the Code
- How to apply code rules to more common design fabrication situations
- Calculations for some of the loadings situations not addressed by code
- Preparation of design specifications, design reports, data reports and other documentation

CEUS: 2.3 PDHS: 23
MEMBER $595 List Price: $695

Also available as a 3-day, Public Course: PD442, "BPV Code, Section VIII, Division 1: Design and Fabrication of Pressure Vessels"

INSPECTIONS, REPAIRS AND ALTERATIONS OF PRESSURE EQUIPMENT

Online Instructor-Supported Course EL503

An introduction to the requirements of various codes and standards regarding inspection, repairs and alterations of pressure equipment, and in particular, pressure vessels, this course covers the requirements of the National Board Inspection Code and the API-510. A brief introduction to API-579, Fitness-for-Service, is included, and simple flaw evaluation procedures are evaluated. The activities of ASME's Post Construction Committee (PCC) are explained and documents published by this committee are discussed.

You Will Learn

- Definitions used in repairs and alterations
- Roles and responsibilities of the user, repair concern and regulatory body/ authorized inspector
- How to obtain and use the National Board "R" Stamp
- NBIC, Parts RA, RB, RC, and RD; API 510, Sections 4, 5, 6, and 7
- Jurisdictional requirements and selection of contractor
- Planning for scheduled and unscheduled outages

CEUS: 1.5 PDHS: 15
MEMBER PRICE: $395 List Price: $495

Also available as a 2-day, Public Course: PD441, "Inspection, Repairs and Alterations of Pressure Equipment"

BPV CODE, SECTION VIII, DIVISION 2: ALTERNATIVE RULES FOR DESIGN AND FABRICATION OF PRESSURE VESSELS

Online Instructor-Supported Course EL502

A practical comparison of the new rules with the old of Division 2 and some other international codes, including a discussion of why the new requirements were instituted, this course explains the design margins and their effect on required thickness. While emphasizing design and analysis rules, it covers all aspects of construction.

You Will Learn

- How the requirements of Divisions 1 and 2 of Section VIII compare
- Theories of failure and design margins of various codes
- General requirements of the new Division 2
- Design rules and stress analysis methods
- Fatigue analysis
- Materials and fabrication requirements
- Non-Destructive Examination (NDE) requirements, pressure testing and pressure relief requirements

CEUS: 2.3 PDHS: 23
MEMBER $595 List Price: $695

Also available as a 4-day, Public Course: PD448, "BPV Code, Section VIII, Division 2: Pressure Vessels"

ASME BOILER AND PRESSURE VESSEL CERTIFICATION PROCESS

Online Assessment Based Course ZABC9

This course provides the information you need to know in order to receive a code certification mark stamp for use on non-nuclear boilers and pressure vessels. Covering the process for ASME certification and the requirements for obtaining non-nuclear code stamps, this course outlines the application process, the joint review, demonstration requirements and common deficiencies.

PDHS: 3
PRICE: $295

ESSENTIALS: BPV CODE, SECTION XII: RULES FOR THE CONSTRUCTION AND CONTINUED SERVICE OF TRANSPORT TANKS

Online Assessment Based Course ZABC10

Explore the origins and development of Section XII, its organization and general layout, the classes of tanks covered by Section XII and design specifics.

PDHS: 2
PRICE: $195

ESSENTIALS: BPV CODE, SECTION VIII, DIVISION 3

Online Assessment Based Course ZABC11

Introduces the requirements of Section VIII, Division 3: Alternative Rules for Construction of High Pressure Vessels, and looks at the differences between Section VIII Division 2 and Section VIII Division 3, and how requirements are applied.

PDHS: 2
PRICE: $195

ESSENTIALS: BPV CODE, SECTION IV: RULES FOR CONSTRUCTION OF HEATING BOILERS

Online Assessment Based Course ZABC35

Provides an introduction to the ASME BPV Code, Section IV: Rules for Construction of Heating Boilers and discusses requirements for boilers constructed of wrought materials, cast iron and cast aluminum as well as those for potable water heaters.

PDHS: 3
PRICE: $195

FREE COURSE!

INTRODUCTION TO ASME STANDARDS AND CERTIFICATION

Online Assessment Based Course ZABC19

This course describes and explains what ASME codes and standards are, the process for creating them, the people who are responsible for creating them and ASME's role in developing and maintaining codes and standards. After taking this course you will be able to define codes, standards and regulations, including what they mean and how to apply them.

PRICE: Free

FREE Trial Offer! Visit go.asme.org/ABC for details.

go.asme.org/eLearning

BOLTING COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $1,260!

PD601

This course is a combination of "Bolted Joints and Gasket Behavior" (PD539), "Design of Bolted Flange Joints" (PD386) and "Bolted Joint Assembly Principles Per PCC-1 - 2013" (PD577). Take these courses as a combo and save up to $1,260.

Two years of engineering experience would be beneficial, but is not necessary.

INSTRUCTORS: James Payne, David Lay, William Koves
5 Days, 3.8 CEUs, 38 PDHs MEMBER $2,645 / List Price $2,745

BOLTED JOINTS AND GASKET BEHAVIOR

PD539

Although bolted joints comprise a large percentage of all industrial fasteners, their role in the installation and assembly process is poorly understood. This course provides an overview of bolted joint fundamentals, whether gasketed or not, including behavior and troubleshooting. The course also takes a detailed look at the latest developments in gasketed joint assembly, torque factors, bolting patterns, as well as gasket behavior, tightness, selection and specification.

Each participant will receive a copy of the book, *An Introduction to the Design and Behavior of Bolted Joints*, 3rd Edition, by John Bickford.

You Will Learn To

- Calculate the strength and stiffness of bolted joints and establish the tightness of gasketed flanged joints and their suitability for elevated temperature service
- Explain how to recognize bolt failure modes as well as mitigate failure mechanisms and increase the functional life of a joint
- Explain the fundamentals of the PCC-1 Joint Assembly guidelines including the latest bolting patterns and lubricant properties to recommend the appropriate nut factor for applied torque
- Explain how to estimate and evaluate the tightness of gasketed joints based on leakage gasket constants and understand proposed new tightness design rules
- Explain how to assemble circular gasketed joints three times faster than traditional methods
- Describe how to select appropriate bolt and gasket materials

Who Should Attend

Practicing design and manufacturing professionals involved in assembly of electro-mechanical hardware components and engineers and technicians in design and assembly operations

This course is an excellent prerequisite to PD386, "Design of Bolted Flange Joints." Two years' engineering experience would be beneficial, but is not necessary.

INSTRUCTOR: James Payne
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Save up to $1,260 by enrolling in PD601, a triple combination course consisting of this course (PD539), PD577 "Bolted Joint Assembly Principles Per PCC-1 - 2013" and PD386 "Design of Bolted Flange Joints."

Also available as Online Instructor-Supported course EL512 The Bolted Joint

DESIGN OF BOLTED FLANGE JOINTS

PD386

Providing a fundamental understanding of the design and behavior of bolted flange joints – essential components for pressure containment – this course covers the latest findings from the Pressure Vessel Research Council on gasketed flange joints. It also outlines new design rules being developed for the ASME codes.

Participants will receive the textbook, *Gaskets and Gasketed Joints*, by John H. Bickford.

You Will Learn To

- Understand the latest ASME requirements and methodology for flange design
- Design and analyze flange joints for pressure and external loads in accordance with the latest
- ASME Codes and Standards
- Identify parameters that can affect flange leakage
- Describe the fundamentals of flange and gasket behavior

Who Should Attend

Engineers involved in the design, construction or maintenance of pressurized equipment utilizing flanged joints for the petroleum, refining, chemical, power and process industries

INSTRUCTOR: William Koves
1 Day, 0.8 CEU, 8 PDH
MEMBER $765 / List Price $875

Save up to $1,260 by enrolling in PD601, a triple combination course consisting of this course (PD386), PD539, "Bolted Joints and Gasket Behavior" and PD577, "Bolted Joint Assembly Principles Per PCC-1 - 2013."

BOLTED JOINT ASSEMBLY PRINCIPLES PER PCC-1-2013

PD577 ASME CODE COURSE

Although the mechanical principles that make a screw or bolt work are elementary – the inclined plane and the lever – the proper application of those simple machine principles to seal a vertical joint or sustain a tower crane under stress, is extremely complex. For many years, there has been recognition of the need to train, test, and certify craftsmen prior to allowing them to work on significant industrial applications that may have safety and structural integrity issues. This course will train and test bolting personnel at the supervisory level on the technological and practical problems of assembling bolted joints in large-scale industrial applications.

Participants will enjoy interactive instruction, a student manual with resource materials, (which includes a 1-year subscription to the most comprehensive on-line bolting library on the web), in-class demonstrations, and a half-day of practical application, ending in a skills certification. Participants will also receive the ASME PCC-1 - 2013 Guidelines for Pressure Boundary Bolted Flange Joint Assembly codebook.

You Will Learn To

- Describe the principles of joint design and reliability
- Explain the "nuts and bolts" of nuts and bolts
- Explain the concept of "load" as a bolting goal
- Describe ways to accomplish "load" (torqueing and tensioning)
- Identify factors affecting proper "load" and how to compensate for problems
- Identify the proper selection and installation of gaskets
- Become familiar with bolting tools of all types
- Describe the advantages and disadvantages of various bolting methods and where to use them
- Identify assembly procedures (bolting patterns, incremental tightening, etc.)
- Become familiar with work planning and preparation (such as tools, hardware, bolting plan, safety checklists)

Who Should Attend

Practicing design and manufacturing professionals involved in assembly of electro-mechanical hardware components and engineers and technicians in design and assembly operations, as well as engineers involved in the design, construction or maintenance of pressurized equipment utilizing flanged joints for the petroleum, refining, chemical, power and process industries.

INSTRUCTOR: David E. Lay
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

Save up to $1,260 by enrolling in PD601, a combination course consisting of this course (PD577), PD539 "Bolted Joints and Gasket Behavior" and PD386 "Design of Bolted Flange Joints."

FUNDAMENTALS OF FASTENING SYSTEMS

PD313 ASME CODE COURSE

This introductory course instructs how proper fastener design choices can save substantial resources by reducing manufacturing costs, factory inventories as well as field service and maintenance expenses. With an emphasis on the practical aspects of fastener selection and application, it reviews the many choices available.

Participants will receive The Machinery's Handbook, 28th Edition, as well as extensive lecture notes and manufacturer literature.

You Will Learn To

- Understand the best fastening methods for specific applications
- Identify practical and economical design options
- Anticipate and prevent fastener failures
- Identify options to reduce manufacturing and maintenance costs
- Explain the appropriate Codes and Standards

Who Should Attend

Engineers, designers, drafting and maintenance personnel as well as procurement specialists seeking a practical and useful introduction to fastening systems

INSTRUCTOR: Thomas L. Bever
2 DAYS, 1.5 CEUS, 15 PDHS
MEMBER $1,375 / List Price $1,485

eLEARNING COURSE

THE BOLTED JOINT

Online Instructor-Supported Course EL512
Although bolted joints comprise a large percentage of all industrial fasteners, their role in the installation and assembly process is poorly understood. This course provides an overview of bolted joint fundamentals, whether gasketed or not, including behavior and troubleshooting. It takes a detailed look at the latest developments in gasketed joint assembly, torque factors, bolting patterns, and gasket behavior, tightness, selection and specification.

You Will Learn

- How to calculate forces in bolted joints and establish specific torque
- How to increase functional life of a joint and analyze joints and failure mechanisms
- How to achieve better control of bolt tension and applied torque in assembly
- Effect ve utilization of torque application machines
- How to reduce fastener-related warranty and rework costs

Required Reading

Bickford, John, H. (1997) *An Introduction to Design and Behavior of Bolted Joints*, 3rd Edition. New York: CRC Press; or Bickford, John, H. & Payne, James, R. (2007). Introduction to the Design and Behavior of Bolted Joints: Non-Gasketed Joints, 4th Edition, Volume 1. New York: CRC Press

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 2-day Public Course: PD539, "Bolted Joints and Gasket Behavior"

CERTIFICATES

CERTIFICATE IN CODES AND STANDARDS FOR NUCLEAR POWER PLANT CONSTRUCTION

This ASME Certificate Program is a non-degree granting program consisting of a series of learning events, each designed to build further knowledge of codes and standards within nuclear power plant construction.

THE CERTIFICATE PROGRAM WILL:

- Train individual participants to achieve specific learning outcomes
- Evaluate participants' understanding of the learning outcomes
- Award a certificate only to those participants who meet the performance, proficiency and passing standard for the examination

WHO SHOULD ATTEND

Designed for engineers and technical professionals involved in the construction of nuclear facilities and in the design, manufacture and fabrication of components and structures for nuclear facilities.Personnel involved in the following areas will find this certificate program of use: system, vessel, piping and component designers, managers, materials manufacturers, and suppliers and fabricators, including welders and shop supervisors.

ABOUT THE PROGRAM

The program is updated on a regular basis according to code changes, and new electives are in development. Each training course comprises structured training sessions with code experts, following detailed learning objectives. At the end of each module, participants are tested, and successful participants receive their Certificate in Codes and Standards for Nuclear Power Plant Construction, with details of the elective(s) they have taken.

CERTIFICATE IN ENGINEERING MANAGEMENT

The ASME Certificate in Engineering Management was developed based on the knowledge that engineers working in industry are constantly required to harness a suite of both technical and managerial skills in their working life. While an engineer does not need to be a specialist in all topics, they do need to be conversant with most. The Engineering Management Certificate covers the core managerial tool kit in an accessible way to make sense of theory and demonstrate practical applications and sample projects.

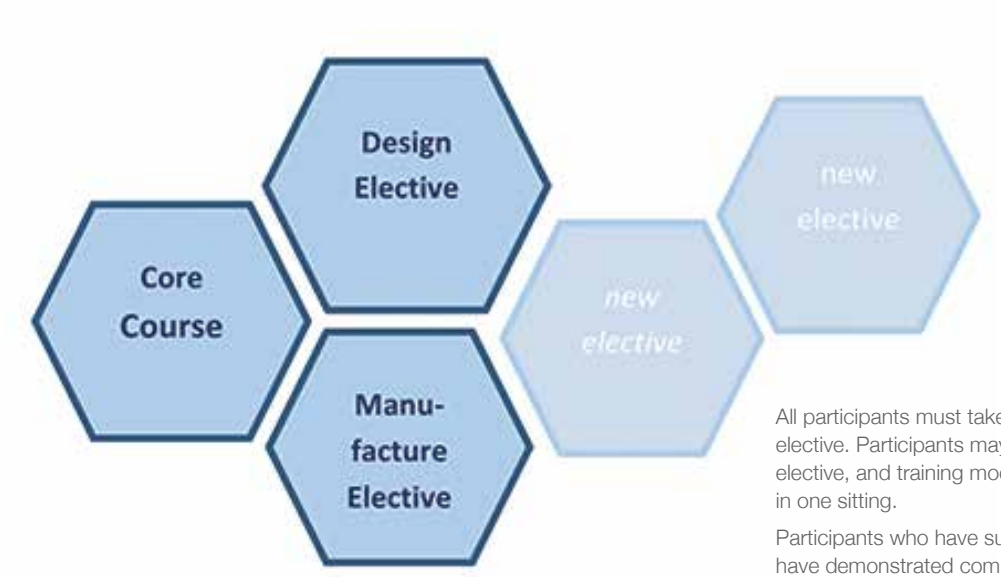
CORE ENGINEERING MANAGEMENT PD620

This foundation course takes the theory of engineering management and applies it to real world situations through case studies and practical examples. Planning and development, financing and process management are covered along with marketing and sales. At each step the legal, personnel and economic environments are considered and the result is a clear understanding of how the elements of management work together.

SPECIALIZATION COURSES

On completion of the Core Engineering Management course each participant will specialize in one or more areas:

- Marketing & Communications
- Strategic Thinking PD676 (see page 36)
- Project & Process Management
- Leadership and Organizational Management PD531 (see page 38)



All participants must take the core course and select an elective. Participants may opt to take more than one elective, and training modules are not required to be taken in one sitting.

Participants who have successfully obtained their certificate have demonstrated competency in the knowledge areas defined within the certificate program. It is not a certification or licensure that attests to a practical skills demonstration.

See next page for course details.

CERTIFICATES – COURSE DETAILS

OVERVIEW OF CODES & STANDARDS FOR NUCLEAR POWER PLANTS – 3 DAYS

ASME produces codes and standards that are the most widely used in the world for the design, operation, maintenance, and repair of pressure vessels and nuclear facilities. This course discusses ASME code provisions, the principal intentions of the code, and how the code is applied in the construction of nuclear facilities.

This course is designed to provide mechanical and civil engineers with an introduction to and general overview of ASME as an organization, its codes and standards, and the Boiler and Pressure Vessel (BPV) Code, as it applies to nuclear facilities.

It covers Sections III and the BPV Code in depth, and Sections II, V, and IX as they apply to nuclear facilities.

It also discusses the NQA-1-2008 Quality Assurance for Nuclear Facility Applications and the Standards and Guides for the Operation and Maintenance of Nuclear Power Plants.

Other covered topics include a brief history of the BPV Code, the ASME boards and committees (including the Board on Nuclear Codes and Standards), international activity in the area of nuclear codes, and ASME nuclear accreditation.

This course is designed for those who are or will be directly or indirectly involved in the design, analysis, construction, maintenance or operation of a nuclear facility.

PD633 (see page 46)

DESIGN IN CODES, STANDARDS AND REGULATIONS FOR NUCLEAR POWER PLANT CONSTRUCTION – 4 DAYS

The course provides details of the BPV Code, Section III, Division 1 code requirements and their technical basis for the design of piping, pumps, valves and vessels in nuclear power plants. Topics include overview of the Section III design requirements, methods of analysis and qualification criteria for each type of component, design by rule, design by analysis and qualification by testing, and supplementary requirements imposed by regulation (regulatory guides, standard review plan, etc.). The course also covers related ASME codes and standards such as B16, QME-1, OM.

This course is designed for engineers, managers and quality personnel who are involved in the design of components or structures for nuclear power plants. It is also valuable for those who are or will be involved in the design, analysis, construction, maintenance or operation of a nuclear facility.

Participants should have taken Core Course 01: Overview of Codes & Standards for Nuclear Power Plant Construction as a prerequisite to this course, or have the equivalent knowledge.

PD632 (see page 47)

MANUFACTURING, FABRICATION AND EXAMINATION RESPONSIBILITIES IN CODES, STANDARDS AND REGULATIONS FOR NUCLEAR POWER PLANT CONSTRUCTION – 3 DAYS

ASME produces codes and standards that are the most widely used in the world for the design, operation, maintenance, and repair of pressure vessels and nuclear facilities. This course will provide the participant with a detailed knowledge of the responsibilities of personnel involved in the manufacturing, fabrication and examination of new nuclear power plant components and new construction activity as defined by the ASME Boiler & Pressure Vessel Code.

This course is designed for engineers, managers and quality personnel who are involved in manufacturing, fabrication and examination of components or structures for nuclear power plants or who are involved in the construction of a nuclear power plant that is being built to the requirements of U.S. codes and standards. It is also valuable for those who are or will be directly or indirectly involved in the design, analysis, construction, maintenance or operation of a nuclear facility.

PD631 (see page 47)

ASME Personnel Certification

ASME Personnel Certification programs provide an independent assessment of the knowledge, skills, or competencies required for performance of specific workrelated responsibilities and enhance continued competence through periodic renewal requirements. They include a formal application process with evaluation culminating in certification for successful candidates. Candidates who are certified by ASME have demonstrated a competency within the respective body of knowledge covered by a computer based exam.

ASME currently offers certification in the following areas but is continuously evaluating prospective certification programs which meet the evolving needs of today's engineering workforce.

GEOMETRIC DIMENSIONING & TOLERANCING PROFESSIONALS

This certification program certifies your competence in using the Geometric Dimensioning & Tolerancing Y14.5-1994 Standard, by obtaining certification on one or both of the following two levels:

1. Technologist Level Certification - Provides an objective measure of your ability to understand the meaning of the symbols, modifiers and relationships of Geometric Dimensioning and Tolerancing (GD&T) as applied to engineering drawings and related documentation.
2. Senior Level Certification – Provides the additional objective measure of your ability to:
   (a) Understand the meaning of the symbols, modifiers, and relationships of GD&T as applied to engineering drawings and related documentation
   (b) Make the proper selection, with consideration for the function and relationship of part features, of geometric controls to document the product design intent
   (c) Perform calculations associated with GD&T
   (d) Apply the appropriate geometric control symbols, modifiers, and datum references to the engineering drawings and related documentation
   (e) Apply the principles of GD&T to the operations of manufacturing, quality control, and verification processes associated with engineering drawings and related documentation

QRO OPERATORS OF RESOURCE RECOVERY FACILITIES PROCESSING MUNICIPAL SOLID WASTE

This certification program covers individuals who perform or direct operations of facilities that combust municipal solid waste with or without heat recovery.

There are three levels of certification: Provisional, Operator & Combustions:

1. Provisional certification – Exam-based certification which is not facility-specific, but a prerequisite for the Operator Certification.
2. Operator Certification – Oral examination testing the applicant's knowledge of the operations of a solid waste combustion facility. The applicant is required to remain current on changes to the facility impacting operation and safety. There are two examinations under the operator certification: Shift Supervisor (SS) and Chief Facility Operator (CFO).
3. Combustion Certification – Examination of an applicant's knowledge of Municipal Solid Waste (MSW) characteristics and combustion processes. A Combustion System Operator (CSO) is not facility-specific and is neither a prerequisite nor substitute for any other certification. The CSO is intended for facilities that combust MSW without heat recovery.

QFO OPERATORS OF HIGH CAPACITY FOSSIL FUEL FIRED PLANTS

This Certification Program applies to operators of oil, gas and coal fired boilers with heat input greater than 10,000,000 btu/hr (as appropriate to the Clean Air Act as amended in 1990), who are interested in attaining certification in the following classes:

Class A. Pulverized fuel fired plants and cyclone furnaces

Class B. Single burner oil, gas or combination fired plants

Class C. Multiple burner oil, gas or combination fired plants

Class D. Stoker fired plants

Class E. Fluidized bed plants

Class F. Auxiliary fired heat recovery steam generators

UNDER DEVELOPMENT

ASME NDE & QC Inspection Personnel Certification Program (ANDE)

ANDE is a new certification program, under development, for non-destructive examination (NDE) personnel and quality control (QC) inspectors. ASME NDE (ANDE) Personnel Certification will include features consistent with other ASME Personnel Certification best-practices. Initially ANDE will focus on nuclear inservice inspection and new nuclear construction, but ultimately will expand to include pressure-boundary and structural applications in other industries throughout the U.S. as well as internationally. The ANDE program will provide independent, transportable, third-party centralized certification for NDE and QC inspection personnel as an option to the historical employer-based NDE certification system.

FOR MORE INFORMATION VISIT: GO.ASME.ORG/ANDE

Contact Information: Matthew Carnino at:
go.asme.org/PersonnelCertification

Phone: 1.212.591.8591

Fax: 1.212.591.8599

Email: certification@asme.org

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Professional Instruction by Industry Experts

- ASME-approved, eminently qualified faculty
- Most code courses taught by ASME Code Committee members who understand and communicate code or standard relevance and their impact on safety, quality and integrity
- Leadership and management courses delivered by industry-experienced professionals

Unsurpassed Leadership in Curricula Development

- All ASME courses subjected to rigorous peer review to ensure accuracy, comprehensiveness and relevance
- More than 50 years' experience creating, producing and delivering training programs
- ASME Trainng & Development recognized as an Authorized Provider of Continuing Education and Training by IACET, complying with the ANSI/IACET Standard

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GET MORE INFORMATION

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go.asme.org/corporate1

TURBO MACHINERY DYNAMICS: DESIGN & OPERATION

PD432

This course presents a detailed and comprehensive treatment of operation and maintenance of turbo-machinery.

Starting with the fundamentals of thermodynamics and cycle design, the latest trends in development and production of many different types of turbo-machines are covered. In-depth methods to analyze and explore new operation and maintenance procedures, minimize exhaust emissions and maximize structural integrity and operating efficiency are presented.

The ever-increasing quest for electrical and mechanical power, coupled with stricter restrictions on environmental pollutants, require exacting consideration of natural resources. Creative technological solutions are needed to optimize operation and achieve, often times, conflicting goals. This course teaches methods, which explain the wide range of parameters, as well as how to take advantage of the latest technical advances. Emphasis is placed on controlling operating parameters, interpreting and comparing alternatives and obtaining realistic solutions.

Specially prepared notes and the instructor's textbook, *Turbo-Machinery Dynamics: Design and Operation* will be provided to all participants on a computer disk, as well as a bound copy of the course notes. The electronic notes and textbook are linked for instant access and in-depth study from the notes directly to the specific page of the book through electronic bookmarks. Attendees will also receive computer codes with instructions for simulating and analyzing rotating machinery problems, parameter measurement and balancing of rotors.

You Will Learn To

- Describe fuel consumption, power output and exhaust gas emissions
- Explain structural integrity and component life evaluation
- Identify operating loads, component deflections, rotor-to-stator rub
- Explain the process of manufacturing and assembly methods, balancing of rotors
- Explain the test verification of design parameters and fault diagnosis
- Identify failures arising from cyclical loads and thermal distortion
- Identify material requirements and selection

Who Should Attend

Design and development engineers, plant engineers, field service engineers and technical managers with product and/or project responsibility

Special Requirements
Individuals familiar with calculus and personal computers – along with a Bachelor's degree or equivalent work experience -- will have sufficient background for this course. It is recommended that participants bring a laptop to the course.

INSTRUCTOR: Abdulla S. Rangwala
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $2,645 / List Price $2,745

THE TAGUCHI DESIGN OF EXPERIMENTS FOR ROBUST PRODUCT AND PROCESS DESIGNS

PD571

This course will introduce the Taguchi design improvement technique. Attendees will gain hands-on application experience to design robust products and processes as well as solve production problems by reducing performance variations. The goal of this course is to prepare attendees for immediate performance improvement and variation reduction applications. Attendees will leave this course knowing how to plan and lay out experiments, as well as interpret and analyze their results.

Each participant will receive a copy of the textbook, *Design of Experiments Using the Taguchi Approach*, by Ranjit Roy and a working demo of Qualitek-4 software for design and analysis of Taguchi experiments.

You Will Learn To

- Provide an overview of Taguchi concepts
- Measure cost of quality by Loss Function
- Describe the basic concepts in experimental design
- Explain how to project overall evaluation criteria
- Demonstrate a basic analysis and strategy for experimentation
- Describe Combination Design Strategy for Robust Design
- Provide a computation of cost and loss function

Who Should Attend

Product/process design engineers, R&D scientists, project managers, manufacturing managers, senior engineers, Black & Green Belts (Six Sigma) as well as quality and product assurance specialists

Participants are encouraged to attend as a project team.

Special Requirements
Attendees are encouraged to bring their own laptops, although all course materials will be displayed on an LCD projector.

INSTRUCTOR: Ranjit K. Roy
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

DESIGN, ANALYSIS AND FABRICATION OF COMPOSITE STRUCTURE, ENERGY AND MACHINE APPLICATIONS

PD567

This course provides an in-depth presentation of design, analysis and manufacturing methods for composites, with an emphasis on polymer matrix composites, which are the most widely used.

Industrial applications are now the largest user of composites, outstripping aerospace and sports equipment. There are a vast and increasing number of applications, including: wind turbines, energy storage flywheels, oil and natural gas exploration and production, natural gas and hydrogen vehicle storage tanks, fuel cells, high-speed and precision machinery, robots, optomechanical systems, semiconductor manufacturing equipment, automobile and truck engines, bodies, brakes and clutches, gas turbine engines, process industries equipment, heat exchangers, data storage equipment, x-ray and other medical diagnostic equipment, prosthetics and orthotics, as well as electronic and optoelectronic packaging.

In addition to outstanding strengths and stiffnesses and low densities, composites offer unique and tailorable physical properties, including thermal conductivities that range from very low to many times that of copper and thermal expansions that can be varied from high to near zero. Electrically conducting and insulating materials are available. Composites and other advanced materials, some with ultrahigh thermal conductivities, are now used in thermal management applications, such as motor cover/heat sinks, servers, notebook computers, power modules, plasma displays, printed circuit boards, heat sinks, laser diode, LED and photovoltaic packaging.

Composites include a wide range of polymeric, metallic, ceramic and carbon materials having both high-temperature and low-temperature capabilities.

You Will Learn To

- Understand the advantages, disadvantages and properties of the four classes of composites: polymer matrix-, metal matrix-, ceramic matrix- and carbon matrix-.
- Explain key reinforcements and matrix materials
- Understand evolutionary advances in thermal management and heat transfer materials
- Understand industrial, commercial and aerospace/defense applications
- Design cost-effective, reliable products while avoiding common pitfalls
- Understand analysis and manufacturing methods, along with applications, nondestructive evaluation, lessons learned and future trends, including nanocomposites

Who Should Attend

Design engineers, analysts, materials engineers and scientists, manufacturing engineers, quality assurance engineers, engineering managers, R&D engineers and scientists as well as product development engineers in the power generation and storage, automotive, aerospace/defense, process industries, heat transfer, high-speed machinery, precision machinery, optomechanical systems; sports equipment, biomedical engineering, medical equipment, including x-ray, computer-aided tomography, magnetic resonance imaging, electronic, laser diode LED and photovoltaic packaging industries

INSTRUCTOR: Carl Zweben
2 DAYS, 1.5 CEUS, 15 PDHS
MEMBER $1,375 / List Price $1,485

TRIZ: THE THEORY OF INVENTIVE PROBLEM SOLVING

PD513

This course provides a basic introduction to the Inventive Problem Solving Process known as "TRIZ" (Russian acronym for "Theory of Inventive Problem Solving"). TRIZ is a structured, "left-brained" approach to break-through innovation through the use of patterns of invention documented in the most inventive of the world's patents. This analysis demonstrates an overall algorithm, which when followed, allows anyone to provide breakthrough and novel solutions to problems as well as new product and business concepts.

Each participant will receive a complete set of course notes, a copy of the TRIZ 40 Inventive Principles, a copy of all course problems and solutions, and a copy of the book, *The Ideal Result: What It Is and How to Achieve It*, written by the instructor.

You Will Learn To

- Identify patterns of invention and describe how to use breakthrough ideas from parallel universe technology areas
- Explain the basic TRIZ problem solving algorithm and its basic tools including Ideal Final Result, resource identification and use, contradiction resolution, 40 inventive principles and the TRIZ contradiction table
- Explain how to use TRIZ for failure prediction and analysis
- Explain how to use TRIZ for business and organizational problem solving
- Describe TRIZ Lines of Evolution and how to use them for strategic planning, new product development, and forecasting
- Explain how to integrate TRIZ with other enterprise tools and assessments
- Describe how to integrate TRIZ effectively within your organization

Who Should Attend

Engineers, scientists and technical managers focused on breakthrough innovation and problem solving, professionals interested in adding a breakthrough problem-solving tool to problem definition processes such as Six Sigma and DFSS, as well as Innovation managers interested in improving the quality of inventions and intellectual property

INSTRUCTOR: Jack Hipple
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

FRACTURE MECHANICS APPROACH TO LIFE PREDICTIONS

PD268

Providing a practical understanding of fatigue and fracture calculations, this course is intended for engineers who are required to perform such calculations, or who specify or evaluate testing and draft fatigue or fracture portions of design requirements. It covers the latest methodologies such as weight functions and the failure assessment diagram (FAD) approach. Related subjects such as damage tolerance analysis, reliability and risked-based inspection will also be discussed.

Participants receive the textbook, *Fracture Mechanics: Fundamentals and Applications*, by Ted L. Anderson.

You Will Learn To

- Explain the underlying assumptions and limitations of fracture mechanics
- Describe the process for material selection for fatigue and fracture resistance
- Explain how to perform simple to moderately complex fracture mechanics calculations
- Identify codified procedures for flaw evaluation

Who Should Attend

Engineers who work with mechanical design, mechanics and structures as well as those involved in testing and equipment fabrication

INSTRUCTOR: Ted Anderson
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

TOOLS AND METHODS OF FINITE ELEMENT ANALYSIS

PD456

Despite the ready availability of inexpensive software and hardware and the competitive pressures that are driving their use, successful Finite Element Analysis (FEA) still requires a high level of knowledge and expertise. This course provides a comprehensive yet practical understanding of FEA methodology applicable to every industry.

Each participant will receive a copy of the book, *Finite Element Analysis for Design Engineers*, by Dr. Paul Kurowski.

You Will Learn To

- Explain FEA formulations and modeling processes
- Describe fundamental assumptions in FEA tools for error analysis
- Describe different modeling techniques and types of analyses
- Identify common errors, traps and misconceptions in FEA
- Explain how to use FEA as a tool of concurrent product development process

Who Should Attend

Designers and design engineers who need to use the FEA as a design tool within the design process; engineering managers who need to supervise FEA activities, assume responsibility for implementation of results, or make informed software purchasing decisions

INSTRUCTOR: Paul Kurowski
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

SHOCK AND VIBRATION ANALYSIS

PD231

In this intermediate level course, engineers with backgrounds in mechanical, structural or related engineering disciplines will learn how to compute natural frequencies and response to dynamic forces, as well as designs to reduce vibration of new and existing systems. Machineries, shafts and rotor systems, rotating equipment, their supports and foundations, vibration absorbers (tuned mass dampers), vibration isolators, shock loads and shock spectra, earthquakes, transportation vibrations, flow-induced vibrations and vibration monitoring are all discussed.

How to benchmark analytical results with test results or field data will also be taught. Emphasis is not on derivation of equations, but rather on assumptions and limitations of various analysis techniques and guidelines on when to use which method.

Thirty-two detailed, step-by-step, worked-out examples of analysis and design are presented at appropriate junctures throughout the course. Five case histories are also presented to demonstrate how the various concepts and methods presented in the course are applied in complex vibration projects.

You Will Learn To

- Compute frequencies of complex equipment, structures and systems
- Compute dynamic response to a variety of operational and environmental forces
- Compute equivalent static loads
- Employ different methods of reducing vibrations of new and existing equipment and structures, including frequency separation techniques, dampening, vibration absorbers, tuned mass dampers as well as vibration isolation
- Perform calculations related to special topics, such as solid-fluid systems and flow-induced vibrations

Who Should Attend

Engineers, engineering supervisors and managers responsible for designing or qualifying mechanical components, equipment, piping and structures subjected to dynamic forces; personnel responsible for auditing, reviewing or approving shock and vibration analysis tasks, including both individuals with a few years experience in vibration analysis as well as those who are new to the area

No prior knowledge of structural dynamics is necessary.

INSTRUCTOR: C. (Raj) Sundararajan
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

PROBABILISTIC STRUCTURAL ANALYSIS, DESIGN AND RELIABILITY-RISK ASSESSMENT

PD683

Reliability, risk and safety assessment is becoming increasingly important in engineering projects. This course provides a broad overview of probabilistic structural analysis, design and reliability/risk/safety assessment, with heavy emphasis on industrial applications. Different methods of analysis are explained with emphasis on assumptions and relative advantages-disadvantages of each method. Use of each method in actual industrial applications is discussed.

This is an applications oriented course; about 75% of the time will be devoted to applications. Actual examples from a spectrum of industries such as aerospace, pressure vessel and piping, nuclear power, fossil power, petrochemical and marine industries will be discussed.

Each participant will receive the course text, *Probabilistic Structural Mechanics Handbook: Theory and Industrial Applications*, (Chapman and Hall). This handbook, edited by the course director, is the most comprehensive book on the subject available today.

You Will Learn To

- Explain random variations in material properties and loads and how to quantify them
- Compute structural reliability using various techniques
- Design structures to specified reliability/risk level
- Perform probabilistic fracture/fatigue analysis and predict useful life

Who Should Attend

Engineers directly involved in probabilistic structural analysis, design and reliability assessment, as well as engineering supervisors and managers responsible for such projects

No prior knowledge of probabilistic structural analysis or reliability is necessary, but those who have a knowledge and experience will also benefit because of the breadth of topics and applications covered and the practical guidance offered.

INSTRUCTOR: C. (Raj) Sundararajan
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

eLEARNING COURSES

INTRODUCTION TO FINITE ELEMENT ANALYSIS (FEA)

TOP SELLER

Online Instructor-Supported Course EL507

Originally developed for aerospace structural analysis, finite element analysis (FEA) is now a convenient and speedy tool for approximation of the solution to a wide variety of complicated engineering problems across a wide range of industries. This online course explains how FEA can produce accurate, reliable approximate solutions, at a small fraction of the cost of more rigorous, closed-form analyses. It also provides the level of knowledge required to successfully use the FEA software packages currently available.

It is estimated that the course will, in total, require approximately 24 hours of work on the part of the student, over the duration of the six-week course.

You Will Learn

- Examples of all the steps necessary to conduct a successful finite element analysis from start to finish
- Concepts underlying the creation of elements which are used to make accurate approximations
- Use of finite element software for more advanced structural, thermal analysis and basic modal analysis

22.5 hours, 2.3 CEUs, 23 PDHs
MEMBER $595 / List Price $695

ADVANCED FINITE ELEMENT ANALYSIS

TOP SELLER

Online Instructor-Supported Course EL508

Based on practical application of ANSYS software, this course builds on the introductory level course to provide a fuller appreciation of how Abaqus works as well as finite element analysis in general. Presented in six modules, the course emphasizes the various aspects of structural analysis. The topics covered can also be abstracted to provide a useful guide for use of FEA for non-structural applications.

You Will Learn

- Command-line input for Abaqus
- Sub-structuring and sub-modeling
- Structural dynamics, including modal and harmonic response analyses
- Structural Dynamics II, featuring transient dynamic analysis
- Nonlinear structural analyses
- Design optimization in ANSYS

Prerequisites: Knowledge of basic FEA principles and a familiarity with ANSYS

22.5 hours, 2.3 CEUs, 23 PDHs
MEMBER $595 / List Price $695

DESIGN FOR PRODUCT SUCCESS

TOP SELLER

Online Instructor-Supported Course EL514

World-class companies guide the design and development of high-quality products in a step-by-step manner using many of the analytical tools and case studies techniques covered in this course, including new product creation strategy and process, creative design techniques, principles of design for manufacturing, design for assembly/disassembly, optimization as well as ergonomics.

This online, instructor-supported course relates the topics of creating a selfdirected product team, following the steps of creative design methodology, learning the tools of production process, identifying the integrated issues of design and production and finally managing product innovation.

Participants are required to obtain the book, *Design for Product Success*, by Devdas Shetty.

You Will Learn

- The theory and application of design for manufacturing principles for any new product launch
- The concepts, techniques and tools of new product design and development
- How to use design for assembly/disassembly and DFX tools that help identify weaknesses in the current design and suggest how to refine the design in all aspects
- The methods for optimizing the design and using tools like FMEA and Root Cause Analysis to identify the potential failure modes and effects of the system

22.5 hours, 2.3 CEUs, 23 PDHs
MEMBER PRICE: $595 List Price: $695

DEVELOPING PRODUCTS

Online Instructor-Supported Course EL530

This course provides skills and techniques to manage the product planning, design and manufacturing processes. It covers the project life cycle, determining resource requirements, detailed planning and management of the design process.

You Will Learn

- The interdependencies of product development, projects and company strategy
- How to describe a process to plan and execute projects
- How to obtain better results through thorough planning and management
- How to solve strategic issues through tactical implementation
- How to direct the engineering development process more effectively, including more effectively communicating key objectives and expectations as well as coaching others in product development methods

22.5 hours, 2.3 CEUs, 23 PDHs
MEMBER PRICE: $595 List Price: $695

eLEARNING COURSES

LEAN MANUFACTURING

Online Instructor-Supported Course EL525

This course explains how lean manufacturing techniques eliminate waste from typical production processes, and in turn improve product quality.

You Will Learn

- Concepts that are critical to successful lean manufacturing
- Current-state value stream map
- Correct identification of waste to be eliminated
- Processes used to create a lean manufacturing system
- Continuous improvement

CEUs: 1.5 PDHs: 15
MEMBER PRICE: $395 List Price: $495

INTRODUCTION TO COMPUTATIONAL FLUID DYNAMICS

Online Instructor-Supported Course EL513

This course has six modules and provides a detailed explanation of how to set up, run and interpret the results of CFD models for eight different case studies and it covers all the necessary theoretical background for industrial applications of computational fluid dynamics.

You Will Learn

- How to set up the most appropriate CFD model for the problem in hand
- How to set up the most appropriate turbulence model for their particular applications
- To conduct both steady state and transient (time dependent) fluid flow simulations
- To solve isothermal and non-isothermal thermo-fluid applications
- To solve incompressible and compressible fluid flow applications
- To solve fluid flow through porous media and rotating machinery

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

FE REVIEW

Online Self-Study Module EL537

The FE Exam Review was developed by a team of mechanical engineers who have been teaching a university-based FE Exam Review for several years. That program has an FE pass rate which exceeds 89%.

You Will Learn

Thermodynamics, computer dynamics, electric circuits, engineering economics, ethics, fluid mechanics, material science, mathematics, mechanics of materials, statics, chemistry

MEMBER PRICE: $195 List Price: $295

BASIC GEOMETRIC DIMENSIONING AND TOLERANCING (GD&T) Y14.5

Online Instructor-Supported Course EL505

This course covers most of the geometric dimensioning controls used on mechanical engineering drawings. Theoretical and practical concepts of each of the geometric controls are explained relative to design, tooling, production and inspection. Parts of a directional-change gear box are used as platforms for the geometric controls, including shafts, gears, bearings, keys, lip seals, castings and threaded fasteners.

You Will Learn

- Symbols and feature control frame
- Terms, rules, & measurement devices
- Characteristics of straightness, flatness, circularity & cylindricity
- How to work with datums, parallelism, perpendicularity & angularity
- Runout, profile and position tolerance

Special Requirement: You must have a copy of the ASME Y14.5 Dimensioning and Tolerancing standard.

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

ADVANCED GEOMETRIC DIMENSIONING AND TOLERANCING (GD&T) Y14.5

Online Instructor-Supported Course EL506

This course explains the basic applications of position, including fixed and floating fastener, zero tolerance, size feature datums and composite vs. two single segments. How to control the size and location of nonsize features are also explained, as are coaxial relationships and control of rectangular features.

You Will Learn

- An in-depth understanding of GD&T
- Basic applications of position and size concepts
- Practical tools that you can apply on the job

Special Requirement: You must have a copy of the ASME Y14.5 Dimensioning and Tolerancing standard.

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

go.asme.org/eLearning

ELEVATOR AND ESCALATOR COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $635!

PD602

Created to save participants time and money, this course is a back-to-back offering of "Introduction to Elevators and Escalators" (**PD100**) and "How to Perform Elevator Inspections Using ASME A17.2" (**PD102**). By taking this course, you could save up to $635.

INSTRUCTOR: Zack R. McCain, Jr.
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $2,645 / List Price $2,745

INTRODUCTION TO ELEVATORS AND ESCALATORS

PD100

This course covers the essential design and operation of elevators and escalator systems and will address the terminology and functions of the various associated mechanical and electrical components.

Each participant will receive a copy of Elevators 101, Elevator Industry Field Employees' Safety Handbook and The ASME A17.4 Guide for Emergency Evacuation of *Passengers from Elevators*.

This course is a prerequisite for ASME course, PD102, "How to Perform Elevator Inspections Using ASME A17.2" and PD107, "Elevator Maintenance Evaluation."

You Will Learn To

- Describe the application of various codes and standards that apply to elevators, escalators and moving walks
- Identify the various types of equipment used in driving means of electric and hydraulic elevators
- Identify hoistway and pit equipment and their functions, including types of suspension means
- Recognize various modes of operations and controls, including automatic, selective collective, car switch, constant pressure and inspection
- Identify machine room components, including location of equipment for machine room-less elevators
- Identify various types of elevators, such as passenger, freight, private residence, special purpose personnel, sidewalk, rooftop, limited use limited application and inclined, as well as dumb waiters and materials lifts
- Describe emergency evacuation procedures and fire Emergency Operation

Who Should Attend

Persons with little or no elevator and escalator experience responsible for facilities design, construction management, facilities management as well as inspections and maintenance administration personnel

INSTRUCTOR: Zack R. McCain, Jr.
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Save up to $635 by enrolling in PD602 – a combo course consisting of this course (PD100) and PD102, "How to Perform Elevator Inspections Using ASME A17.2."

HOW TO PERFORM ELEVATOR INSPECTIONS USING ASME A17.2

PD102 ASME CODE COURSE

This comprehensive course is based on ASME A17.2.1-1993 Inspector's Manual for Electric Elevators and ASME A17.2.2-1994 Inspector's Manual for Hydraulic Elevators. It provides a top-to-bottom look at inspection techniques and concepts including how to conduct elevator inspections and tests safely, both for scheduled updates and unexpected problems. It will take you inside the car, through the machine way, by the hoistway, outside the car and into the pit. The workshop format uses new videotape examples covering both inspectors' manuals and sections on inspection and testing.

Testing and exercises are used to emphasize the requirements and inculcate the requirements. These include measuring and calculating top car clearance, bottom runby and clearances, governor trip setting, overspeed switch settings, safety sliding distance, working pressure and relief valve setting, top and bottom runby, run limit timer and other adjustments. Safety Integrity Level (SIL) rated devices are introduced and Fire Emergency Operation is covered.

Each participant will receive extensive course notes, a copy of ASME A17.2 Guide for Inspection of Elevators, Escalators & Moving Walk; ASME A17.1 /CSA B44 Safety Code for Elevators and Escalators; ASME A17.3 Safety Code for Existing Elevators and Escalators; Elevator Industry Inspection Handbook; and the Elevator Industry Field Employees' Safety Handbook.

You Will Learn To

- Record and report results of inspections and tests
- Explain how to determine correct vertical clearances
- Identify acceptable refuge space on the car top and in the pit
- Describe the safety slide and buffer deceleration guidelines
- Identify the procedures to examine hydraulic and electrical equipment
- Explain top and bottom car, counterweight clearances, runby
- Identify working pressure for hydraulic elevators
- Explain governor pull through and release carrier pull out forces

Who Should Attend

Federal, state, city and private inspectors; technicians, constructors, mechanics, consultants, and service contractors; engineers and architects.

Special Requirements
Participants should bring a copy of *The National Electrical Code* (2005 Edition, or later) as well as a scientific calculator

Note: This course is structured on the assumption that participants have a basic knowledge of elevator systems. Anyone with little or no knowledge of elevators should attend course PD100, "Introduction to Elevators and Escalators," as a prerequisite to this training.

ASME A17.7/ CSA B44.7 Performance Based Safety Code for Elevators and Escalators will also be discussed.

INSTRUCTOR: Zack R. McCain, Jr.
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

Save up to $635 by enrolling in PD602 – a combo course consisting of this course (PD102) and PD100, "Introduction to Elevators and Escalators."

ELEVATOR MAINTENANCE EVALUATION

PD107

This course addresses both maintenance activities that are normally contracted to an elevator maintenance provider and other activities that are normally performed by the owner/ manager. Participants will learn about the Safety Code-required maintenance records including Maintenance Control Programs and how to inspect for and identify common maintenance deficiencies.

The course material includes sample Maintenance Control Programs for electric and hydraulic elevators, as well as escalators and moving walks, which identify all Safety Code-required maintenance activities.

Safety is stressed throughout the course, with emphasis on identification and use of elevator safety features that are available for maintenance and inspection personnel. Participants are given exercises and testing after each subject to help assess their understanding of the materials to ensure proper subject comprehension.

Each participant will receive class notes with recommended maintenance practices, copies of the latest edition of *Elevator Industry Field Employees' Safety Handbook, the Elevator Maintenance Manual - 2nd Edition as well as the Elevator Field Maintenance Handbook.*

You Will Learn To

- Explain how to inspect for and identify common maintenance deficiencies
- Conduct performance measurements, including criteria for both electric and hydraulic elevators
- Complete the daily check and startup of escalators and moving walks
- Identify and evaluate Safety Code-required maintenance records, including a Maintenance Control Program
- Identify what to look for in elevator maintenance contracts, including typical contract clauses
- Describe the safety requirements and procedures for servicing and inspecting elevators
- Explain how to conduct monthly fire emergency operation checks
- Explain how to use and select instruments properly, such as tachometer, light meters, millimeters, pressure gauges, force gauges and accelerometers
- Describe the security of access to elevator equipment, including key control

Who Should Attend

Personnel who evaluate or administer maintenance programs, elevator mechanics, managers and supervisors of elevator maintenance, architects and elevator engineers, as well as building owners/ managers and other individuals who administer elevator maintenance contracts

Special Requirements

This course is structured on the assumption that participants have a basic knowledge of elevator systems. Anyone with little or no knowledge of elevators should attend course PD100, "Introduction to Elevators and Escalators," as a prerequisite to this training. (If this is not possible, participants should purchase and review Elevators 101 prior to attending).

INSTRUCTOR: Zack R. McCain, Jr.
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS

PD010 ASME CODE COURSE

This course will provide participants with a comprehensive review of every aspect of providing and operating elevator and escalator safety systems. You will also get an overview of current codes and standards as well as accessibility regulations.

Each participant will receive complimentary copies of the ASME A17.1 - 2013 Safety Code for Elevators and Escalators, the A17.1 - 2010 Handbook Safety Code for Elevators and Escalators and the ASME A17.7 - 2007 Performance-Based Safety Code for Elevators and Escalators.

You Will Learn To

- Describe subject areas of machinery and equipment, hoist way and care construction, electrical equipment, emergency operations and signaling devices
- Identify the peculiarities of hydraulic elevator and the similarities and differences of escalators and moving walks
- Explain the current codes and standards as well as accessibility regulations, including the Americans with Disabilities Act (ADA)

Who Should Attend

Manufacturing engineers, modernization engineers, design and consulting engineers, maintenance personnel, as well as state and municipal elevator, electrical and building inspectors

INSTRUCTOR: Robert Krieger
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

eLEARNING COURSE

ESSENTIALS: A17.6 STANDARD FOR ELEVATOR SUSPENSION, COMPENSATION AND GOVERNOR SYSTEMS

Online Assessment Based Course ZABC28

This course provides an introduction the A17.6 Standard, covering three specific types of suspension technology for elevators, Stranded Carbon Steel Wire Ropes, Aramid Fiber Ropes and Noncircular Elastomeric Coated Steel Suspension Members.
2 PDHs $195

go.asme.org/eLearning

HVAC SYSTEMS AND CHILLER PERFORMANCE COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $475!

PD657

Created to save students time and money, this is a four-day, combination course, consisting of **PD027** "Heating, Ventilating and Air-Conditioning Systems: Sizing & Design" and **PD387** "Understanding Chiller Performance, Operation and Economics." If you opt to take these courses as a combination, you could **save up to $475.**

INSTRUCTOR: Ronald Howell
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS: SIZING & DESIGN

PD027

Through a combination of lectures and workshops, this course demonstrates how to avoid costly errors in the selection and sizing of heating, cooling, and air-moving equipment that can result in excess power and energy expense as well as unnecessary capital investment.

It explains and demonstrates the latest methodology for sizing and selecting heating, ventilating and air-conditioning (HVAC) equipment for commercial buildings; compares and analyzes common types of HVAC systems and currently available energy conserving and recovery equipment; and explores the issue of indoor air quality (IAQ), particularly as it relates to variable air volume (VAV) systems.

Each participant will receive a complimentary copy of the textbook, *Principles of Heating, Ventilating, and Air Conditioning*, by H.J. Sauer, Jr., R.H. Howell, and W.J. Coad.

You Will Learn To:

- Explain how to determine design cooling and heating loads
- Describe the characteristics of various types of HVAC systems
- Evaluate the potential energy saving techniques and equipment
- Identify potential solutions to IAQ problems with VAV systems

Who Should Attend

Designers, contractors, manufacturers, architects, and engineers who wish to enhance their knowledge of the fundamentals of equipment sizing and energy estimating for heating and air-conditioning systems

Special Requirements
Participants should bring a calculator to each session

INSTRUCTOR: Ronald Howell
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

Save up to $475 by enrolling in PD657 – a combo course consisting of this course (PD027) and PD387 "Understanding Chiller Performance, Operation, and Economics."

UNDERSTANDING CHILLER PERFORMANCE, OPERATION AND ECONOMICS

PD387

Chillers are used to provide chilled water for air-conditioning systems, as well as for many industrial applications. Chillers come in a variety of compressor types: centrifugal, reciprocating, and screw being the major ones. In addition, users often specify multiple chillers for load diversity and therefore the question of series or parallel operation of the chillers has been debated over the years.

Piping systems for chilled water have evolved from primary to secondary to tertiary pumping schemes. Understanding compressor performance, the refrigeration cycle and its components is essential for selecting the right chiller.

It is critical to understand chilled water piping systems and part load chiller performance in order to make the right economic decisions in chiller installation and operation.

You Will Learn To

- Describe refrigeration basics
- Provide general descriptions of chillers
- Identify chiller systems and system auxiliaries
- Describe building operating dynamics
- Explain the economics of chiller systems

Who Should Attend

Engineers, HVAC professionals and operators of commercial buildings

INSTRUCTOR: Ronald H. Howell
1 Day, 0.8 CEU, 8 PDH
MEMBER $765 / List Price $875

Save up to $475 by enrolling in PD657 – a combo course consisting of this course (PD387) and PD027 "Heating, Ventilating and Air-Conditioning Systems: Sizing & Design."

DESIGN AND APPLICATION OF CENTRIFUGAL PUMPS

PD349

Focusing on the hydraulic principles of centrifugal pumps, as well as the mechanical considerations in centrifugal pump designs, this course examines hydraulic theory as it applies to the pumps and the criteria for their proper selection. Participants will learn how to evaluate various suction configurations, their impact on pump performance, and methods to select the most cost effective pump type for each application.

Special Requirements
Participants are required to bring a calculator to each class session.

You Will Learn To

- Explain how to measure radial and axial forces on impeller
- Calculate shaft deflection and bearing loads on rotor assemble, shaft and key stresses
- Identify the measuring required casting thickness, flange thickness and bolt requirements
- Explain ways to determine optimum speed for pump operation
- Describe approximate head, capacity and efficiency values even before you have made a final pump selection
- Calculate the effects on pump performance of viscous liquids
- Identify the pumps to select for operation in series or parallel

Who Should Attend

People with some pump knowledge seeking a deeper understanding of how centrifugal pumps work, and when and how to apply this knowledge including those who are involved in some facet of pump design or application, or those who are interested in pursuing a career in these areas.

Attendees should have a degree in engineering and some work-related experience with pumps or equivalent experience in the pump field.

INSTRUCTOR: William Janna
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

CENTRIFUGAL COMPRESSOR PERFORMANCE ANALYSIS

PD584

A practical introduction into performance analysis of centrifugal compressors, this course offers a thorough examination of the thermodynamic processes used to model the compression process along with a description of the design limitations of the various process parameters. Using case studies, the course demonstrates common errors in process data, compressor fouling, off-design operation, and potential re-rates. Participants enter actual process data into a compressor performance program and evaluate the results.

Each participant will receive a hardbound textbook, *Compressor Performance, Aerodynamics for the User*, by M. Theodore Gresh, along with extensive course notes.

You Will Learn To

- Describe the different thermodynamic processes and parameters of head, efficiency, and power
- Explain the relationship between the compressor and system curves
- Explain the effect of inlet gas density on compressor performance
- Diagnose fouling and the effect of flow on thrust load
- Measure compressor performance in the field and how to interpret the results

Who Should Attend

Mechanical or chemical engineers with a minimum of 2-3 years of process plant experience

Special Requirements
Students will need to bring a laptop with MS Excel installed and a scientific calculator for the third day of class.

INSTRUCTOR: Ed Wilcox
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

FUNDAMENTALS OF PUMPS AND VALVES AND THEIR SELECTION FOR OPTIMUM SYSTEM PERFORMANCE

PD679 NEW

This course provides an understanding of the nature of pumps and valves and how they interact for optimum system performance.

The course discusses the requirements necessary for the selection of pumps and valves, and is structured in a sequence, starting from basics to detailed discussion of various aspects of both pumps and valves. It is designed to develop a full understanding of how pumps and valves work, covering selection, installation, operation, maintenance and trouble-shooting.

This course covers a broad range of topics, including the flow of fluids (e.g., calculating the flow of fluids and pressure drop), the selection of centrifugal pumps and positive displacement pumps, as well as types of valves, flow characteristics of valves and best practices in installation, operation and maintenance.

During the course attendees will receive guidance in making cost-effective decisions and tips for avoiding poor system operation. Also discussed will be how pumps and valves are used in different industries.

You Will Learn To

- Identify the parameters required for calculating the flow of fluid through pipes
- Identify the requirements for the selection of centrifugal pumps
- Explain how to select the right size pump for the process
- Explain how to select the appropriate capacity and pressure of the pump for an application
- Identify the most cost effective methods to control flow
- Explain how to select the correct valve for a system
- Explain how to reduce equipment costs by proper selection of valves
- Describe how to control costs and avoid system malfunctions due to improper valve selection
- Explain how to install, operate and maintain valves
- Describe the process of diagnosing and troubleshooting valve problems

Who Should Attend

Design engineers, process selection engineers, procurement personnel, project engineers, quality personnel, operation and maintenance engineers as well as inspection engineers

INSTRUCTOR: William S. Janna
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

TWO-PHASE FLOW AND HEAT TRANSFER

PD624

Participants in this course will gain a phenomenological understanding of two-phase flow and heat transfer in engineering processes and components, as well as an ability to compute flow and heat transfer for common situations.

The course approaches two-phase flow and heat transfer in a practical, qualitative way, rather than as a graduate-level treatment, with complex calculations and esoteric situations. Basic quantitative calculation, including making sense of the myriad correlations that are given in texts and papers, will also be covered.

Each participant will receive a set of class notes and a copy of the textbook, Schaum's Heat Transfer (2nd edition), by D. R. Pitts and L.E. Sissom.

You Will Learn To

- Explain the fundamentals of boiling
- Explain boiling on external and internal surfaces
- Describe two-phase flow patterns and pressure loss
- Explain two-phase flow with heat transfer
- Identify critical heat flux and burnout
- Describe Flow Instability in two-phase systems
- Identify cavitation
- Describe spray cooling with phase change

Who Should Attend

Engineers working in industrial environments with two-phase systems

Special Requirements
The instructor recommends that students bring their laptops.

INSTRUCTOR: Dyer Harris
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Also available as Online Course EL510, led by the instructor.

DESIGN AND SELECTION OF HEAT EXCHANGERS

PD673

This two-day course covers the design, selection and sizing of heat exchangers and begins with a brief review of heat transfer fundamentals. It continues with a look at four main types of heat exchangers that are used in the industry: the Double Pipe Heat Exchanger, the Shell and Tube Heat Exchanger, the Plate and Frame Heat Exchanger and the Cross Flow Heat Exchanger.

The discussion of each of these exchangers includes a description of construction, various methods of analysis and design considerations. The course also includes real-world examples and in-class problems. An appendix of relevant data is also provided as part of the course.

You Will Learn To

- Explain the heat transfer fundamentals needed to analysis heat exchangers
- Explain how to analyze the four types of existing heat exchangers
- Explain how to size exchangers for a given duty
- Describe the advantages and disadvantages of each of the four types of exchangers

Special Requirements
Students are required to bring a scientific calculator and flash drive to the course.

Who Should Attend

Engineers who specify, use or analyze heat exchangers on a regular basis, for those in the process industries that require a broader background in sizing heat exchangers

Special Requirements
The participant should be an engineer or engineering technologist who is familiar with – or wants to become more familiar with – heat exchangers and the methods by which they are analyzed.

INSTRUCTOR: William S. Janna
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

ECONOMICS OF PIPE SIZING AND PUMP SELECTION

PD690 NEW

Bad decisions during the piping design and pump selection phases can lead to years of unnecessarily high costs that are wasteful and not recoverable. Therefore, it is worthwhile to make a complete and thorough analysis throughout these processes. Piping should be designed to meet minimum cost requirements and still be adequate for meeting operational requirements.

This course emphasizes using economics to determine the least annual cost associated with the sizing (i.e., diameter) of a pipe. It also includes topics that cover how to determine a system curve to aid in the proper selection of a pump; avoidance of cavitation; and miscellaneous related topics.

The course begins with a brief review of fluid properties including density, viscosity, and pressure. It continues with a definition of volume and mass flow rate, and the principle of conservation of mass. Students also review the ASME, ANSI and ASTM standards that are applied to pipes and copper water tubes along with methods of attaching fittings to pipes and tubes.
Throughout the course, students engage in hand-on exercises to reinforce the learning process. The instructor also allows students, as a group, to select additional topics to review.

Each student will receive a copy of the textbook, *Introduction to Fluid Mechanics*, 3rd Edition, by Dr. William S. Janna.

You Will Learn To

- Use the principles of fluid mechanics to solve piping system problems
- Analyze piping problems
- Calculate an economical line size
- Explain pump testing procedures;
- Determine pump size for a given pipe size
- Explain how to avoid cavitation

Who Should Attend

To come

Special Requirements
Students are required to bring scientific calculators with them to the course. The instructor also requests that students bring flash drives to the course.

INSTRUCTOR: William S. Janna
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

FLUID MECHANICS, PIPING DESIGN, FLUID TRANSIENTS AND DYNAMICS

PD691

For some, the term, water hammer, evokes images of broken and bent piping, multi-million dollar damages, the loss of water supplies to cities, and the deaths of individuals due to accidents. Water hammer may be defined as an extreme fluid transient, occasionally recognized by loud banging, or hammering sounds, sometimes associated with fluid transients, which are caused by flow rate changes and resultant pressure surges. Often, fluid transient and water hammer are used interchangeably.

The primary purpose of this course is to provide practicing engineers with the analytical tools required to identify water hammer concerns and prevent equipment damage, personnel injury, and fatalities. The principles of pipe system design, with respect to fluid mechanics, valves, and pump operations are followed by basic structural piping design principles, water hammer theory, pipe system dynamics, and failure analysis.

Overall, this course integrates multiple engineering disciplines to teach the principles of troubleshooting pipe systems for fluid flow problems and pipe failures.

Each student will receive a copy of the book, Fluid Mechanics, Water Hammer, Dynamic Stresses, and Piping Design, by Dr. Robert Leishear.

You Will Learn To

- Explain the fundamentals of fluid mechanics in pipe systems.
- Describe the fundamentals of water hammer.
- Explain the fundamentals of pipe failures.
- Describe the fundamentals of dynamic pipe system response.
- Apply corrective actions for pipe failures.

Who Should Attend

This class is intended for practicing engineers in the power and process piping areas, who are concerned with the design, performance, and safety of piping equipment and components; specifically, the identification, risk assessment, and prevention of water hammers in water, liquid, and steam piping systems.

Special Requirements:
Students are required to bring calculators to the course.
The instructor recommends that they bring laptops as well.

INSTRUCTOR: Robert Allan Leishear
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

eLEARNING COURSES

TWO-PHASE FLOW AND HEAT TRANSFER

Online Instructor-Supported Course EL510

This course studies two-phase flow and heat transfer at a practical level, seeking to balance theory and analysis with a phenomenological understanding of the fundamental dynamics. Emphasis is placed on sorting the myriad of correlations offered for specific situations, and estimating the effect of a two-phase flow in common processes with simple mathematics.

You Will Learn To:

- Understand the additional flow and heat transfer dynamics in two-phase flow, compared to single-phase systems
- Caveats and restrictions to look for when applying correlations
- The effect of forced convection flow on the boiling regimes and flow patterns
- Effect of internal boiling on pipe flow friction pressure loss, and resulting pump requirements

22.5 hours, 2.3 CEUs, 23 PDHs
MEMBER $595 / List Price $695

HEATING, VENTILATION AND AIR-CONDITIONING (HVAC)

Online Self-Study Course EL538

This course is a review of basic HVAC and refrigeration and will test your knowledge with question sets and a final exam. This course will be available to you for three months from the date you receive your log-on info.

You Will Learn

- Psychrometrics, sensible heating and cooling, cooling and heating and humidification, adiabatic mixing process
- Calculations for heating and cooling loads
- Theoretical single and multi-stage refrigeration cycle
- Refrigeration cycle, gas refrigeration cycle, heat pump and refrigeration equipment

1.5 CEUs, 15 PDHs
MEMBER $595 / List Price $695

eLEARNING COURSES

Introduction to Computational Fluid Dynamics

Online Instructor-Supported Course EL513

This course has six modules and provides detailed explanation of how to set up, run and interpret the results of CFD models for eight different case studies and covers all the necessary theoretical background for industrial applications of computational fluid dynamics. It is estimated that in total, the course will require approximately 24 hours of work on the part of the student, over the duration of the six-week course.

You Will Learn

- How to set up the most appropriate CFD model for the problem in hand
- How to set up the most appropriate turbulence model for their particular applications
- Conducting both steady state and transient (time dependent) fluid flow simulations
- Solving for both isothermal and non-isothermal thermo-fluid applications, by including all the necessary modes of heat transfer) in their CFD model set up
- Solving for both incompressible and compressible fluid flow applications
- Solving for fluid flow through porous media and rotating machinery

22.5 hours, 2.3 CEUs
MEMBER $595 / List price $695

Introduction to the Selection of Pumps

Online Assessment Based Course ZABC42

This course provides an introduction to pumps – the way they work, different types, and some basic applications. It discusses the flow of fluids through pipes, as well as the variables that affect the flow, and it takes a close look at centrifugal and positive displacement pumps.

You Will Learn

- Identify different types of pumps, including centrifugal and positive displacement pumps
- Recognize the advantages and the limitations of each type of pump
- Calculate the flow of liquid through piping systems
- Calculate the pressure drop in pipes, valves, and fittings
- Select the appropriate type of pump for a specific application

2 PDHs List Price $195

THE GAS TURBINE: PRINCIPLES AND APPLICATIONS

PD115

The gas turbine is a versatile source of shaft or propulsion power in a growing number of applications.

The course reviews methods for evaluating gas turbines performance, leading to the criteria for selection and application of the engine. Attendees will be instructed in identifying functions of the several components of the gas turbine.

A thorough introduction into quantitative analysis of engine performance based on component characteristics will be provided. The successful operation of gas turbines will be analyzed, including the necessary characteristics of materials and fuels, the control of combustion emissions, along with elements of condition monitoring and maintenance. Specific examples of component and gas turbine engine designs are shown to illustrate the application of the analysis principles.

You Will Learn To

- Explain the methods for evaluating the performance of gas turbines, leading to the criteria for selection and application of the engine
- Identify functions of the several components of the gas turbine
- Conduct a basic quantitative analysis of engine performance based on component characteristics
- Analyze the successful operation of gas turbines, including the necessary characteristics of materials and fuels, the control of combustion emissions along with elements of condition monitoring and maintenance

Who Should Attend

Gas turbine newcomers and more experienced professionals who desire an overview of the many available gas turbine technologies

Instruction in analysis and performance prediction methods assumes an engineering degree background. Practical design, operating and maintenance considerations are reviewed for the engineer operator and manager.

INSTRUCTORS: John Blanton, Walter F. O'Brien
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

eLEARNING COURSES

BASIC GAS TURBINE ENGINE TECHNOLOGY

Online Self-Study Course EL540

This course will provide a good, general understanding of gas turbines in a user-friendly format that allows the student to proceed at their own pace and schedule. The course is a non-mathematical approach to understanding the fundamental nature of gas turbine engines and the processes that affect their performance.

10 PDHs
MEMBER $295 / List Price $395

Also see…
Turbo-Machinery Dynamics: Design and Analysis PD432, Page 4
BPV Code: Failure Prevention, Repair and Life Extension of Piping, Vessels, and Tanks PD077, Page 6.

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GEOMETRIC DIMENSIONING AND TOLERANCING COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $380!

PD603

Created to save participants time and money, this course is a back-to-back offering of "Geometric Dimensioning & Tolerancing Fundamentals" (PD570) and "Geometric Tolerancing Advanced Applications with Stacks and Analysis" (PD561). Take these courses as a combo and save up to $380.

Special Requirements
Students should bring calculators to class. Participants may bring drawings to class for discussion.

INSTRUCTOR: Scott Neumann
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

GEOMETRIC DIMENSIONING & TOLERANCING FUNDAMENTALS 1

PD570 ASME CODE COURSE **TOP SELLER**

This course provides a solid grounding in the fundamentals of geometric tolerancing based on the latest ASME Y14.5-2009 Standard and the ISO standards. It covers the philosophies of how, when and where to apply geometrics along with common sense tips for producing quality parts. Discussions include the application of geometric tolerancing to design, manufacturing and quality control, as well as the use of the datum reference frame and the application of the feature and datum MMC (maximum material condition), LMC (least material condition) and RFS (regardless of feature size) modifiers.

All participants receive a copy of the 380-page *GeoTol Pro Book and Pocket Guide*, by Scott Neumann and Al Neumann, containing full color graphics and loaded with student exercises. The training materials will serve as a valuable resource long after the training is complete.

You Will Learn To

- Understand geometric concepts thoroughly
- Grasp a solid foundation in the fundamentals of geometric tolerancing
- Know how, when, and where to apply geometrics
- Understand tips for producing quality parts

Who Should Attend

Engineering, designing, drafting, quality control, procurement, tolling, production, purchasing, manufacturing, CAD inspection and shop personnel

INSTRUCTOR: Scott Neumann
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

Save up to $380 by enrolling in PD603 - a combo course consisting of this course (PD570) and PD561 "Geometric Tolerancing Advanced Applications with Stacks and Analysis."

GEOMETRIC TOLERANCING ADVANCED APPLICATIONS WITH STACKS AND ANALYSIS

PD561 **TOP SELLER**

This course covers the evaluation, reading and interpretation of geometric tolerances on linear and axial assemblies. It provides simple, easy to use common sense formulas using addition and subtraction to solve the most complex problems.

Participants receive two books: *Geometric Dimensioning and Tolerancing Stacks and Analysis* and *Geometric Dimensioning and Tolerancing Applications with Stacks*, along with an Excel Tolerance Stack Spreadsheet.

You Will Learn To

- Properly interpret, apply and verify using geometric tolerancing on parts and assemblies
- Perform linear, axial and orientation tolerance stacks
- Reallocate tolerances to meet manufacturing capabilities

Special Requirements
Students should bring calculators to class. Participants may also bring drawings to class for discussion.

Who Should Attend

Engineers, designers and drafters, as well as quality, tooling and manufacturing personnel.

As a prerequisite, it is recommended the students attend the Geometric Tolerancing Fundamentals class or have a strong understanding in geometric tolerancing fundamentals.

INSTRUCTOR: Scott Neumann
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Save up to $380 by enrolling in PD603, a combo course consisting of this course (PD561) and PD570 "Geometric Dimensioning & Tolerancing Fundamentals."

DIMENSIONING AND TOLERANCING PRINCIPLES FOR GAGES AND FIXTURES

PD515

Participants of this course study and apply techniques on the proper design, dimensioning, and tolerancing of GO gages, NOGO gages, Functional Gages and Fixtures per the ASME Y14.43-2011 Standard, entitled, Dimensioning and Tolerancing Principles for Gages and Fixtures. Anyone involved in the application or interpretation of dimensioning and tolerancing of products would gain a thorough understanding of these principles through the knowledge of how to gage and fixture them properly, by attending this course.

Taught by the chairman of the Y14.43 Standard, this course is a mixture of lecture, discussion and application working directly with a wide assortment of handout materials and the standard itself, which lays out the rules, guidelines and principles approved by ANSI and the Department of Defense on how to correctly design, dimension and tolerance gages and fixtures.

Each participant will receive a copy of the ASME codebook, Y14.43 - 2011 Dimensioning and Tolerancing Principles for Gages and Fixtures.

You Will Learn To

- Apply the rules, principles and practices of gage and fixture design, dimensioning and tolerancing per the Y14.43-2011 standard
- Explain how to extend the principles contained in ASME Y14.5M-1994 and ASME Y14.5M-2009, (which are not gaging standards) to gages and fixtures, so that they can be applied to manufacturing and inspection
- Explain how choices made on design, dimension, and tolerance gages and fixtures determine whether good parts will be rejected and/or bad parts will be accepted
- Correct in-house gage and fixture designs
- Collect and analyze variables data from Coordinate Measurement Machines (and from a variety of inspection equipment)
- Explain how to put into practice the proper simulation of datum features

Who Should Attend

Those with an interest in learning the new rules, regulations and preferred ASME and ANSI practices per the newly released standard, gage designers, fixture designers, manufacturing engineers, process engineers, quality engineers, inspectors as well as anyone wishing to strengthen their knowledge of Geometric Dimensioning and Tolerancing

Special Requirements
Course participants should have a basic knowledge of the Y14.5 Standard in order to optimize their training experience.

INSTRUCTOR: James D. Meadows
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

MECHANICAL TOLERANCING FOR SIX SIGMA

PD449

This two-day course teaches participants how to solve assembly stacks using both traditional and Six Sigma methods. We highlight the design risks that are associated with the classical methods of tolerance analysis, and introduce Six Sigma methods that will eliminate these risks.

The goal of the Six Sigma techniques is to teach the participants how to assess the manufacturing and design risk of their tolerances. This risk is quantified in terms of manufacturing defects and assembly defects. These methods are unique because they allow the participants to optimize their designs by making trade-offs between assembly defects and manufacturing defects.

This is a lecture course, with many opportunities for participants to work on problems. We walk the participants through each of the tolerance analysis and allocation methods. After they master each method, we show them an Excel® spreadsheet that automates each method. This course is unique because it teaches participants to apply Six Sigma techniques to predict their design and manufacturing risk before they build parts.

Participants receive an Excel® spreadsheet to automate the tolerance analysis and allocation methods and a participant guide as a hands-on reference.

You Will Learn To

- Create one-dimensional loop diagrams
- Explain the development of assembly requirement equations
- Conduct an analysis of mechanical assembly requirements using Worst Case (WC), Root Sum of the Squares (RSS) and Modified Root Sum of the Squares (MRSS) methods
- Document risks associated with using the WC, RSS and MRSS analysis methods
- Describe the analysis of Geometric Dimensioning & Tolerancing (GD&T) controls in a tolerance analysis
- Describe the allocation of mechanical tolerances based on process capabilities using WC and Six Sigma statistical methods
- Provide estimates of manufacturing piece part defect rates and assembly tolerance defect rates
- Use MechTOLTM Lite spreadsheet to automate tolerance analysis and allocation processes

Who Should Attend

Anyone responsible for putting tolerances on mechanical drawings, including mechanical design engineers, drafting designers, fabrication engineers, assembly engineers and quality engineers

Special Requirements
It is recommended that participants bring a laptop with Excel® software. Additionally, participants must bring a calculator with square and square root functions.

INSTRUCTOR: Paul Drake
2 DAYS, 1.5 CEUS, 15 PDHS
MEMBER $1,375 / List Price $1,485

ADVANCED GEOMETRIC DIMENSIONING AND TOLERANCING

TOP SELLER

Online Instructor-Supported Course EL506

This advanced course thoroughly covers some of the more commonly used geometric dimensioning controls for mechanical engineering drawings. Basic applications of position are explained in greater detail, including fixed and floating fastener, zero tolerance, size feature datums, and composite versus two single segments. How to control the size and location of non-size features are also explained. Coaxial relationships and control of rectangular features is also covered.

Possession of the ASME Y14.5 Dimensioning and Tolerancing standard is required.

You Will Learn

- An in-depth understanding of GD&T
- Basic applications of position and size concepts
- Practical tools that you can apply on the job

22.5 hours, 2.3 CEUs
MEMBER $595 / List Price $695

Drawing Interpretation

Online Instructor-Supported Course EL504
If it is a necessary element of understanding basic mechanical two dimensional engineering drawings, then it is covered in this online course. Topics include basic drawing elements, such as formats, title block, parts list, and revision block; part views, including multi-view, auxiliary, and isometric; section views; general dimensions; tolerances; and finish and welding symbols.

Course materials include a packet with five detail drawings, an assembly drawing for the parts of a trolley wheel, flat and round parts, and a casting. Knowledge of the ASME Y14.5 Dimensioning and Tolerancing standard is recommended.

You Will Learn

- Fundamentals of drawing interpretation
- Drawing elements, including part views and sections
- General dimensions and tolerances
- How to represent surface texture, fasteners and welding

22.5 hours, 2.3 CEUs
MEMBER $595 / List Price $695

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BASIC GEOMETRIC DIMENSIONING AND TOLERANCING (GD&T)

Online Instructor-Supported Course EL505

Designed for those who use the ASME Y14.5 Dimensioning and Tolerancing standard, this course covers most of the geometric dimensioning controls used on mechanical engineering drawings. Theoretical and practical concepts of each of the geometric controls are explained relative to design, tooling, production, and inspection. Parts of a directional-change gear box are used as platforms for the geometric controls, including shafts, gears, bearings, keys, lip seals, castings and threaded fasteners.

You Will Learn

- Symbols and feature control frame
- Terms, rules and measurement devices
- Characteristics of straightness, flatness, circularity and cylindricity
- How to work with datums, parallelism, perpendicularity and angularity

INTERNATIONAL BUSINESS ETHICS AND FOREIGN CORRUPT PRACTICES ACT COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $635!

PD681

This 5-day combo course consists of PD674 - International Business Ethics & FCPA and PD680 - Understanding the Foreign Corrupt Practices Act. If you take these courses as a combo you could save up to $635.

INSTRUCTOR: Marcus Goncalves
5 Days, 3.8 CEUs, 38 PDHs MEMBER $2,645 / List Price $2,745

INTERNATIONAL BUSINESS ETHICS AND FOREIGN CORRUPT PRACTICES ACT COMBO COURSE

PD680

The dramatic increase of international business since the 1980s has been a highly complex and rather opaque process, despite the rhetoric both of globalization and the triumphant advance of capitalism. Enormous ethical challenges have come to the forefront, which need thoughtful and courageous practical initiatives to prevent business losses and non-compliance with federal and international anti-corruption laws.

The Foreign Corrupt Practices Act of 1977 (FCPA) was enacted for the purpose of making it unlawful for certain classes of persons (and professionals) and business entities to make payments to foreign government officials to assist in obtaining or retaining business.

This 2-day course addresses, in detail, the roles and responsibilities of multinational corporations' obligation to comply with this Act. The actions of your employees and agents can greatly impact whether or not your company is in FCPA compliance and this course offers practical training on how to work successfully with foreign businesses and governments without violating US laws.

Each student will receive a copy of The U.S. Foreign Corrupt Practice Act and the U.K. Bribery Act Pocketbook.

You Will Learn To

- Explain the essentials of FCPA
- Create policies and procedures that address not only the FCPA, but also major non-U.S. anti-corruption legislations, such as the U.K. Bribery Act;
- Explain how to apply the FCPA and other anti-corruption legislation dilemmas and how to avoid costly violations
- Analyze business scenarios, transactions and partnership/alliances to prevent FCPA violations;
- Describe how to work with foreign government officials without violating FCPA
- Describe how to design effective protocols to monitor FCPA/anti-corruption compliance.

Who Should Attend

Executives, international sales and marketing professionals, all employees, whether staff associates or officers, who interact with foreign governments and businesses and who are advised to clearly understand the laws and how to follow them.

INSTRUCTOR: Marcus Goncalves
2 Days, 1.5 CEUs, 15 PDHs MEMBER $1,375 / List Price $1,485

Save up to $635 by enrolling in PD681 – a combo course consisting of this course (PD680) and PD674 "International Business Ethics & FCPA."

INTERNATIONAL BUSINESS ETHICS AND FOREIGN CORRUPT PRACTICES ACT

PD674

The dramatic increase of international business since the 1980s has been a highly complex and rather opaque process, despite the rhetoric both of globalization and the triumphant advance of capitalism. Enormous ethical challenges have come to the forefront that need thoughtful and courageous practical initiatives, as well as academic expertise.

Is there a need for a differentiated economic analysis beyond simple profit maximization? Should there be an active participation of the world's religions in coping with global issues? What is the role of information technology in different cultures? What are the roles and responsibilities of multinational corporations, especially considering compliance with the U.S. Foreign Corrupt Practices Act (FCPA)?

Where ethical norms are in conflict – owing to different cultural practices – which ethical norms ought to guide one's business conduct in other nations and cultures? While adopting host country norms is a way to respect the host cultures, shouldn't professionals resist host country norms that are morally unethical?

This 3-day course provides a comprehensive coverage of international business ethics, fostering awareness of how the actions of Multinational Corporation's employees and agents can greatly impact whether or not a company is in ethical violation and therefore, subject to the U.S. Foreign Corrupt Practice Act.

While an overview of the FCPA is provided, participants are strongly encouraged to take the 2-day FCPA course (PD680) as standalone if you are already familiar with international business ethics issues and challenges, or ideally, together.

Each student will receive a copy of *Ethics for International Business: Decision Making in a Global Political Economy*, by John M. Kline.

You Will Learn To

- Describe the value foundation for a global business and society
- Explain the importance of ethics in international business
- Explain International human rights concepts and principles
- Devise strategies to foster international business ethics
- Develop a series of ethical business guidelines
- Describe how to improve control mechanisms in promoting global ethical business processes
- Explain how to make decisions when dealing with ethical dilemmas

Who Should Attend

Executives, international sales and marketing professionals and all employees who interact with foreign governments and businesses and who are advised to clearly understand and follow the laws,

INSTRUCTOR: Marcus Goncalves
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

Save up to $635 by enrolling in PD681 – a combo course consisting of this course (PD674) and PD680 "Understanding the Foreign Corrupt Practices Act."

THE NEW ENGINEERING MANGER: MOVING FROM TECHNICAL PROFESSIONAL MANAGER AND STRATEGIC THINKING

TAKE THIS COMBO COURSE AND SAVE UP TO $465!

PD685

This is a combo course consisting of **PD475**, "The New Engineering Manager: Moving from Technical Professional to Manager" and **PD676**, "Strategic Thinking." If you opt to take this combination course you could save up to **$465**.

INSTRUCTORS: Gary Dichtenberg
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

THE NEW ENGINEERING MANAGER: MOVING FROM TECHNICAL PROFESSIONAL TO MANAGER

PD475

This program focuses on the movement from technical professional and/or engineer to supervisor or team leader by providing the critical skills and simple, direct solutions to the most common problems managers face such as motivation, coaching and non-performance. The most useful concepts in the behavioral sciences have been distilled into a basic approach to managing people and teams.

You Will Learn To:

- Explain how to improve team performance and commitment
- Encourage employee initiative and avoid grievances, complaints and legal problems
- Increase your communication and leadership skills
- Motivate the under-achiever and get outstanding team performance
- Mediate disputes between employees
- Develop a personal plan for success

Who Should Attend

Current and aspiring supervisors, managers, team leaders and technical professionals who seek a solid foundation in management skills and techniques, who manage people or departments

INSTRUCTOR: Gary Dichtenberg
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Save up to $465 by enrolling in PD685, a combo course consisting of this course (PD475) and PD676 "Strategic Thinking."

STRATEGIC THINKING

PD676

The ability to make sound decisions is essential for long-term personal and professional success. Strategic thinkers are able to distinguish between causation and correlation, emotion and intellect. They are able to apply proven methods to evaluate risk and determine the best choice for action.

In this one-day course you will be presented with both standard tools (e.g., SWOT) and innovative approaches from game theory. You will learn how to discern fallacious reasoning traps as well as ways to counter them. In addition, you will practice using a powerful model to construct and deliver a winning argument.

You Will Learn To

- Recognize opportunities to influence and create strategic alliances
- Use strategic thinking to identify key strengths and weaknesses in your work group
- Apply strategic models that can be used immediately
- Develop persuasive skills to sell your strategic idea
- Describe and apply strategic and tactical thinking, paradigms, risk, and judgment in all aspects of your work
- Use strategic thinking to add value to your organization
- Identify one's own thinking style and how improve individual and group functioning
- Explain how to apply the cost/benefit of risk

Who Should Attend

This course is designed for managers, supervisors and team leaders who need to improve their decision-making skills and enhance their strategic outlook.

INSTRUCTORS: Gary Dichtenberg
1 Day, 0.8 CEUs, 8 PDHs
MEMBER $765 / List Price $875

Save up to $465 by enrolling in PD685, a combo course consisting of this course (PD676) and PD475 "The New Engineering Manager: Moving from Technical Professional to Manager."

COMPREHENSIVE NEGOTIATING STRATEGIES®: ENGINEERS AND TECHNICAL PROFESSIONALS

PD575

Comprehensive Negotiating Strategies: Engineers & Technical Professionals (CNS: E&TP) is specifically designed for engineers and technical professionals who handle, deal with and/or negotiate contracts, terms, timelines, deadlines, quality issues, specifications, materials, personnel, licensing agreements, schedules, structural and design related issues, project management issues, freight and shipping, customer relations, procurement, operations, equipment, international agreements, cultural, political, IT and/or environmental issues, and more.

CNS: E&TP uses a unique analytical approach to negotiation that is based on the Comprehensive Negotiation Continuum™. This is a proprietary tool that allows participants to ascertain and respond to virtually any negotiation challenge quickly, as it has been designed and developed to be effective in today's complex competitive global environment. One recent ASME participant of the program described CNS this way, "Great examples and interaction, especially relating negotiation to math and to science."

By focusing on the CNS framework and on the CNS Continuum, participants learn how to integrate their existing knowledge and experience together with those updated strategies, tactics, and techniques included in the workshop to limit their risks, expand their opportunities, and create professional-, industry- and business sector-specific strategies consistent with each participant's unique goals and objectives.

Each participant will receive a copy of the book, *Beyond Negotiating: Influence – Rapport – Results*, written by the instructor; a copy of the book, *ROADMAP to Success*, written by Derrick Chevalier, Dr. Steven Covey and Dr. Ken Blanchard; as well as a course workbook.

You Will Learn To

- Describe the CNS Six Tenets of Negotiation
- Explain how to use The CNS Continuum®
- Identify negotiation techniques and explain how to apply them
- Conduct a survey of tactics, techniques, and theory
- Explain how to use Competitive Intelligence

Who Should Attend

Engineers, technical professionals, scientists, project managers, business development professionals, IT professionals, financial executives and business managers from technology driven corporations

INSTRUCTOR: Derrick Chevalier
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

COMMUNICATION ESSENTIALS FOR ENGINEERS

PD692

This course focuses on building a toolbox of essential communication skills for engineers and technical professionals. Participants use practice tools like pulling, rather than pushing others to get agreement, how to listen effectively, how to give a straight message to a fellow employee, and how to manage personal criticism.

Understanding the need for and developing the skills to get along with others more effectively and improve teamwork is critical to achieving organizational goals and increasing work productivity. This program also covers how to identify and deal with difficult people and situations.

You Will Learn To

- Develop a toolbox of communication skills
- Employ communication skills needed to enhance teamwork
- Practice and enhance listening skills to get work done through others
- Recognize one's personal and professional interfacing style
- Turn personal criticism into productive feedback
- Combine a variety of communication skills to achieve interpersonal goals
- Apply self-management skills to maintain personal energy and motivation

Who Should Attend

This course is intended for professional engineers who want to improve their interpersonal communication in the workplace.

INSTRUCTOR: Gary Dichtenberg
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

RESEARCH AND DEVELOPMENT MANAGEMENT

PD506

Managing the productivity and excellence of an R&D organization offers a unique set of problems and unusual challenges. This uniqueness arises from two basic facts: (1) the character of the enterprise and (2) the highly specialized, articulate and autonomous people involved in R&D.

This course will explain how managing an R&D organization is largely the art of integrating the efforts of diverse, creative, intelligent, and independent individuals. It will offer a concise, yet effective, overview of the management issues and their solutions. The ideas presented in this course consist of the work of a multitude of experts and focuses on ways to improve the productivity of R&D. It is designed to bring the attendees to a stage where they can apply this information and to foster excellence and innovation in their R&D organization.

You Will Learn To

- Describe the innovation process in an effective R&D organization
- Identify the ingredients of successful technology transfer in an R&D atmosphere
- Contribute effectively to the management and leadership throughout the organization
- Explain how to make a smooth transition from a technical staff position to a management and leadership position
- Explain how to achieve optimal results from the R&D organization

Who Should Attend

Managers, supervisors, and team/group leaders, engineers, project managers, and other technical personnel as well as faculty members, department heads, research administrators, managers responsible for sponsoring research and policy makers in science and technology

INSTRUCTOR: Bruce Chehroudi
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

LEADERSHIP AND ORGANIZATIONAL MANAGEMENT

PD531

This course covers the characteristics of an exceptional manager from managing and motivating knowledge workers and teams, organizational structure, working with cross functional teams, managing expectations and performance, conflict resolution and strategies for changing scope.

You Will Learn To

- Explain operational issues including recruitment, negotiation and conflict resolution techniques
- Describe strategic management models and thinking
- Explain the differences between leadership and management
- Describe the dynamics of dealing with diverse teams

Who Should Attend

Engineers and technical professionals currently or aspiring to manage individuals and teams

INSTRUCTOR: Rita Rizzo
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Also available as Online Instructor-Supported course EL532.

CORE ENGINEERING MANAGEMENT

PD620

The foundation of any engineering manager's toolkit is an understanding of core management theory.

This course takes the theory and applies it to real world situations through case studies and project examples. At each step the legal, personnel and economic environments are considered, and the result is a clear understanding of how the elements of management are intertwined.

You Will Learn To

- Determine the correlation between a business plan and new product development
- Determine future need for product using a trend analysis and to calculate life cycle costs
- Identify supply/demand issues
- Identify training needs
- Select appropriate codes
- Develop a Work Schedule Breakdown (WBS)
- Identify the steps to take if a contract is breached
- Describe basic information on patents, copyright and trademarks
- Develop balanced scorecard objectives, measures, targets, and initiatives
- Complete a risk analysis and problem-solving techniques
- Move team members through a change
- Explain leadership vs. management behaviors and competencies
- Describe diversity awareness
- Identify conflict resolution styles
- Describe codes of ethics
- Locate pertinent information in reference to certification, accreditation and licensing

Who Should Attend

Engineering managers of work teams and project managers for engineering projects

INSTRUCTOR: Jackie Martin
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

eLEARNING COURSES

LEADERSHIP AND ORGANIZATIONAL MANAGEMENT

Online Instructor-Supported Course EL532

Learn how to lead project teams successfully to deliver on time and on budget, from selection of appropriate project team members through management of team dynamics and communication, especially in remote teams. Investigate tools for saving teams in trouble, look at problem solving and team focus. Instead of just being part of the team, learn how to become the leader of the team.

You Will Learn

- The definition and characteristics of an exceptional manager
- Recruitment, compensation and selection
- Performance management, coaching and motivation techniques
- Training and development techniques
- Negotiation strategies and conflict resolution techniques – interpersonal and group
- How to represent management to direct reports

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 2-day Public Course: PD531, "Leadership and Organizational Management"

ETHICS FOR ENGINEERS: DOING THE RIGHT THING WHEN NO ONE IS LOOKING

Online Assessment Based Course ZABC3

Ethics has been defined as doing the right thing when no one is watching. Are you? Is everyone around you? What should you do if they're not? Is what you think is right the same thing as what others think is right? In this learning for engineers we'll explore all these questions and you'll finish with how-to's for yourself and others.

This is an intermediate level course for all engineers as we all have to display ethical behavior and help others display it as well.

PDHs: 3
Price: $75

CHANGING ORGANIZATIONAL CULTURE

Online Assessment Based Course ZABC8

This course explains how to deal with change in your organization and offers management techniques that incorporate both engineering and psychological approaches to change the way an organization functions to help minimize discomfort and uncertainty throughout the organization. Changing the way an organization functions can be a tenuous process; therefore it is crucial to implement initiatives in a way that minimizes turn-over of talented employees and maximizes employee productivity.

PDHs: 1.5
Price: $95

PROJECT MANAGEMENT COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $635!

PD629

This course is a combination of Project Management for Engineers and Technical Professionals (PD467) and Preparing for the Project Management Professional Certification Exam (PD496). Take these courses as a combo and save up to $635.

INSTRUCTORS: Marcus Goncalves, Brian Porter
5 Days, 3.5 CEUs, 35 PDHs MEMBER $2,645 / List Price $2,745

PROJECT MANAGEMENT FOR ENGINEERS AND TECHNICAL PROFESSIONALS

PD467

This 3-day course is focused on the mechanical engineering industry, and provides an overview of project management fundamentals and techniques using lecture, small group case studies, discussions and hands-on simulations geared towards mechanical engineers and their industry. Participants will also work in teams to plan a real-world project in the area of mechanical engineering.

Topics include project management principles and methodology with special focus on planning, controlling, and coordinating individual and group efforts. Other topics include contracts, procurement management, and quality management, as well as hands-on lab instructions of Microsoft Project.

This course is 100% compliant with the Project Management Institute's (PMI's®) current PMBOK.

Each student will receive a copy of *International Project Management for Technical Professionals* and *The Knowledge Tornado: Bridging the Corporate Knowledge Gap*.

You Will Learn To

- Understand project management concepts from a system theoretic point of view
- Understand the role of project manager as a person who plans, controls, and optimizes a multi-task project towards a singular goal in a timely and cost-effective manner
- Comprehend the science and art of project management in settings where scarce resources, risky decisions, and conflicting tensions continually require sensible and effective compromises
- Explain concepts and applied techniques for cost effective management of both long-term development programs and short-term projects

Who Should Attend and Prerequisites

Mechanical engineers, project managers, project leaders or anyone who has been or will be assigned project management responsibilities

Special Requirements
As prerequisites, participants should have basic management skills, be involved or planning to become involved with project management. Participants should also have an understanding of basic accounting and budgeting skills, which will be utilized in budgeting project costs and practical exercises during the course.

INSTRUCTORS: Marcus Goncalves, Brian Porter
3 Days, 2.1 CEUs, 21 PDHs MEMBER $1,795 / List Price $1,895

Take this course and PD496 "Preparing for the Project Management Professional Certification Exam" and save up to $635 by enrolling into PD629 "Project Management Combo Course."

PREPARING FOR THE PROJECT MANAGEMENT PROFESSIONAL CERTIFICATION EXAM

PD496

This 2-day course is designed to help mechanical engineers prepare for the Project management Professional Examination.

The curriculum is focused on Project Management Institute's (PMI®) PMBOK grid, covering all of the materials PMI considers important in the exam. This course is revised often in order to reflect the most recent changes in the Project Management Professional Examination and coverage of the Guide to the Project Management Body of Knowledge (PMBOK).

This course reviews the entire nature of project management, how all of the tools and techniques relate to one another, and how it all goes together to make a unified methodology that can be used to successfully manage products. This course is packed with simulation questions that will be applied as hands-on exercise throughout its duration. By the end of the course, you will have answered more than 900 simulation questions.

Each participant will receive a copy of the *PMP Project Management Professional Study Guide*, 4th Edition, by Joseph Phillips; course notes/presentation is composed of a PowerPoint presentation handout with space for notes; and access to MGCG's online simulation exams after the course, until you pass the exam

Throughout this course, participants will achieve the following results:

- Understand and practice for the PMP certification exam using the latest and most complete test-preparation materials available
- Review each competency area tested on the exam through numerous case studies and other valuable practices tools, including more than 900 practice questions, simulated questions in the situational format of the new exam, as well as discussion and simulation questions on professional responsibility and on risk management
- Prepare to answer PMP certification exam questions on Scope and Time Management, Cost and Human Resources Management, Risk and Quality Management, Contract and Procurement Management, Communications Management and Professional Responsibility

Throughout this course, participants will be preparing to answer PMP certification exam questions on the following:

Who Should Attend

Mechanical engineers and technical professionals who possess project management knowledge and are preparing to take the PMP certification exam

INSTRUCTORS: Marcus Goncalves, Brian Porter
2 Days, 1.4 CEUs, 14 PDHs
MEMBER $1,375 / List Price $1,485

Note: The Project Management Professional (PMP®) certification is designed to certify project managers who meet the criteria for both knowledge and experience. Along with the changes of March 2002, PMI now requires at least 35-hours of project management education.

Therefore, it is recommended that candidates sign up for PD467, "Project Management for Engineers and Technical Professionals" first, or take the two courses combined (the combination course is PD629 "Project Management Combo Course," for which one can save up to $635).

TRIZ: THE THEORY OF INVENTIVE PROBLEM SOLVING

PD513

This course provides a basic introduction to the Inventive Problem Solving Process known as "TRIZ" (Russian acronym for "Theory of Inventive Problem Solving"). TRIZ is a structured, "left-brained" approach to breakthrough innovation through the use of patterns of invention documented in the most inventive of the world's patents. This analysis demonstrates an overall algorithm, which when followed, allows anyone to provide breakthrough and novel solutions to problems as well as new product and business concepts.

Each participant will receive a complete set of course notes, a copy of the TRIZ 40 Inventive Principles, a copy of all course problems and solutions, and a copy of the book, The Ideal Result: What It Is and How to Achieve It, written by the instructor.

You Will Learn To:

- Identify patterns of invention and describe how to use breakthrough ideas from parallel universe technology areas
- Explain the basic TRIZ problem solving algorithm and its basic tools including Ideal Final Result, resource identification and use, contradiction resolution, 40 inventive principles and the TRIZ contradiction table
- Explain how to use TRIZ for failure prediction and analysis
- Explain how to use TRIZ for business and organizational problem solving
- Describe TRIZ Lines of Evolution and how to use them for strategic planning, new product development, and forecasting
- Explain how to integrate TRIZ with other enterprise tools and assessments
- Describe how to integrate TRIZ effectively within your organization

Who Should Attend

Engineers, scientists and technical managers focused on breakthrough innovation and problem solving, professionals interested in adding a breakthrough problem-solving tool to problem definition processes such as Six Sigma and DFSS, as well as Innovation managers interested in improving the quality of inventions and intellectual property

INSTRUCTOR: Jack Hipple
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

ENGINEERING ETHICS IN ACTION*

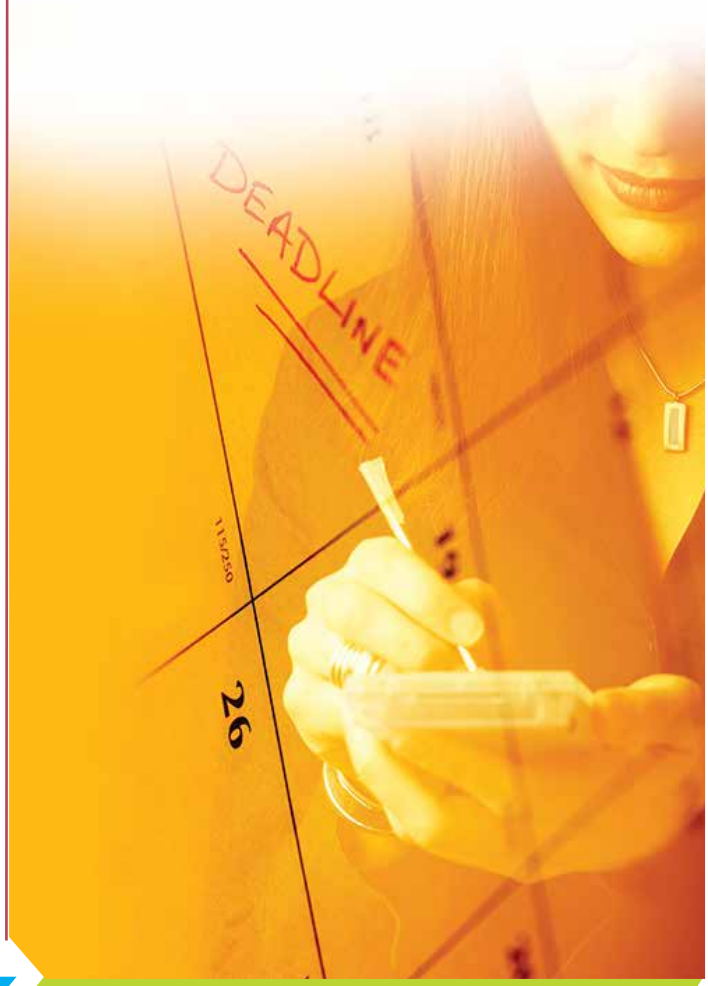
IPTI400

This course will provide thought-provoking insights and, delve into issues surrounding engineering ethics. It can serve as a refreshing review for those who have attended similar courses previously, with examples from the oil and gas industry to highlight the relevance of the issues. This course satisfies the annual requirement for ethics for professional engineers in Texas.

Who Should Attend
Engineers working in the upstream oil and gas industry (onshore and offshore), conducted in a meaningful, thoughtful, and stimulating manner. Specific examples from the oil and gas (and other selected) industries will be used to highlight the relevance of engineering ethical considerations.

INSTRUCTOR: Mark Ramsey
3 Hours, 2.5 PDHs
List Price $200

***For more information this *ASME-IPTI* course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz at serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**



eLEARNING COURSES

PROJECT MANAGEMENT FOR ENGINEERS

Online Instructor-Supported Course EL511

Benefits of this course include identifying the project management skills you have and the ones that need enhancement; learn how to use a step-by-step process to plan, implement and evaluate each project; develop strategies for making other people "able" and communicating with them on their progress; and how to steer a project around lack of resources, wrong direction and office politics.

You Will Learn

- How to apply several skills to facilitate the success of a project
- How to describe the project life-cycle
- How to to provide effective feedback to others and improve your listening skills
- How to integrate what you have learned into an effective process
- To develop and implement the strategy and plan
- To explain how to set performance standards

CEUs: 2.3 PDHs: 23
Member Price: $595 List Price: $695

Also available as a 3-day Public Course: PD467, "Project Management for Engineers and Technical Professionals"

TECHNICAL WRITING FOR ENGINEERS: GIVING READERS WHAT THEY NEED

Online Assessment Based Course ZABC2

Different reader groups read the same documents; however, their level of understanding can vary greatly due to their experience and your writing. Want to help them understand your intent? Learn to create your documents (the writing and the layout on the screen/ page) so they do just that. And in this training you work with your own weekly reports, SOPs, system designs, inspection reports, etc., so you get actual work done at the same time you're learning!

PDHs: 4
Price: $100

TOTAL QUALITY MANAGEMENT

Online Assessment Based Course ZABC6

Total Quality Management (TQM) is a system for satisfying internal and external customers and suppliers through both continuous improvements and breakthrough results that ultimately change organizational culture. This course provides the basic concepts and practices so you can apply these tools to your work and generate improvement and results. When you apply the TQM approach, it has an overarching impact on all aspects of the core business processes. This self-paced course provides students with case studies, which illustrate how to apply effective TQM strategies in the workplace.

PDHs: 3
Price: $145

FINANCIAL RESOURCE MANAGEMENT

Online Instructor-Supported Course EL533

This course covers a wide range of financial management of topics, including the fundamentals and key components of the business plan, available and alternative funding sources, engineering economic analysis techniques such as NPV and ROI, and the preparation, interpretation and management of contracts.

You Will Learn

- How to apply financial accounting and budgeting procedures
- How to use applied finance, short & long term
- How to use engineering economic analysis techniques
- How to perform capital budgeting and resource planning
- How to use Financial Risk Analysis
- How to identify procurement and contract procedures; contract management

CEUs: 2.3 PDHs: 23
Member Price: $595 List Price: $695

FINANCIAL RESOURCE MANAGEMENT FOR ENGINEERS

Online Assessment Based Course ZABC40

This course describes the fundamental terminology, processes, and strategies of business finance and accounting and covers business plan fundamentals and key components, available and alternative funding sources, engineering economic analysis techniques such as NPV and ROI, along with contract preparation, interpretation and management.

PDHs: 3
Price: $195

MARKETING, SALES AND COMMUNICATIONS FOR ENGINEERS

Online Assessment Based Course ZABC41

This course introduces the skills, knowledge and techniques of marketing and its interaction with the operations and technical arenas of a firm. It covers a broad range of topics, including market research and analysis; the impact of trends and the environment; forecasting; risk analysis; sales, pricing, and consumer satisfaction; advertising and integrated marketing communications; and branding.

PDHs: 2
Price: $195

eLEARNING COURSES

MARKETING, SALES AND COMMUNICATIONS FOR ENGINEERS

Online Assessment Based Course EL531

This course provides skills, best practices and an appreciation of marketing and its interaction with the operations and technical arenas of an organization. It covers communication skills, market research and analysis, benchmarking, trends, the impact of the environment, technology assessment forecasting, risk analysis, sales and consumer satisfaction, advertising and integrated marketing communications, pricing, products and branding.

You Will Learn

- Market analysis (customer base, competition)
- Business research and forecasting tools and techniques
- Risk analysis, trend analysis (economics, social, political, environmental, technology) and technology assessment techniques
- Presentation skills, sales and advertising practices and customer satisfaction strategies
- Marketing and branding techniques, product portfolio analysis, global trade and international operations, and pricing strategies

PDHs: 1.5
Member Price: $395 List Price: $495

STRATEGIC PLANNING

Online Assessment Based Course EL534

This course deals primarily with business strategies, and covers: strategic destinations and planning domestically and internationally, planning for new technologies, technology assessment practices and techniques, system design and life-cycle engineering, partnering and outsourcing strategies, as well as change management techniques and adjustment strategies.

You Will Learn

- Formulating and communicating recommendations and action plans
- Obtaining information on competitors method application
- Synthesizing information and interpreting results
- Applying technology assessment practices and techniques
- Designing for environment, maintenance, re-usability and life cycle analysis
- Establishing outsourcing and partnering relationships

CEUs: 2.3 PDHs: 23
MEMBER $595 List Price: $695

EXECUTION: HOW TO GET RESULTS

Online Assessment Based Course ZABC7

To achieve great results takes a lot of planning, effort and effective execution. How do you define the results you wish to achieve? How do you appropriately plan your efforts? How can you get others truly involved in helping you achieve what you want to achieve? How do you address the problems that come up along the way? How can you effectively learn from and share you execution experience? This course answers these and many other related questions.

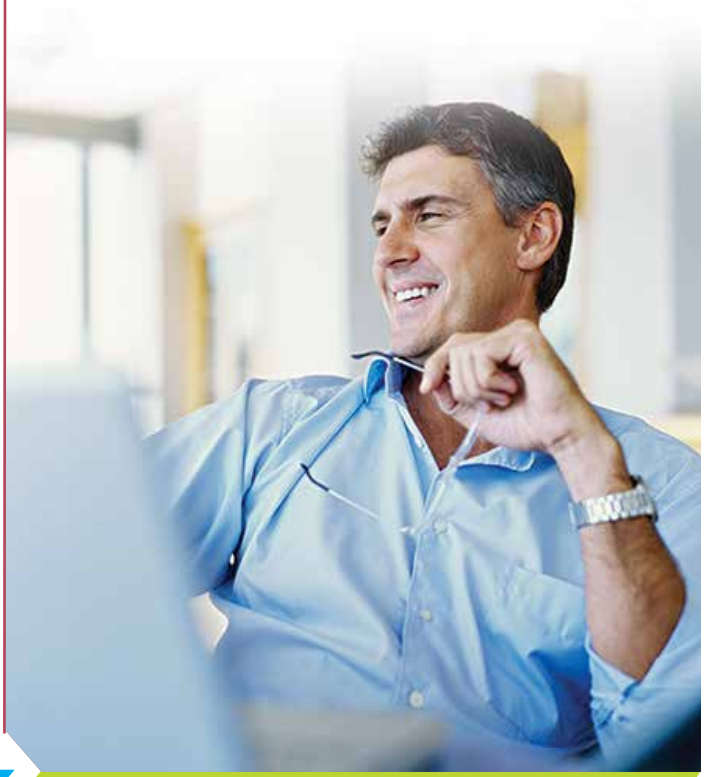
PDHs: 1.5
Price: $95

ETHICS FOR ENGINEERS: DOING THE RIGHT THING WHEN NO ONE IS LOOKING

Online Assessment Based Course ZABC3

To achieve great results takes a lot of planning, effort and effective execution. How do you define the results you wish to achieve? How do you appropriately plan your efforts? How can you get others truly involved in helping you achieve what you want to achieve? How do you address the problems that come up along the way? How can you effectively learn from and share you execution experience? This course answers these and many other related questions.

PDHs: 1.5
Price: $95



go.asme.org/eLearning

BPV CODE, SECTION III, DIVISION 1: CLASS 1, 2, & 3 PIPING DESIGN COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $470!

PD615 ASME CODE COURSE

Created to save participants' time and money, this course is a back-to-back offering of "ASME Section III, Division 1, Class 1 Piping Design" (PD599) and "ASME Section III, Division 1, Class 2 & 3 Piping Design" (PD600). Take these courses as a combo and save up to $470. (These courses may be taken separately in the U.S. only).

INSTRUCTOR: George Antaki, Jack Cole
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

BPV CODE, SECTION III, DIVISION 1: CLASS 1, PIPING DESIGN

PD599 ASME CODE COURSE

This course provides information and instruction on the design and construction of nuclear power plant piping systems consistent with ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB.

Following a brief historical perspective on the ASME Boiler and Pressure Vessel Code as well as a general overview of the Code, the course primarily focuses on the appropriate use of the ASME BPVC Section III, Division 1, Subsection NB for the design and construction of Class 1 piping systems. While they will be discussed briefly, detailed instruction on the design and construction of Class 1 pipe supports will not be provided.

Participant exercises are provided as an integral part of the training program to facilitate the learning objectives.

You Will Learn To

- Describe the overview of the ASME Boiler and Pressure Vessel Code
- Identify Code requirements for Class 1 Piping Design Specifications
- Explain Class 1 Piping Design by Rule (NB-3600)
- Explain Class 1 Piping Design by Analysis (NB-3200)

Who Should Attend

Design and mechanical engineers, QA and inspection personnel, reactor engineers, welding engineers and operations engineers

Special Requirements
This is an intermediate level course for Mechanical and Civil Engineers who are or will be directly or indirectly involved in the design, analysis or construction of ASME Boiler and Pressure Vessel Code, Safety Class 1 piping systems. Participants are expected to have at least one year of experience in the design, maintenance, or operation of a nuclear power reactor facility.

INSTRUCTORS: George Antaki, Jack Cole
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

This course (PD599) is offered in conjunction with another course," Section III, Division 1, Class 2&3 Piping Design," (PD600). The combination course is, "Section III, Division 1, Class 1, 2 & 3 Piping Design Combo Course," (PD615). If you opt to take the combination course, you will save up to $470.

Also available as online, self-study course EL542.

BPV CODE, SECTION III, DIVISION 1: CLASS 2 & 3 PIPING DESIGN

PD600 ASME CODE COURSE

This course provides information and instruction on the design and construction of nuclear power plant piping systems to the ASME Boiler and Pressure Vessel Code (BPVC), Section III, Division 2/3, Subsection NC and ND. The course focuses on the appropriate use of the ASME BPVC Section III, Division 1, Subsection NC and ND for the design and construction of Class 2/3 piping systems. While they will be discussed briefly, detailed instruction on the design and construction of Class 2/3 pipe supports will not be provided.

Participant exercises are provided as an integral part of the training program.

You Will Learn to:

- Explain Class 2/3 Piping Design by Rule methods
- Identify Class 2/3 pipe supports design requirements
- Explain selected individual piping component design requirements
- Describe the design of a simple Class 2/3 piping system
- Describe "non-Code" but related nuclear piping design issues

Who Should Attend

Design and mechanical engineers, QA and inspection personnel, reactor engineers, welding engineers and operations engineers

Special Requirements
This is an intermediate level course for Mechanical and Civil Engineers who are or will be directly or indirectly involved in the design, analysis or construction of ASME Boiler and Pressure Vessel Code, Safety Class 2/3 piping systems. Participants are expected to have at least one year of experience in the design, maintenance or operation of a nuclear power reactor facility.

INSTRUCTORS: George Antaki, Jack Cole
1 Day, 0.8 CEUs, 8 PDHs
MEMBER $875 / List Price $975

This course (PD600) is offered in conjunction with another course, "Section III, Division 1, Class 1 Piping Design," (PD599). The combination course (PD615) is "Section III, Division 1, Class 1, 2 & 3 Piping Design Combination Course." If you opt to take the combination course, you will save up to $470.

Also available as online, self-study course EL543.

BPV CODE, SECTION III, DIVISION 1: RULES FOR CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS

PD184 ASME CODE COURSE

This course presents a practical yet comprehensive overview of Section III, Division 1, including interfaces with Sections II, V, and IX. While not an in-depth review of design, fabrication, inspection, quality assurance or other technical requirements, every Subsection in Section III is covered in sufficient detail to provide an understanding of the Code processes and methodology, including the ASME Accreditation processes.

The Course provides valuable and useful information about the Nuclear Code for nuclear regulators, technical organizations, nuclear generating facility owners, equipment and material organizations, installers and authorized inspection agencies.

Insights are also provided into the regulatory significance and application of Section III and other ASME Codes included in the USNRC's regulation 10CFR 50.55a, the regulatory significance of Code Cases and Code Inquiries, enhanced with a discussion on the use of Code alternatives, as permitted by the NRC's regulations. Participants will also learn about the USNRC's 10CFR Part 21 and 10CFR50.55(e) reporting requirements.

Reference material includes background on the development of the ASME Boiler and Pressure Vessel Code, a summary of the Subsections of the ASME Boiler and Pressure Vessel (B&PV) Code, Section III, the ASME Accreditation process along with the course presentation material.

You Will Learn To

- Describe the contents of Section III, including its current scope and exclusions
- Explain how the Code is adopted by NRC and its regulatory significance
- Describe NRC's acceptance of Code Cases
- Explain the reporting requirements of NRC's 10CFR Part 21 and 10CFR50.55(e)
- Describe the functions performed by Authorized Inspection Agencies and Authorized Nuclear Inspectors
- List the Quality Assurance requirements as they apply to Material Organizations and N-Certificate holders
- Explain the use and significance of ASME Code Stamps and the new ASME Code Stamp
- Describe the Process for ASME Accreditation
- List the responsibilities of various ASME Certificate Holders
- Describe the purpose of the different Code Data Reports and their required signatories
- Explain how Section III, interfaces with Sections II, V, and IX
- Explain how the ASME Code is becoming a global standard
- Relate future trends in nuclear power development

Who Should Attend

Mechanical and mechanical system design engineers, plant systems engineers and QA and inspection personnel, including both experienced as well as entry-level personnel who

INSTRUCTOR: Gene Imbro
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

BPV CODE, SECTION XI, INSERVICE INSPECTION OF NUCLEAR POWER PLANT COMPONENTS

PD192 ASME CODE COURSE

By taking this course you will gain specific insight into how to use Section XI to save millions of dollars in plant operating costs. Covering all aspects of Section XI, this course highlights repair, replacement, modification and maintenance activities; pressure testing; as well as the relationship between the Code and regulatory and enforcement requirements. Also addressed will be the many controversial issues confronting the nuclear industry, along with discussion of the broad spectrum of opinions regarding practical application of Code requirements.

Course materials include many published ASME Interpretations that explain how Code requirements can be applied to problems that have confronted other companies. The course also highlights significant changes in the Code requirements in the last ten to fifteen years.

Designed to provide an introduction to Section XI for people who are not familiar with it, the course also provides experienced Section XI users an entirely new understanding of some of the confusing and controversial parts of Section XI.

You Will Learn To

- Explain inservice inspection requirements for Class 1, 2 and 3 systems, components and supports, as well as steel and concrete containment vessels
- Describe requirements for qualification of nondestructive examination personnel and performance of nondestructive examination
- Explain basic requirements for flaw evaluation and acceptance
- Identify Section XI requirements for repair, replacement, modification, maintenance activities and pressure testing
- Explain how to use recent revisions to Section XI to your advantage
- Describe the relationship of 10CFR50.55a and NRC Regulatory Guides, Bulletins, Generic Letters and Regulatory Issue Summaries to inservice inspection, nondestructive examination, repair, replacement and modification

Who Should Attend

Utility operating personnel responsible for nuclear power plant inservice inspection, nondestructive examination, evaluation, repair, replacement and modification, as well as personnel responsible for assessment or third-party inspection, regulation or enforcement

Special Requirements
While experience with Section XI or other ASME Codes or Standards is not required, you should have a strong technical background or hands-on experience with Code work.

INSTRUCTOR: Rick Swayne
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $3,050 / List Price $3,150

ADVANCED DESIGN AND CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS PER BPV CODE, SECTION III

PD644 ASME CODE COURSE

From suppliers' shops to construction sites, this advanced course details Code requirements for the design, fabrication, construction and life extension of nuclear power plants. Covering all aspects of the nuclear pressure boundary as well as the application of methods for fabrication of nuclear pressure boundary components, it provides the required skills for applying Code requirements for Nondestructive Examination (NDE) techniques for radiography, ultrasonic techniques and other forms of NDE. It also outlines the requirements for performing hydro testing and leak testing. Case studies examine real scenarios encountered in the nuclear industry.

This advanced course explores the requirements of Section III of the ASME Boiler and Pressure Vessel (B&PV) code. Through a combination of information and case studies based on real-world problems, it provides the required knowledge and skills for the professionals who are involved in the design, fabrication, construction and life extension of nuclear power plant (NPP) components.

You Will Learn To

- Explain advanced concepts related to design by analysis and design by rule
- Compare ASME B&PV Code with other international codes.
- Identify welding and heat treatment requirements
- Describe what is required for non-destructive examination and testing

Who Should Attend

Nuclear power plant designers, stress analysts, QA and inspection personnel and regulators' along with reactor, welding, operations and utility engineers

INSTRUCTOR: San Iyer
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

Also available as Online Instructor-Supported course EL524, taught by this instructor.

OVERVIEW OF CODES AND STANDARDS FOR NUCLEAR POWER PLANTS

PD633 ASME CODE COURSE

This course introduces mechanical and civil engineers to ASME, its codes and standards and the ASME Boiler and Pressure Vessels (B&PV) Code as it applies to nuclear facilities. It provides an overview of Sections III and XI of the B&PV Code as well as the Guides for the Operation and Maintenance for Nuclear Power Plants. This course also reviews Sections II, V, and IX as they apply to nuclear facilities.

This course also discusses the NQA-1 Quality Assurance for Nuclear Facility Applications Standard. Other topics include a brief history of the B&PV Code, the ASME Boards and Committees (including the Board on Nuclear Codes and Standards), international activity in the area of nuclear codes, and ASME Nuclear Accreditation.

You Will Learn To

- Describe the scope of ASME codes and standards applicable to construction of pressure-retaining components
- Explain the purpose, organization and requirements in Sections III and XI of the ASME Boiler and Pressure Vessel (B&PV) Code, including the requirements and process for ASME Nuclear Accreditation
- Explain the purpose, organization and requirements of NQA-1 Quality Assurance for Nuclear Facility Applications and the OM Standards and Guides for the Operation of Nuclear Power Plants
- Describe the purpose, organization and requirements in Sections II, V and IX as they apply to nuclear facility construction

Who Should Attend

Engineers and managers involved in the design, analysis, and construction of nuclear facilities as well as operations and maintenance, quality assurance and quality control programs, inspection, procurement, product design, process engineering and project management

INSTRUCTOR: William A. (Ken) Sowder
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

DESIGN IN CODES, STANDARDS AND REGULATIONS FOR NUCLEAR POWER PLANT CONSTRUCTION

PD632 ASME CODE COURSE

The course provides details of the ASME Section III Division 1 code requirements and their technical basis for the design of Class 1, 2 and 3 piping, pumps, valves and vessels in nuclear power plants.

Topics include an overview of the ASME Section III design requirements, methods of analysis and qualification criteria for each type of component, design by rule, design by analysis and qualification by testing. Supplementary requirements imposed by regulation (regulatory guides, standard review plan, etc.) will also be covered. The course also discusses related ASME codes and standards such as B16, QME-1 and OM.

Each participant will receive complimentary copies of BPVC Section III - Rules for Construction of Nuclear Facility Components - Division 1 - Subsection NB-Class 1 Components and BPVC Section III - Rules for Constructions of Nuclear Facility Components-Subsection NCA - General Requirements for Division 1 and Division 2.

You Will Learn To

- Explain how to ensure that design specifications contain the minimum ASME requirements and how they relate to design input to a Design Report
- Describe the methods and criteria for design by analysis and apply pressure design equations
- Explain how to design input loads and develop the contents of an ASME Section III Design Specification
- Explain the process and analysis and qualification for extreme loads
- Describe the design rules for the design of vessels, pumps, valves and piping systems

Who Should Attend

Engineers, managers and quality personnel and inspectors involved in the design, analysis or fabrication of components or structures for nuclear power plants.

INSTRUCTORS: George Antaki, Jack R. Cole, Greg Hollinger
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

MANUFACTURING, FABRICATION AND EXAMINATION RESPONSIBILITIES IN CODES, STANDARDS AND REGULATIONS FOR NUCLEAR POWER PLANT CONSTRUCTION

PD631 ASME CODE COURSE

Focusing on the goal of meeting the quality requirements defined by both federal regulation and the ASME Boiler and Pressure Vessels (B&PV) Code, this course explains the specific responsibilities of personnel involved in the manufacturing, fabrication and examination of new nuclear power plant components and new construction. It also covers the responsibilities for compliance with other Codes and Standards related to B&PV Code Section III, such as those published by the American Welding Society (AWS), the American Society of Nondestructive Testing (ASNT), and other ASME Codes and Standards.

You Will Learn To

- Explain the U.S. federal regulatory requirements for nuclear construction
- Describe the responsibilities for materials control, fabrication, construction, testing, stamping, examination and certification of new components for nuclear power plants, including new construction activity
- Explain the work-oriented and programmatic quality requirements that are defined by federal regulation and in the ASME B&PV Code and how to implement them
- Describe the relationship of supporting B&PVC Sections to Section III, including Sections II, V, IX and XI
- Describe the responsibilities for compliance with other Codes and Standards related to B&PVC Section III, such as those published by the American Welding Society (AWS), the American Society of Nondestructive Testing (ASNT), and other ASME Codes and Standards.

Who Should Attend

Engineers, managers and quality assurance and control personnel involved in the manufacture, fabrication and examination of components or structures for nuclear power plants, or who are involved in the construction of a new nuclear power plant that is being built to the requirements of U.S. Codes and Standards, including utility, fabricator and construction company project management as well as nuclear inspectors.

INSTRUCTOR: Terence L. Chan
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

QUALITY ASSURANCE (QA) CONSIDERATIONS FOR NEW NUCLEAR FACILITY CONSTRUCTION

PD523 ASME CODE COURSE

Since the last nuclear power plant was constructed, the knowledge of Codes & Standards, regulations, and the knowledge of QA principles required by regulatory agency inspectors have eroded. Add to this the many new initiatives and technologies that have impacted the industry, and the result is a need for more cognizant QA professionals in all segments of the industry.

This course is designed to provide an overview of the regulations and associated codes & standards applicable to the construction of new nuclear facilities including those types that have never been built, previously. The goal of this course is to impart an overall appreciation for the relationship of regulations governing new nuclear construction to the Codes and Standards and expected licensee QA approaches to regulatory inspectors who will be overseeing the construction and startup of these new facilities.

Participants will receive a copy of the ASME Standard, NQA-1 - Quality Assurance Requirements for Nuclear Facility Applications.

You Will Learn To

- Explain quality assurance general principles
- Describe Performance based initiatives
- Compare ANSI N45.2 to ASME NQA-1
- Explain the process of the NRC's adoption of ASME Codes
- Describe ISO 9001-2000 and QC-1 Rev. 10
- Identify the new nuclear plant initiatives and framework, plant types, and status

Who Should Attend

Regulatory inspectors, designers, suppliers, owners/operator personnel responsible for developing or overseeing QA programs and processes applicable to new nuclear facility construction and startup. This course is particularly relevant to personnel engaged in both ends of the nuclear fuel cycle.

Special Requirements
Participants should have a basic understanding of the relationship between NRC documents (such as CFRs, NUREGs, SECYs, etc.) as well as a basic grasp of QA principles and an understanding of the process by which a nuclear facility is constructed (design, fabrication, testing).

INSTRUCTOR: Douglas Brown
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

NQA-1 REQUIREMENTS FOR COMPUTER SOFTWARE USED IN NUCLEAR FACILITIES

PD606 ASME CODE COURSE

Focusing primarily on Subpart 2.7, QA Requirements for Computer Software, this course examines the requirements found in NQA-1 for using computer software in nuclear facilities. Participants will learn to apply NQA-1 to the practice of developing, using, maintaining or procuring software used in nuclear facilities.

Each participant will receive a complimentary copy of the ASME NQA-1 - Quality Assurance Requirements for Nuclear Facility Applications (QA) Standard.

You Will Learn To

- Explain how ASME NQA-1 applies to computer software such as design and analysis software including use of spreadsheets, custom developed software, configurable software such as that found in digital instrumentation and control systems, and acquired software including software dedication
- Describe the regulatory requirements, standards, and guidance associated with computer software used in nuclear facilities
- Identify the elements of a QA Plan for computer software activities
- Prepare and conduct a computer software audit

Who Should Attend

Design, software, and quality engineers, regulators, licensing and procurement personnel, program managers and auditors.

Special Requirements
Participants should have a general understanding of the software development life cycle and quality assurance process.

INSTRUCTOR: Nancy M. Kyle, Norman P. Moreau, Ronald C. Schrotke
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

ASME NQA-1 LEAD AUDITOR TRAINING

PD675

The objective of this course is to provide the prospective lead auditor, with sufficient formal training to assist in meeting the training requirement for ASME NQA-1 and N45.2.23 auditors. This course gives each student the body of knowledge and understanding of auditing methods and techniques to conduct audits of nuclear quality assurance programs. The material includes the development, organization and administration of an audit program; the mechanics of an individual audit; audit objectives; and auditing techniques.

Each participant will receive a complimentary copy of the ASME NQA-1 Quality Assurance Requirements for Nuclear Facility Applications Standard.

You Will Learn To

- Identify and become knowledgeable of rules and regulations, standards and guidance applicable to nuclear facilities
- Explain how to examine the general structure of quality assurance programs such as NQA-1 and ISO 9001
- Describe how to establish an audit program and how to plan for conducting audits
- Identify the four phases of the audit life cycle: 1) preparation, 2) performance, 3) reporting, and 4) follow-up
- Identify the duties and responsibilities of both an auditor and lead auditor
- Evaluate quality assurance program documents and associated procedures.
- Explain how to prepare and perform internal and supplier audits including how to report and follow up on findings
- Demonstrate an understanding of auditing methods and techniques through participation in practical exercises and examination

Who Should Attend

Quality engineers, auditors, engineers, project managers, inspection personnel, production supervisors, facility representatives, procurement personnel, safety system oversight staff as well as ssessment personnel

INSTRUCTORS: Norman P. Moreau, Richard C. Schrotke, David Morley
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

COMPARISON OF GLOBAL QUALITY ASSURANCE AND MANAGEMENT SYSTEM STANDARDS USED FOR NUCLEAR APPLICATIONS

PD634 ASME CODE COURSE

Upon completion of this two-day intermediate-level course, managers, engineers and program developers will have a better understanding of the major international Nuclear Quality Assurance Standards and how they relate and interact.

Following an introduction to the ASME Section III Nuclear Power Code, the course offers an overview of the ASME NQA-1 Nuclear Quality Assurance Standard, the ISO 9001 Quality Management Standard, and the IAEA GS-R-3 Management Systems Standard. It also compares the NQA-1 Standard with the ISO 9001:2008 and the IAEA GS-R-3 Management Systems Safety Series Standard. The course also provides analysis of the areas of their agreement and differences.

This course is designed for engineers, managers and quality personnel who are, or will be, directly or indirectly involved in manufacturing, fabrication and examination of components or structures for nuclear power facilities. Participants are expected to have at least one year of experience in design, construction, quality assurance or operation of nuclear facilities. They may also have a supporting-supplier role for nuclear power facilities and their components or development of management system integration of nuclear quality requirements across global boundaries.

You Will Learn To

- Explain the organization and scope of the ASME Section III Rules for Construction of Nuclear Facility Components
- Describe the ASME NQA-1 Nuclear Quality Assurance Standard contents and organization
- Explain the overview of International Atomic Energy Agency (IAEA) Safety Standard GS-R-3, 2006-STI/PUB/1252
- Explain the overview of ISO 9001-2008
- Describe the practical application of these quality assurance requirements for the nuclear industry

Who Should Attend

Design engineers, quality engineers, managers, management program developers, project managers, regulators, inspectors, procurement personnel, operations and plant maintenance personnel

INSTRUCTOR: William A. (Ken) Sowder
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

Also available as Online Instructor-Supported course EL526, taught by this instructor.

DEVELOPING A 10-YEAR PUMP INSERVICE TESTING PROGRAM

PD595

This course teaches participants how to develop a Pump-IST (Inservice Test) Program that the NRC will accept and approve. It covers the full range of Pump-IST requirements, including general concepts, the scope of Pump-IST, overviews of ISTA and ISTB, pump testing, program preparation, comprehensive pump test, pump vibration, risk-informed initiatives, performance-based initiatives and two case studies. It focuses specifically on the NRC required 10-year updates of the Pump-IST Program.

Although the course is geared toward IST engineers working at a plant – or IST program regulators with 5-10 years of experience in the nuclear industry – it also teaches engineers who are new to the field, the basics of safety systems as well as standby equipment.

You Will Learn To

- Explain how to perform ten-year updates of the Pump-IST program
- Identify the latest Pump-IST requirements, including ASME OM-2012 Division 1 (OM Code), Subsection ISTB
- Describe Pump-IST strengths and weaknesses
- Explain details of current and future regulatory changes affecting Pump-IST

Who Should Attend

Inservice test engineers, maintenance engineers, inservice testing program regulators and licensing engineers

INSTRUCTOR: C. Wesley (Wes) Rowley
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Also available as Online Instructor-Supported course EL523, led by the instructor.

DEVELOPING A 10-YEAR VALVE INSERVICE TESTING PROGRAM

PD596

Upon completion of this course, you will be able to develop a Valve-IST (Inservice Test) Program that complies with all NRC requirements. Following an introduction of the subject matter, it goes into general concepts, scope of Valve-IST, overviews of ISTA and ISTC, program requirements and guidance, valve testing, program preparation, condition-monitoring for valve test, risk-informed initiatives, performance-based initiatives, and two case studies. It highlights NRCrequired, 10-year updates of the Valve-IST Program.

While designed primarily for IST Engineers working at a plant, or IST Program regulators with 5 to 10 years' experience, new engineers in the nuclear industry will also learn a lot of the basics related to safety systems and standby equipment.

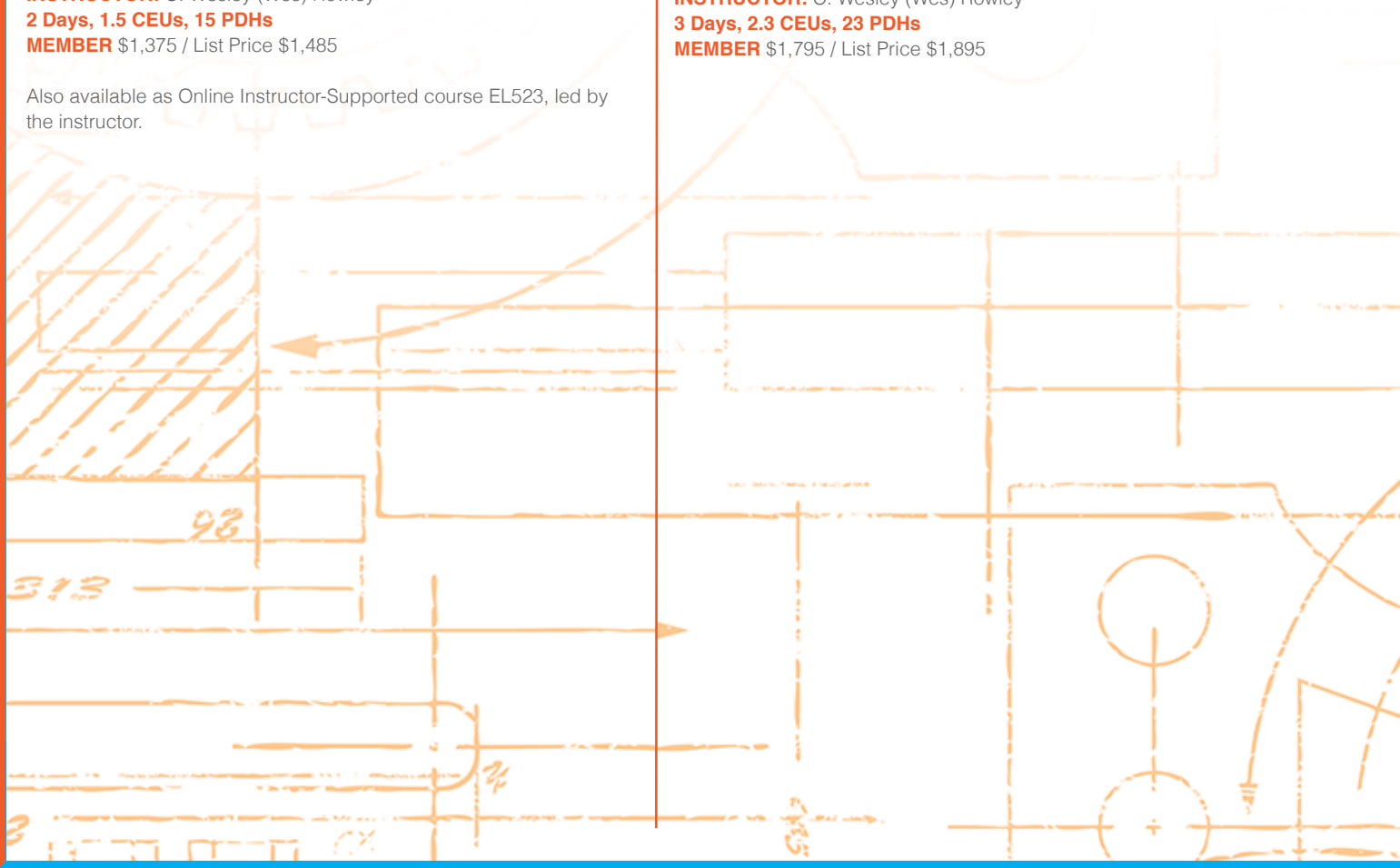
You Will Learn To

- Explain how to perform ten-year updates of the Valve-IST program
- Identify the specific requirements of the ASME OM Code, Subsection ISTC
- Identify relevant Valve-IST requirements
- Describe the latest thinking on Valve-IST strengths and weaknesses
- Identify current and likely future regulatory changes affecting Valve-IST

Who Should Attend

Inservice test engineers, maintenance engineers, inservice testing program regulators, licensing engineers

INSTRUCTOR: C. Wesley (Wes) Rowley
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895



RISK-INFORMED INSERVICE TESTING PROGRAM

PD597

How to convert a typical IST Program 10-year update to a RI-IST (Risk Informed Inservice Testing) Program that the Nuclear Regulatory Commission will accept and approve is the focus of this course.

It provides an overview of the ISTE (the subsection of the code referring to Risk Testing Requirements); an overview of ISTA (General Testing Requirements); program requirements, guidance, and preparation; industry risk-informed initiatives; performance-based initiatives; and several case studies.

While designed specifically for the IST engineers working at the plant or IST program regulators with 5 to 10 years of experience in the nuclear industry, new engineers will also benefit from the basic information the course provides related to safety systems, standby equipment, and application of Probabilistic Risk Assessment Methods (PRA).

You Will Learn To

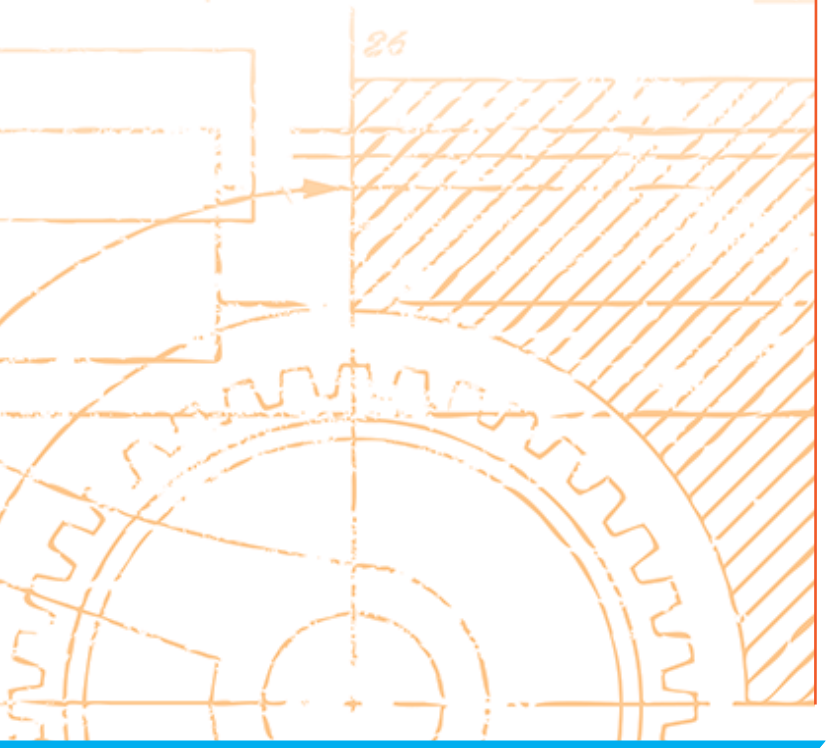
- Perform Risk Informed-IST 10-year update of the IST program
- Identify RI-IST requirements
- Identify PRA strengths and weaknesses
- Describe the details of current and future regulatory changes affecting RI-IST

Who Should Attend

Inservice testing engineers and regulators, project managers, engineering managers with risk assessment responsibilities

INSTRUCTORS: C. Wesley (Wes) Rowley
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

Also available as Online Course EL527, led by the instructor.



BPV CODE, SECTION XI, DIVISION 1: INSERVICE INSPECTION 10-YEAR PROGRAM UPDATES FOR NUCLEAR POWER PLANT COMPONENTS

PD672 ASME CODE COURSE

This course is designed to provide a new or experienced Inservice Inspection (ISI) Program engineer/owner or a licensing support person with the practical knowledge necessary to meet the ISI Program requirements in Section XI, Division 1 and the applicable requirements contained in the Code of Federal Regulations 10 CFR 50.55a. These ISI Program requirements address ASME Class 1, 2 and 3 components and their supports including pressure testing of those components.

This course combines the experience of the instructor along with the current ISI Program requirements in the 2007 Edition and 2008 Addenda of Section XI. This edition is now endorsed by the U.S. Nuclear Regulatory Commission (NRC). Additionally, the course also provides insights into later Section XI requirements where they may prove to be beneficial.

The course contains information and recommendations for responsible Nuclear Power Plant (NPP) personnel in the development, administration and maintenance of the ISI program. The contents of this course can be used by an ISI program engineer/owner or can be considered as a set of informative attributes for a vendor or contractor to develop such a program.

You Will Learn To

- Define the elements and contents of an ISI Program
- Explain how to address Augmented ISI Programs
- Explain how to define the contents an ISI Schedule
- Identify the Regulatory Documents and the information that needs to be submitted to the Regulator
- Describe how Code Cases and Interpretations can be used
- Write needed Relief or Alternative Requests
- Describe how to keep an ISI Program current

Who Should Attend

Nuclear Power Plant personnel responsible for the development, administration, and maintenance of an ISI Program at their plant, including those involved in licensing support, governance and oversight of ISI Programs, as well as vendors or contractors that develop ISI Program(s) for NPPs

Special Requirements
The course requires a basic understanding of how Section XI, Division 1 is organized.

INSTRUCTOR: Raymond A. West
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

ASME NQA-1 AND DOE QUALITY ASSURANCE RULE 10 CFR 830 NEW!

PD711 ASME CODE COURSE

ASME produces codes and standards that are the most widely used in the world for the design, manufacture, operation, maintenance, and repair of components within nuclear facilities. This 3-day course discusses the ASME NQA-1 Standard and its 4 parts, the principal intentions of this Standard and how to apply its provisions for Department of Energy nuclear facility suppliers, contractors and DOE National Laboratories.

This course is designed to provide management, procurement, engineering and program management with an introduction to and overview of ASME as an organization, its Codes and Standards and the ASME NQA-1 Standard. The instructor explains how this Standard is applied to DOE nuclear facilities, as well as providing a brief overview of the subsections of B&PV Code, Section III, as they apply to construction of nuclear facilities and DOE Orders regarding quality assurance, such as 414.1D, G414.1-2B, 450.2.

Other covered topics include a brief history of the B&PV code, the ASME Board on Nuclear Codes and Standards, as well as the NQA-1 guidance for implementation within DOE Rules and Orders for Quality Assurance

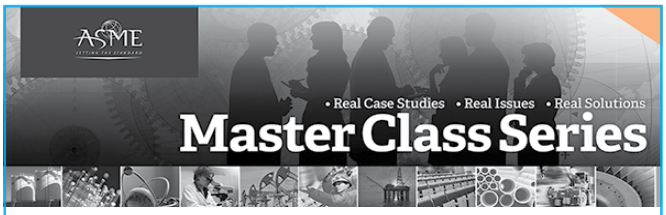
You Will Learn To

- Explain the purpose and organization of ASME
- Describe the scope of ASME codes and standards applicable to components in a nuclear facility
- Explain the purpose, organization and requirements of NQA-1 Quality Assurance for Nuclear Facility Applications
- Identify the 18 criteria basis of the NQA-1 Standard contained in Part 1, NQA Parts 2, 3 and 4
- Apply the four principal Department of Energy requirement documents pertaining to nuclear quality assurance for nuclear facilities

Who Should Attend

Individuals who are or will be directly or indirectly involved in the design, procurement, manufacturing and construction, maintenance or operation of a nuclear facility, including those involved in quality assurance, quality control programs, inspection and procurement of materials, as well as nuclear regulatory personnel, university faculty and students

INSTRUCTOR: William A. (Ken) Sowder
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150.



The ASME MasterClass Series is a new learning format recently launched by ASME Training and Development. They are premium learning programs comprised of advanced topics aimed at experienced engineers, emphasizing learning through discussion of real world case studies and practical applications. Recognized experts lead in-depth sessions that address current issues and best practices to inspire interactive discussions and group knowledge-sharing.

A roster of MasterClasses are currently in development in addition to the available programs listed in this Catalog.

Topics include:

- Turbine Generator Failure Prevention
- Vibration Failures of Turbines and Generators
- Application of Piping Flexibility Analysis to ASME B31 Codes
- Piping Design Practices and Failure Issues for Power Piping Systems
- Piping Vibration Causes and Remedies – a Practical Approach
- Structural Materials and Design for Elevated to High Temperatures
- Techniques and Procedures in API 5 79-1/ ASME FFS-I for State-of-the-Art Fitness for Service Assessments

… and more

Additional ASME MasterClass learning programs are in development.

For the latest information about the MasterClass Series, visit go.asme.org/masterclass or contact Jennifer Delda, Program Manager, at deldaj@asme.org

eLEARNING COURSES

eLEARNING COURSES

BPV CODE, SECTION III: INTRODUCTION

Online Instructor-Supported Course EL509

This course introduces participants to the fundamentals of Section III of the ASME Boiler Code with an in-depth review of the "Rules for Construction of Nuclear Facility Components." Participants learn the ASME Code requirements for the design and construction of a pressure boundary of nuclear power plant components. The course also reviews and discusses the requirements for planning, managing and conducting Q.A. programs for controlling the quality of activities performed under the jurisdiction of Section III. It also updates designers, procurement engineers and quality assurance engineers on the latest developments, Addenda and Code Cases pertaining to the application of the Code.

You Will Learn

- Classification of Components and Supports - Article NCA-2000
- Responsibilities and Duties - Article NCA-3000
- Quality Assurance Requirements - Article NCA-4000
- Authorized Inspection - Article NCA-5000
- Application of Concepts - Article NB-3200
- Class 1 Vessel Design - Article NB-3300
- Finite Element Analysis, Stress Classification & Interpretation of FEA Stress Results for NB-3200 Design
- Pipe Fittings and Components
- Piping Stress Analysis as per ASME Code
- Layout Considerations in Class 1 Piping Systems
- Specific Component Support Requirements

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

BPV CODE, SECTION III, ADVANCED DESIGN AND CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS

Online Instructor-Supported Course EL524

From suppliers' shops to construction sites, this advanced course details Code requirements for the design, fabrication, construction and life extension of nuclear power plants. Covering all aspects of the nuclear pressure boundary as well as the application of methods for fabrication of nuclear pressure boundary components, it provides the required skills for applying Code requirements for NDE (nondestructive examination techniques for radiography, ultrasonic techniques and other forms of NDE. It also outlines the requirements for performing hydro testing and leak testing. Case studies examine real scenarios encountered in the nuclear industry. This advanced course explores the requirements of Section III of the ASME BPV Code.

You Will Learn

- Advanced concepts related to design by analysis and design by rule
- How to compare ASME BPV Code with other international codes
- Welding and heat treatment requirements
- What is required for non-destructive examination and testing

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 4-day Public Course: PD644, "Advanced Design and Construction of Nuclear Facility Components per ASME Section III"

BPV CODE, SECTION III, DIVISION 1: CLASS 1 PIPING DESIGN

Online Self-Study Course EL542

This course provides information and instruction on the design and construction of nuclear power plant piping systems consistent with ASME Boiler and Pressure Vessel Code (BPV Code), Section III, Division 1, Subsection NB. The course incorporates a brief historical perspective on as well as general overview of the BPV Code. The balance of the course focuses on the appropriate use of BPV Code Section III, Division 1, Subsection NB for the design and construction of Class 1 piping systems.

You Will Learn

- An overview of the ASME Boiler and Pressure Vessel Code
- Code requirements for Class 1 Piping Design Specifications
- Class 1 Piping Design by Rule (NB-3600)
- Class 1 Piping Design by Analysis (NB-3200)

PDHs: 23
MEMBER PRICE: $295 List Price: $395

Also available as a 2-day Public Course: PD599, "BPV Code, Section III, Division 1: Class 1, Piping Design

BPV CODE, SECTION III, DIVISION 1: CLASS 2 & 3 PIPING DESIGN

Online Self-Study Course EL543

This course provides information and instruction on the design and construction of nuclear power plant piping systems and the appropriate use of ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NC and ND with respect to Class 2 & 3 piping systems. While they will be discussed briefly, detailed instruction will not be provided on the design and construction of Class 2 & 3 pipe supports. Participant exercises are provided as an integral part of the training program.

You Will Learn

- Class 2 & 3 Piping Design by Rule methods
- Class 2 & 3 pipe supports design requirements
- Selected individual piping component design requirements
- Design of a simple Class 2 & 3 piping system
- To describe "non-Code" but related nuclear piping design issues

PDHs: 23
MEMBER PRICE: $295 List Price: $395

Also available as a 1-day Public Course: PD600, "BPV Code, Section III, Division 1: Class 2 & 3 Piping Design"

ESSENTIALS: BPV CODE, SECTION III, DIVISION 1: RULES FOR CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS

Online Assessment Based Course ZABC20

Introduces the requirements of the BPV Code Section III, Division 1 and covers the general requirements and scope of Division 1, the responsibilities and duties of personnel involved in the construction of a nuclear power plant, quality assurance and certification.

PDHs: 2 Price: $195

RISK-INFORMED INSERVICE TESTING PROGRAM

Online Instructor-Supported Course EL527

How to convert a typical IST Program 10-year update to a RI-IST (Risk Informed Inservice Testing) Program that the Nuclear Regulatory Commission will accept and approve is the focus of this course. It provides an overview of the ISTE (the subsection of the code referring to Risk Testing Requirements); an overview of ISTA (General Testing Requirements); program requirements, guidance, and preparation; industry risk-informed initiatives; performance-based initiatives; and several case studies. While designed specifically for the IST engineers working at the plant or IST program regulators with 5 to 10 years of experience in the nuclear industry, new engineers also benefit from the basic information the course provides related to safety systems, standby equipment and application of Probabilistic Risk Assessment Methods (PRA).

You Will Learn

- How to perform a Risk Informed-IST 10-year update of the IST program
- RI-IST requirements
- PRA strengths and weaknesses
- Details of current and future regulatory changes affecting RI-IST

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 3-day Public Course: PD597, "Risk-Informed Inservice Testing Program"

INSERVICE TESTING OF PUMPS

Online Instructor-Supported Course EL523

This course teaches how to develop a Pump-IST (Inservice Testing) Program that the NRC will accept and approve. It covers the full range of Pump-IST requirements, including general concepts, the scope of Pump-IST, overviews of ISTA and ISTB, pump testing, program preparation, comprehensive pump test, pump vibration, risk-informed initiatives, performance-based initiatives, and two case studies. It focuses specifically on the NRC required 10-year updates of the Pump-IST Program. The course is geared toward IST engineers working at a plant or IST program regulators with 5-10 years' experience in the nuclear industry. It also teaches engineers, who are new to the field, the basics of safety systems and standby equipment.

You Will Learn

- How to perform ten-year updates of the Pump-IST program
- The latest Pump-IST requirements, including ASME OM Code, Subsection ISTB
- Pump-IST strengths and weaknesses
- Details of current and future regulatory changes affecting Pump-IST

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 2-day Public Course: PD595, "Developing a 10-Year Pump Inservice Testing Program"

ESSENTIALS: ASME/ANS RA-S STANDARD FOR LEVEL 1/LARGE EARLY RELEASE FREQUENCY PROBABILISTIC RISK ASSESSMENT FOR NUCLEAR POWER PLANT APPLICATIONS

Online Assessment Based Course ZABC55 NEW!

This course introduces the ASME/ANS PRA Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications. This standard sets forth the requirements for probabilistic risk assessments (PRAs) used to support risk-informed decisions for commercial nuclear power plants, and prescribes a method for applying these requirements for specific applications. The course discusses the basis and background of the standard's development, the role of the Joint Committee on Nuclear Risk Management (JCNRM), the contents of the standard, and the use and application of the standard. The course will help you understand how to comply with the standard and meet its requirements.

PDHs: 2 Price: $195

Also available in Spanish as ZABC56

INSERVICE TESTING OF VALVES

Online Instructor-Supported Course EL521

Upon completion of this course, you will be able to develop a Valve- IST (Inservice Testing) Program that complies with all NRC requirements. Following an introduction of the subject matter, it goes into general concepts, scope of Valve-IST, overviews of ISTA and ISTC, program requirements and guidance, valve testing, program preparation, condition-monitoring for valve test, risk-informed initiatives, performance-based initiatives, and two case studies. It highlights NRC-required 10-year updates of the Valve-IST Program. While designed primarily for IST engineers working at a plant or IST program regulators with 5 to 10 years' experience, new engineers in the nuclear industry also learn a lot of the basics related to safety systems and standby equipment.

You Will Learn

- How to perform ten-year updates of the Valve-IST program
- The specific requirements of the ASME OM Code, Subsection ISTC
- The latest thinking on Valve-IST strengths and weaknesses
- Current and likely future regulatory changes affecting Valve-IST

CEUs: 2.3 PDHs: 23
MEMBER PRICE: $595 List Price: $695

Also available as a 3-day Public Course: PD596, "Developing a 10-Year Valve Inservice Testing Program"

HOW TO GET AN "N" STAMP

Online Assessment Based Course ZABC4

This course makes the procedure for obtaining an ASME "N" Stamp easier to understand. The course outlines, defines and explains ASME conformity assessment programs, code requirements, along with the "N" Stamp application procedure covering the accreditation process, survey preparation, demonstration requirements and the most common deficiencies occurring in "N" Stamp applications.

PDHs: 3 Price: $295

\ESSENTIALS: BPV CODE, SECTION V: NONDESTRUCTIVE EXAMINATION

Online Assessment Based Course ZABC17 NEW!

Provides an introduction to the ASME Boiler and Pressure Vessel Code, Section V: Nondestructive Examination (NDE), including the various applications of NDE as well as the various techniques.

PDHs: 2 Price: $195

ESSENTIALS: NQA-1, PART 1: 18 QA REQUIREMENTS

Assessment Based Course ZABC5

This course offers an overview of the ASME NQA-1 Nuclear Quality Assurance Standard and an in-depth look at Part I (there are three parts in all). The course material provides descriptions and explanations of how each of the 18 requirements of the standard should be applied, including software design, computer test procedures, the inspection processes, identifying and managing nonconformances, and the control of measuring and test equipment.

PDHs: 4
Price: $295

NQA-1 PRACTICAL APPLICATION

Online Assessment Based Course ZABC29

ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications contains the quality assurance program requirements for the siting, design, construction, operation and decommissioning of nuclear facilities. Part 1 describes an eighteen-point system for implementing a quality assurance program for these activities. The course describes a practical application of NQA-1 focusing on five of the principal requirements: control of design, procurement documents, purchased items & services, tests, and measuring and test equipment. This course is for design, process and quality engineers; managers, management program developers, and project managers; licensing and procurement personnel; regulators; and students and university personnel.

PDHs: 4
Price: $295

PROBABILISTIC RISK ASSESSMENT (PRA) STANDARD –INTRODUCTION

Online Self-Study Course EL541

This course covers the PRA standard objectives and provides an overview of the PRA Standards Framework. A discussion of the standard's detailed requirements is not included. The course takes approximately two hours
to complete.

You Will Learn

- When the PRA standard should be applied
- The interaction between technical requirements of the PRA standard and the applications of PRA
- The implications of PRA standard compliance

PDHs: 2 MEMBER PRICE: $195 List Price: $295

DESIGN OF BURIED HIGH DENSITY POLYETHYLENE (HDPE) PIPING SYSTEMS

Online Self-Study Course EL544

This course provides training on the design and analysis of buried high density polyethylene (HDPE) pipe in accordance with the ASME Boiler and Pressure Vessel Code Case N-755. The course covers all aspects of the design of buried HDPE pipe including pressure design, soil loadings, thermal expansion loads and seismic design requirements. The design of coupled buried HDPE and above ground steel piping systems is also presented. The class includes two in-class piping design exercises as well as a complete set of handouts and identification of applicable reference documents.

You Will Learn

- The scope of Code Case N-755 and its relationship to the ASME BPV Code
- HDPE piping design requirements and analysis methods as specified in Code Case N-755
- Calculation methods for soil springs and other needed soil parameters
- Design of coupled buried HDPE and above ground steel piping systems

PDHs: 10
MEMBER PRICE: $295 List Price: $395

Also available as a 2-day Public Course: PD617, "Design of Buried High Density Polyethylene (HDPE) Piping Systems"

COMPARISON OF GLOBAL ASSURANCE AND MANAGEMENT STANDARDS USED FOR NUCLEAR APPLICATION

Online Instructor-Supported Course EL526

This course provides managers, engineers and program developers with a better understanding of the major international Nuclear Quality Assurance Standards and how they interact. Following an introduction to the ASME Section III Nuclear Power Code, the course offers an overview of the ASME NQA-1 Nuclear Quality Assurance Standard, the ISO 9001 Quality Management Standard, and the IAEA GS-R-3 Management Systems Standard. It also compares the NQA-1 Standard with the ISO 9001:2008 and the IAEA GS-R-3 Management Systems Safety Series Standard. The course also provides analysis of the areas of their agreement and differences.

You Will Learn

- To identify ASME NQA-1 Nuclear Quality Assurance Standard contents and organization
- To provide an overview of International Atomic Energy Agency (IAEA) Safety Standard GS-R-3, 2006-STI/PUB/1252
- To provide an overview of ISO 9001: 2008
- To explain the practical application of these quality assurance requirements for the nuclear industry

CEUs: 1.5 PDHs: 15
MEMBER PRICE: $395 List Price: $495

Also available as a 2-day Public Course: PD634, "Comparison of

DESIGN AND ANALYSIS OF FLOATING STRUCTURES*

IPTI370

Floating structures have enabled drilling and production in the deepest waters of the Gulf of Mexico and elsewhere in the world. The proper design of these platforms is essential for the survival of the risers and the safety of. This course provides an introduction to the fundamentals involved in floating structure design: hydrostatics and stability, hull structure, global design and sizing, mooring, global responses and an overview of structure fabrication, transportation and installation methods. The scope of specific platforms include: semi-submersibles, and FPSO (ship-shaped). The content is based largely upon application of Rule and Recommended Practice-based methods. The use of "first principles" in the design is discussed as well.

Who Should Attend

Naval architects, civil and mechanical engineers interested in learning more about the methods for design and analysis of floating offshore platforms, specifically production and drilling platforms, engineers working on or planning on working on deepwater projects involving risers, moorings and floating structures.

Special Requirements
Some background knowledge of basic fluid mechanics and strength of materials is necessary.

INSTRUCTORS: John Halkyard, Steve Perryman
3 Days, 20 PDHs
MEMBER $2,250 / List Price $2,550

ICE ENGINEERING*

IPTI300

The course will provide an introduction into ice engineering. Different kinds of ice and their different failure modes including numerical methods for ice load simulations are presented. Main design issues including design philosophies for structures & systems for ice covered waters are introduced. The course shall enable the attendees to understand the fundamental challenges due to ice covered waters and help them to understand ice engineering reports and presentations.

Who Should Attend

The attendees should have a degree in Engineering (preferably Mechanical, Civil or Naval) with some years of (offshore) engineering experience. But the course will be also understandable and useful for newcomers.

INSTRUCTOR: Dr. Walter Kuehnlein
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

***For more information about this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz at serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**

MARINE COST ESTIMATING FOR ENGINEERS*

IPTI303

This course will introduce Engineers to the total fabric of ship cost estimating including: Factors Influencing Ship Cost and Cost Growth, Cost Estimating & Industrial Analysis, Shipbuilding Cost Drivers, difference between Cost and Price, Learning Curve, Marine Cost Estimating, Parametric Cost Estimates, Detailed Cost Estimating, and Cost Risk Analysis.
The objective is not to make engineers Cost Estimators, but, rather to enable them to understand how their decisions impact Ship Cost. It will also provide them with parametric Cost Estimating spreadsheets that they can use in the future design decisions.
Students are provided with exercises to reinforce what they have learned.

Who Should Attend

Engineers and operating managers in ship owners, shipbuilders, offshore vessel, marine equipment suppliers, vessel operating, classification, insurance and finance organizations, as well as anyone with a connection to the marine industry as well as those just desiring to widen their knowledge

No previous knowledge of cost estimating is required.

INSTRUCTOR: Thomas Lamb
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

MARINE RENEWABLE ENERGY*

IPTI330

There is great awareness in our community of the potential for renewable energy from the oceans. Common sources of energy considered are: wind, wave, tide, and ocean thermal gradient. Large energy companies have developed a renewable energy portfolio and are exploring development options.

Recent technology focus has been towards application of floating structure technology for marine renewable energy. What are the challenges in such technology development? In this course, we will provide an overview of common energy sources, fundamentals of floating renewable energy development concepts, and highlight ongoing developments. We will form teams and explore a case study of a renewable energy application. At the end of the course we will develop a basic floating structure concept design using spreadsheet tools.

Who Should Attend

This course is intended for mechanical, civil, ocean engineers and naval architects, working in traditional energy areas, who are interested in extending their activities into renewable energy applications. Young engineers in particular may benefit from the conceptual overview and hands on approach of this course.

INSTRUCTORS: Krish Thiagarajan, John Halkyard
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

OFFSHORE ARCTIC PIPELINE ENGINEERING*

IPTI360

The offshore Arctic environment provides many unique challenges to the safe design, installation and operation of subsea pipelines. Failure to adequately address these challenges can lead to project delays, adverse environmental impacts or even shutting down large offshore Arctic field development projects. This course provides an overview of key factors which make offshore pipelines in the Arctic different from conventional subsea pipelines and highlights some of the complex engineering challenges which have been addressed on successful pipeline projects offshore Alaska, Canada, Northern / Eastern Russia and other cold regions. While the controlling load and construction conditions can vary greatly between different Arctic marine locations, engineers must be ready to address the unique challenges each pipeline presents.

Who Should Attend

Experienced marine pipeline engineers who design, build and operate offshore Arctic pipelines, as well as other stakeholders on field development projects, including project managers and regulators.

INSTRUCTOR: Glenn Lanan
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

SHIPBUILDING BEST PRACTICES*

IPTI304

This course presents a summary of shipbuilding best practices prepared by Thomas Lamb based on his shipbuilding research, which includes visits to over 30 shipyards in Europe and Asia during the past 20 years.

This one-day course presents the characteristics of successful, "world class" shipyards, shipyard layout and equipment, major shipbuilding developments around the world, modern shipbuilding best practices for hull and outfitting, and launching methods. The major focus is on commercial shipbuilding. To understand the differences and productivity drivers better, the course will also cover Shipbuilding Productivity. Supporting videos of modern shipyards along with a shipbuilding equipment manufacturer illustrates the concepts presented throughout the course.

Participant exercises will focus on (a) determining why US shipbuilding costs are 2 to 4 times that of Korea, (b) calculating shipyard productivity and (c) determining the productivity benefits from application of different shipbuilding practices, such as level land construction and advanced outfitting.

Who Should Attend

Engineers and operating managers in ship owners, shipbuilders, offshore vessel, marine equipment supplier, vessel operating, classification, insurance and finance organizations, as well as individuals with a connection to the marine industry as well as those just desiring to widen their knowledge.

No prerequisite knowledge of Shipbuilding is required, but it would be beneficial as it would facilitate more robust discussion.

INSTRUCTOR: Thomas Lamb
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

SUBSEA EQUIPMENT*

IPTI340

Offshore production depends on subsea equipment and structures that must ensure the transfer of fluids between production units at sea level and wellheads at sea bottom. The understanding of such facilities is the base of the subsea engineer formation.

Who Should Attend

Engineers and technicians involved in activities related to maritime oil and gas production.

INSTRUCTOR: Ilson Paranhos Pasqualino
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

TRANSPORTATION ENGINEERING*

IPTI302

Oil and gas installations, both onshore as well as offshore, are often being built in modules and components at a different location than the location on which those facilities are erected. Often, industry experts, or those involved in moving these structures, do not adequately account for transporting these structures across oceans, or bodies of water. The structures are exposed to high motion when carried on a modules carrier or general purpose ship. Now that the carriers are becoming larger and the sea behavior of the ships are more severe, the motions should be based on motion response calculations and not on rules of thumb. As a consequence, the loads on the constructions are increasing due to the higher motions.

Floating Production Storage and Offloading vessels ("FPSO's") are built at a yard far from the working location, therefore, making towage an important factor. The units must be prepared for the mobilization from and to the working location.

This course will address all issues related to transport and the effect on the design such as loads, fatigue, internal sea fastening and preparations for dry transport and towage.

Who Should Attend

Design engineers, installation managers and project managers at engineering, procurement and construction companies, oil and gas operators, design companies, shipbuilders, marine offshore companies and offshore, transportation companies who wish to understand the fundamentals of ocean transport engineering for modules, and any other voluminous and valuable project cargo and towing.

INSTRUCTOR: A.J. (Ton) Bos
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

***For more information about this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz at serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**

VORTEX INDUCED VIBRATIONS*

IPTI310

Flow-induced vibrations have become increasingly important in recent years as designers have used materials to their limits, causing structures to become progressively lighter, more flexible and prone to vibration. The course covers design and analysis tools for the prediction and prevention of vibration of structures with internal and external flows, specifically vortex-induced vibration and subsequent structural failures. It reviews vibration theory, fluid mechanicals and application of theory to scaling vortex induced vibration testing. It discusses vortex and vortex shedding theory and experiments. Strouhal number, self-excitation, damping and Tacoma-Narrows bridge are discussed. Analysis modeling techniques and design for vortex-induced vibration and vortex-induced acoustics are presented. Advanced examples are made of heat exchanger vibration, strumming of cables and offshore pipelines, vortex-induced motion of platforms.

Who Should Attend

The course will interest professional engineers and technical managers and students who are concerned with the tube and pipes in fluid flow. This includes offshore pipelines, drilling risers, off shore platforms, stacks tows, and masts such are found in refinery, petroleum production, heat exchangers, and chemical process industries.

INSTRUCTOR: Robert Blevins
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

WAVE ENERGY*

IPTI320

The one-day course provides a detailed introduction to wave energy conversion in two parts. In the morning, the course will address the following questions: what is the energy available? How can it be harnessed? Typically, how much energy could be produced? In the afternoon, the course will go in more details of the refined assessment of wave energy converters using numerical modeling and tank testing. Eventually, if time allows, issues related with arrays of WECs will be touched upon.

Who Should Attend

The morning part of the course is suitable to a technical and non-technical audience who wish to gain a general background in wave energy conversion; the afternoon delves into the details of the technology assessment methodologies and is better suited to a technical audience.

Special Requirements
Knowledge of the dynamics of linear mechanical systems, of potential flow theory and of mathematical analysis including complex numbers and Fourier transform is expected. Recommended background are completed Bsc, final year students for M.Sc and Post-graduate (Ph.D.) students with relevant curricula.

INSTRUCTORS: Antonio Falcao, Teresa Pontes
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

Upcoming 2014 ASME-IPTI Training Opportunity

ASME Floating Production Systems and Pipeline Training Week

Houston, TX • September 2014

Join other Oil and Gas Engineers and network with peers, colleagues, potential customers and senior leaders at the ASME Floating Production Systems and Pipeline Training Week!

Team Discount: **Send three people to the same course and save 10%. Send two people to the same course and save 5%. Teams must register at the same time. Call 800.843.2763 to register multiple team members.**

Course fees include: Professional course guide, breakfast, and lunch.
*Includes ASME Pressbook

Sept 8	Integrity Management (IPTI210)
Sept 8	Fundamentals of Deepwater Riser Engineering (IPTI110)
Sept 8-10	Onshore Design and Construction (IPTI200)
Sept 9	Fundamentals of Deepwater Project Development (IPTI100)
Sept 9-10	Defect Assessment (IPTI280)
Sept 10	Subsea Pipeline Design Overview (IPTI230)
Sept 10-12	Design and Analysis of Floating Structures (IPTI370)
Sept 11	Pipeline Pressure Testing (IPTI203)
Sept 11	In-Line Inspection (IPTI220)
Sept 11	Engineering Ethics in Action (A.M. Session) (IPTI400)
Sept 11	Engineering Ethics in Action (P.M. Session) (IPTI400P)
Sept 12	Stress Corrosion Cracking (IPTI270)

For more information on these courses, visit asme-ipti.org

or contact Lydia Serenil at serenill@asme.org or 281.710.9124

Courses and dates are subject to change.

PETROLEUM

FLOW ASSURANCE*

IPTI140

This course will answer the question "What is flow assurance?" You will also gain an appreciation for the following areas: subsea systems, fluid properties, thermal/hydraulic issues, production chemistry issues, and impact on system design.

Who should attend:

Anyone who interfaces with flow assurance engineers or who has an interest in becoming a flow assurance engineer

INSTRUCTOR: Doreen Chin
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

FUNDAMENTALS OF DEEPWATER PROJECT DEVELOPMENT*

IPTI100

Deepwater projects will soon account for an increasing portion of offshore oil and gas supply. Developing deepwater fields entails significant technical and commercial challenges. This course, taught by industry leaders, provides a fundamental understanding of deepwater development planning.

It familiarizes attendees with essential floating platform, subsea and riser technologies that enable safe and profitable extraction of hydrocarbons in deepwater. The course material is designed to serve as a handy reference and guide to deepwater project development.

Who Should Attend

Anyone who wants to understand the fundamentals of deepwater development planning and the key surface facility components that constitute a deepwater project development.

INSTRUCTOR: Richard D'Souza, Matt Doan, David Walters
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

***For more information this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz as serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**

FUNDAMENTALS OF DEEPWATER RISER ENGINEERING*

IPTI110

This course addresses the basic principles and technologies of riser engineering design, fabrication and installation. It also provides in-depth information regarding the primary drivers behind riser system selection for deepwater floating production.

Who Should Attend

This course is designed for subsea, pipeline or riser engineers with 1-5 years of experience and industry professionals who interface with riser engineering.

INSTRUCTORS: Kieran Kavanagh, Erin Balch, Alan Whooley
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

ESSENTIALS – B31.1 POWER PIPING ZABC14

Online Assessment Based Course ZABC14

This course covers the jurisdictional limits of the B31.1 Code and the ASME Boiler and Pressure Vessel Code, Section I and design issues specific to power piping systems. This course also reviews the qualification requirements for operators and operating procedures for welders and brazers and nondestructive examination requirements.

You Will Learn

- What a standard is and why it is important
- B31.1 Power Piping and its relationship to BPV Code, Section I: Rules for Construction of Power Boilers
- Design rules and material selection for B31.1 piping
- Fabrication, inspection, and testing

2 PDHs List Price $195

ESSENTIALS – B31.3 PROCESS PIPING CODE

Online Assessment Based Course ZABC15

This course introduces the B31.3 Process Piping Code. Explaining how piping systems function and what the code requirements are for various types of installations is the aim of this course. The B31.3 Code provides guidance and limitations on the selection and application of materials
and components; requirements for the fabrication, assembly and erection of piping; and requirements for examination, inspection, and testing of piping.

You Will Learn

- B31.3 organization and scope
- B31.3 requirements for design, materials, fabrication, inspection and more
- The conditions and criteria for using different types of piping

2 PDHs List Price $195

B31.3 PROCESS PIPING DESIGN, MATERIALS, FABRICATION, EXAMINATION AND TESTING COMBO COURSE

TAKE THIS COMBO COURSE AND SAVE UP TO $575!

PD581 ASME CODE COURSE

Created to save participants time and money, this course is a back-to-back offering of "B31.3 Process Piping Design" (PD014) and "Process Piping Materials, Fabrication, Examination & Testing" (PD457). If you opt to take this combination course, you could save up to $575.

5 Days, 3.8 CEUs, 38 PDHs
MEMBER $3,050 / List Price $3,150

B31.3 PROCESS PIPING DESIGN

PD014 ASME CODE COURSE **TOP SELLER**

The aim of this intensive four-day course is to explain how piping systems fail and what the Code requires the designer, manufacturer, fabricator, supplier, erector, examiner, inspector and owner to do to prevent this.

Using hundreds of real-world examples as well as the personal experiences of the instructors, the course demonstrates how the B31.3 Code has been both correctly and incorrectly applied. Lessons are enhanced by actual in-class problem solving exercises, directly applying the rules and equations of the B31.3 Code for specific design and operating conditions to illustrate correct applications.

You Will Learn To

- Identify what issues to consider when designing process piping
- Explain the pressure design of piping and piping components
- Analyze piping flexibility and gauge the limitations of piping and piping components
- Identify pipe supports, leak testing, piping failures and their causes

Who Should Attend

Piping engineers and designers who need an understanding of the requirements for compliance and the trends of Code changes for piping design and analysis, fabrication, examination and testing

Special Requirements
Each student will receive a copy of the B31.3 Process Piping Design codebook; however, each must bring his or her own calculator.

INSTRUCTORS: Ronald W. Haupt, Glynn E. Woods
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,550 / List Price $2,750

Save up to $575 by enrolling in PD581, a five-day B31.3 Piping course combo, consisting of this course (PD014) and PD457, "B31.3 Process Piping Materials, Fabrication Examination and Testing."

B31.3 PROCESS PIPING MATERIALS, FABRICATION, EXAMINATION AND TESTING

PD457 ASME CODE COURSE **TOP SELLER**

A comprehensive, 1-day supplemental course to PD014: "ASME B31.3 Process Piping Design," this course is designed to illustrate the relationship of the Fabrication & Examination rules of the B31.3 Code to the Design and Materials rules. Examples of problems that occur as a result of not understanding the relationship of the ASME code to design rules and materials selection are featured.

The primary goal of this course is to provide insight into the rules relating to the ASME B31.3 Fabrication and Examination code.

You Will Learn To

- Describe the materials selection process and limitations
- Identify fabrication rules and their bases
- Describe the relationship between B31.3 design and the fabrication & examination requirements
- Explain the welding qualification requirements
- Identify the inspection, examination, and testing requirements

Who Should Attend

Piping engineers and designers, fabricators and erectors, QA/QC personnel, engineers and maintenance personnel who desire a more in depth understanding of the Fabrication and Examination rules of the B31.3 Code covering process plant piping systems.

INSTRUCTOR: Philip D. Flenner
1 Day, 0.8 CEUs, 8 PDHs
MEMBER $875 / List Price $975

Save up to $575 by enrolling in PD581 – a combo course consisting of this course (PD457) and PD014 "B31.3 Process Piping Design."

B31.1 POWER PIPING CODE

PD013 ASME CODE COURSE

This intensive, five-day course details the latest Power Piping Code requirements – key elements in creating the more effective piping systems today's competitive environment demands. It provides insight into how they have evolved and what future changes may be expected.

Importantly, this course explores the background, rules and trends in piping design, analysis, and fabrication – all vital elements of power, industrial and institutional plant construction and maintenance – within the context of meeting the requirements and intent of ASME B31.1 and its appendices.

Each attendee will receive a copy of the B31.1 Power Piping codebook.

You Will Learn To

- Explain the principal failure modes of piping components and where to look for them
- Describe the difference between pressure component design and structural design
- Identify layout and simplified analysis techniques
- Explain how to qualify nonstandard fittings and joints and develop stress intensification factors
- Describe materials selection and limitations, fabrication rules and their bases
- Identify welding qualification requirements, along with inspection, examination and testing requirements

Who Should Attend:

- Engineers entering the piping design and analysis field; practicing piping engineers requiring background on Code compliance and trends in piping design, analysis and fabrication; piping fabricators and suppliers wishing to understand the relationship of fabrication and manufacture to the design and construction of piping systems; QA/QC personnel

Special Requirements
Attendees are required to bring a scientific calculator to the course.

INSTRUCTORS: Philip Flenner, Joe Frey, Ron Haupt, Robert Wilson
5 DAYS, 3.8 CEUS, 38 PDHS
MEMBER $3,050 / List Price $3,150

B31 PIPING FABRICATION AND EXAMINATION

PD445 ASME CODE COURSE

This course familiarizes participants with the rules of the B31 Code sections (B31.1, B31.3, B31.5, and B31.9), which cover the various Fabrication & Examination rules. The course also stresses the importance of the relationship of the Fabrication & Examination rules to the design of the piping system. The presentation includes case studies of problems that occur as a result of not understanding these rules. Participants leave with an insight into the reasons for the creation of the B31.3 Fabrication and Examination rules as well as their applications.

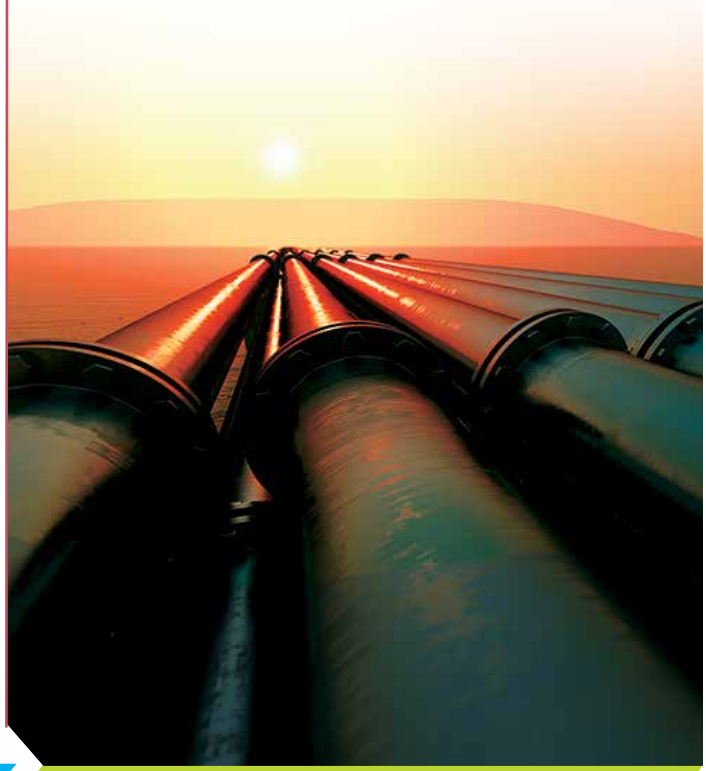
You Will Learn To:

- Describe materials selection and limitations
- Explain fabrication rules and their bases
- Explain the differences between the B31 Code Sections
- Identify welding qualification requirements
- Describe inspection, examination, and testing requirements

Who Should Attend

Piping engineers and designers, fabricators and erectors, QA/QC personnel, engineers and maintenance personnel

INSTRUCTOR: Philip D. Flenner
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645



B31.8 GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS

PD370 ASME CODE COURSE

ASME B31.8 is the most widely used Code for the design, operation, maintenance and repair of natural gas distribution and transmission pipelines. This 2½-day course explains the present-day piping Code provisions, the principal intentions of the Code as well as how the Code should be applied, with an emphasis on transmission pipelines.

Each participant will receive a copy of the ASME codebook, B31.8 - 2012 Gas Transmission and Distribution.

You Will Learn To

- Explain the causes and modes of pipeline failure
- Describe the considerations for material specifications, pipe manufacturing, and pipe joining
- Estimate pipeline stresses from external loadings
- Explain how to evaluate pipeline defects
- Identify pipeline repair techniques
- Identify the elements of pipeline integrity
- Explain how code requirements address these issues
- Explain the differences between B31.8 and US DOT gas pipeline regulations

Who Should Attend

Engineers, Code compliance personnel, operation and maintenance personnel as well as regulatory personnel

Note: This is a 2½-day course. The last day of the course ends around 12:15PM.

INSTRUCTOR: Michael J. Rosenfeld
2.5 Days, 1.9 CEUs, 19 PDHs
MEMBER $1,972 / List Price $2,132

ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids

ASME B31.4 PIPELINE TRANSPORTATION SYSTEMS FOR LIQUID HYDROCARBONS AND OTHER LIQUIDS

PD391 ASME CODE COURSE

Pipelines play a vital role in our economy. Out of sight and usually out of mind, they bring us daily the liquid heating and motor fuels upon which we depend. They draw little public attention until they malfunction and release their contents into the environment.

Pipeline operators have a duty to preserve public safety and the environment. Similarly, responsible employees of a pipeline operator have a duty to thoroughly understand and rigorously adhere to principles of safe pipeline design and operation in order to keep the products flowing and
to minimize the chances that any product will ever be released unintentionally into the environment. Basic safe pipelining starts with the ASME B31.4 Code.

This course provides the foundation for properly applying the code in the interest of public and employee safety. Its goal is to familiarize pipeline operating personnel, public safety personnel, and state and federal regulators with the important safety-related aspects of ASME B31.4.

Each participant is provided with a course notebook containing copies of the slides and viewgraphs and a copy of the current edition of the ASME B31.4 Pipeline Transportation Systems for Liquids and Slurries codebook.

You Will Learn To

- Describe the basic elements of pipeline design, construction and maintenance
- Explain how to apply principles of safe pipeline design and operation

Who Should Attend

Pipeline designers, pipeline contractors, pipeline operators, public safety officials, and government regulators

INSTRUCTOR: Carolyn Kolovich
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

DETAIL ENGINEERING OF PIPING SYSTEMS

PD410

Detail engineering in piping projects consists of the engineering, design, detail and layout of process and utility equipment, piping and instrumentation. This three-day course provides participants with the background required to design, engineer and complete piping assignments.

This course should be of interest to people employed in any area that piping is present (Refinery, Chemical, Power, Pulp and Paper, Utility etc.) The course introduces engineers, designers and construction personnel to the various procedures involved in the development and engineering of Piping and Instrumentation Diagrams (P&ID's), Equipment Plot Plans, Piping Arrangements, and Fabrication Drawings.

Traditionally, there has been little formal training in this area and design decisions often have to be made based on practical considerations without formulae or code reinforcement. Completing piping drawings take up the majority of man-hours in the design of a process plant.

Each participant will receive a copy of the book, Detail Engineering and Layout of Piping Systems by Bob Wilson.

You Will Learn To

- Describe pipe sizing
- Explain pressure drop calculations
- Describe the process of pump and equipment sizing and selection
- Describe the preparation of equipment specifications and drawings
- Identify piping specifications
- Explain the process of instrumentation and process control
- Describe the process of piping component familiarization, including valves and fittings, piping hangers and supports

Who Should Attend

Piping engineering and design personnel; engineers, designers, CAD operators and draftspersons in the piping field; practicing engineers and designers who may have experience in related disciplines and wish to expand their knowledge of the piping area; piping fabricators, contractors and suppliers wishing to understand the relationship of manufacture and fabrication to the design, layout and construction of piping systems

Special Requirements
A series of workshops where attendees have an opportunity to produce a P&ID and a number of Piping Isometrics c/w Bill of Material are part of this course. As a result, attendees are required to bring the following equipment:

- **Scale: 3/8" = 1 ft scale**
- **Circle template**
- **Calculator**
- **Drafting pencil and eraser**

INSTRUCTOR: Bob Wilson
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

LAYOUT OF PROCESS PIPING SYSTEMS AND MANAGING 3D CAD/CAE SYSTEMS NEW!

PD686

The design and location of process equipment and subsequent arrangement of piping takes up the majority of the work in the design of a process plant. In the past there has been little formal training in this area and many design decisions were made without formulae or code requirements.

The utilization of 3D CAD models and engineering software has dramatically changed the design approach to piping layout, and this course demonstrates how these computer-generated piping models are developed from the piping and instrumentation diagram (P&ID).

This course provides a detailed examination of the design procedures and practices involved in the location and layout of piping systems and process equipment. The material looks at maintenance and turnaround requirements, ease of access, process considerations, pipe support design, and the effects of temperature and vibration. The course also covers the procedures for the layout of pumps, exchanges, horizontal drums and vertical towers in a typical process unit, and it explains how various engineering disciplines (i.e. civil, structural, instrumentation and electrical) are incorporated into piping design and layout.

This five-day course provides attendees with background and guidance to manage, design, engineer and complete piping engineering assignments. Attendees will learn how to complete a typical equipment layout and piping arrangement using computer software.

Each participant will receive a copy of the book, *Detail Engineering and Layout of Piping Systems* by Bob Wilson.

You Will Learn To

- Describe the procedures involved in the layout and piping of a typical process unit containing pumps, exchangers, horizontal drums, and vertical towers
- Explain how disciplines, such as civil, structural, electrical, instrumentation, etc., are relevant to piping design and layout
- Identify maintenance and accessibility requirements of piping and related disciplines.
- Complete nozzle orientation procedures
- Identify pipe support requirements
- Describe piping stress analysis techniques
- Explain how to use the latest CAD Techniques for piping and equipment layout
- Identify modeling equipment and piping "do's and don'ts"
- Complete 3D modeling of steel and pipe supports
- Develop a plant layout effectively using 3D modeling

Who Should Attend

Project and process engineers and managers handling equipment and piping layout projects, piping fabricators, contractors and suppliers, piping design and analysis personnel, practicing engineers required to expand their understanding of layout procedures, engineers and designers in related disciplines, as well as engineers and designers entering the plant design and piping field

INSTRUCTORS: Bob Wilson and Andrew Wolosik
5 Days, 3.8 CEUs, 38 PDHs
MEMBER $2,645 / List Price $2,745

DESIGN OF BURIED HIGH DENSITY POLYETHYLENE (HDPE) PIPING SYSTEMS

PD617

This course provides training on the design and analysis of buried High Density Polyethylene (HDPE) Pipe, in accordance with the ASME Boiler and Pressure Vessel Code Case N-755. The course covers all aspects of the design of buried HDPE Pipe including pressure design, soil loadings, thermal expansion loads, and seismic design requirements. In addition, the designs of coupled, buried HDPE and above ground steel piping systems are presented.

The class includes two in-class piping design exercises as well as a complete set of handouts and identification of applicable reference documents.

You Will Learn To

- Explain the scope of Code Case N-755
- Explain the relationship of Code Case N-755 to ASME BPVC
- Identify HDPE piping design requirements and analysis methods as specified in Code Case N-755
- Demonstrate calculation methods for soil springs and other need soil parameters
- Describe the design of coupled buried HDPE and above ground steel piping systems

Who Should Attend

Operating nuclear plant and "architect/engineers," staff engineers, management and project management personnel involved with the design, procurement, inspection or installation of buried HDPE piping in new applications or the replacement of existing corroded steel piping systems in ASME Section III, Class 3 safety related (Subsection ND) applications.

INSTRUCTOR: Timothy M. Adams
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

Also available as online, self-study course EL544.

GRADE 91 AND OTHER CREEP STRENGTH ENHANCED FERRITIC STEELS

PD621

The push toward higher efficiencies in power and process plants has resulted in a significant increase in the application of CSEF (Creep Strength Enhanced Ferritic) steels in high temperature services.

These steels differ from "traditional" code material in that they gain their exceptional high temperature creep rupture properties based on a specific condition of microstructure, rather than the primary chemical composition of the materials. This means that the manufacturing and fabrication processes must be controlled carefully to ensure that the appropriate microstructure is achieved, failing which the material will suffer a significant reduction in creep strength properties.

This course brings attendees up to speed on the specific requirements for the CSEF steels; specifically, how adequate properties can be achieved and controlled.

You Will Learn To

- Explain the history and background of CSEF Steels
- Describe the metallurgy of Grade 91 and other CSEF Steels
- Explain design benefits
- Describe failure histories
- Explain manufacturing and fabrication processes
- Identify Welding and PWHT (postweld heat treatment)
- Describe Inspection and Assessment Approaches

Who Should Attend

Design, materials, and mechanical engineers, QC and inspection personnel, construction supervision, maintenance engineers, welding engineers, regulatory personnel.

Special Requirements
Participants should have at least one year of experience in the design, materials, fabrication, maintenance, or Quality Control aspects of high temperature boiler and pipe applications.

INSTRUCTORS: Philip D. Flenner, Jeff Henry
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

INLINE INSPECTIONS FOR PIPELINES NEW!

PD706

From simple beginnings, the use of in-line inspection (ILI) technologies in the pipeline industry has grown significantly during the last two decades. Today, more than ever, there is an understanding between industry and regulators that ILI is a go-to methodology for maintaining pipeline integrity. ILI has given rise to three interested parties, namely regulators, pipeline operators and ILI vendors. This course provides an overview of how these three stakeholders interact from a technical perspective.

ILI is categorized by technology. Various technologies are used, specifically, for finding different defect types. It is the different defect types that lead to pipeline failures that drive the ILI technologies. An understanding of these defect types is the precursor to understanding ILI technologies. This course reviews the defect types and ILI technologies that support the detection and sizing of the various defect types.

ILI Standards exist to assist both pipeline operators and regulators to implement ILI. The course reviews these Standards and other documentation to assist attendees in their role in the implementation of the ILI process.

Finally, the course addresses how to deal with discrepancies between reported and actual defects and anomalies. After taking the course, attendees should understand how and why inspection technologies are selected and used in typical applications. After completing this course, attendees will grasp the fact that the responsibility for "getting it right" (i.e., a pipeline has good integrity) rests with the pipeline operator.

You Will Learn To:

- Identify pipeline defect types that cause failure
- Explain why particular ILI technologies should be used for specific defect types.
- Explain why or why not ILI is applicable to various defect types
- Identify ILI performance specifications
- Analyze Industry Standards and other documentation on ILI
- Describe whether an ILI was either effective or ineffective
- Explain how to generate confidence in the integrity of a pipeline using ILI

Course Requirement
The instructor requires that students bring a laptop with them to class.

Who Should Attend

Pipeline integrity engineers with limited exposure to in-line inspection and other integrity engineers/supervisors/managers interested in the relative strengths and weaknesses of using ILI technologies to determine and maintain pipeline integrity

INSTRUCTOR: Martin Phillips
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

FLUID MECHANICS, PIPING DESIGN, FLUID TRANSIENTS AND DYNAMICS

PD691

For some, the term, water hammer, evokes images of broken and bent piping, multi-million dollar damages, the loss of water supplies to cities, and the deaths of individuals due to accidents. Water hammer may be defined as an extreme fluid transient, occasionally recognized by loud banging, or hammering sounds, sometimes associated with fluid transients, which are caused by flow rate changes and resultant pressure surges. Often, fluid transient and water hammer are used interchangeably.

The primary purpose of this course is to provide practicing engineers with the analytical tools required to identify water hammer concerns and prevent equipment damage, personnel injury, and fatalities. The principles of pipe system design, with respect to fluid mechanics, valves, and pump operations are followed by basic structural piping design principles, water hammer theory, pipe system dynamics, and failure analysis.

Overall, this course integrates multiple engineering disciplines to teach the principles of troubleshooting pipe systems for fluid flow problems and pipe failures.

Each student will receive a copy of the book, Fluid Mechanics, Water Hammer, Dynamic Stresses, and Piping Design, by Dr. Robert Leishear.

You will learn to:

- Explain the fundamentals of fluid mechanics in pipe systems.
- Describe the fundamentals of water hammer.
- Explain the fundamentals of pipe failures.
- Describe the fundamentals of dynamic pipe system response.
- Apply corrective actions for pipe failures.

Who should attend:

This class is intended for practicing engineers in the power and process piping areas, who are concerned with the design, performance, and safety of piping equipment and components; specifically, the identification, risk assessment, and prevention of water hammers in water, liquid, and steam piping systems.

Special Requirements:
Students are required to bring calculators to the course. The instructor recommends that they bring laptops as well.

INSTRUCTOR: Robert Allan Leishear
4 Days, 3 CEUs, 30 PDHs
MEMBER $2,195 / List Price $2,295

ECONOMICS OF PIPE SIZING AND PUMP SELECTION NEW!

PD690

Bad decisions during the piping design and pump selection phases can lead to years of unnecessarily high costs that are wasteful and not recoverable. Therefore, it is worthwhile to make a complete and thorough analysis throughout these processes. Piping should be designed to
meet minimum cost requirements and still be adequate for meeting operational requirements.

This course emphasizes using economics to determine the least annual cost associated with the sizing (i.e., diameter) of a pipe. It also includes topics that cover how to determine a system curve to aid in the proper selection of a pump; avoidance of cavitation; and miscellaneous related topics.

The course begins with a brief review of fluid properties including density, viscosity, and pressure. It continues with a definition of volume and mass flow rate, and the principle of conservation of mass. Students also review the ASME, ANSI and ASTM standards that are applied to pipes and copper water tubes along with methods of attaching fittings to pipes
and tubes.

Throughout the course, students engage in hand-on exercises to reinforce the learning process. The instructor also allows students, as a group, to select additional topics to review.

Each student will receive a copy of the textbook, Introduction to Fluid Mechanics, 3rd Edition, by Dr. William S. Janna.

You will learn To

- Use the principles of fluid mechanics to solve piping system problems
- Analyze piping problems
- Calculate an economical line size
- Explain pump testing procedures;
- Determine pump size for a given pipe size
- Explain how to avoid cavitation

Special Requirements
Students are required to bring scientific calculators with them to the course. The instructor also requests that students bring flash drives to the course.

INSTRUCTOR: William S. Janna
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,535 / List Price $1,645

ADVANCED FACILITY ASSET MANAGEMENT*

IPTI275

This course is designed to assist facility asset and integrity managers and operations, maintenance and design staff achieve maximum production capacity at the lowest life cycle cost while maintaining the long term integrity of their assets. It presents techniques designed to improve the effectiveness of asset management and integrity activities for facilities and equipment to ensure that these physical assets perform their required functions, operate reliably and thereby support corporate goals and objectives. It focuses on new methods and techniques and best practices for the most critical aspects of asset and integrity management. The instructor is closely involved with the development of the new ISO 55000 series of standards that are based on the PAS-55 standards on asset management and the course will explain what impact they could have on asset management practices.

Who Should Attend

The course is intended for all personnel involved with management of assets related to facilities and equipment both onshore and offshore, including both new and experienced staff. It is also valuable to operations and design staff that interact with asset management.

INSTRUCTOR: Tom Van Hardeveld
3 Days, 20 PDHS
MEMBER $2,550 / List Price $2,700

COMPOSITE REPAIR SOLUTIONS FOR PIPELINE ANOMALIES*

IPTI202

Composite materials are a recognized means for repairing and reinforcing high pressure gas and liquid transmission pipelines. The use of composite materials for repairing pipelines is based in large part on extensive research efforts sponsored by the Pipeline Research Council International, Inc., the Gas Technology Institute, pipeline operators, and composite repair companies. The ASME PCC-2 Standard, Repair of Pressure Equipment and Piping (Article 4.1 Nonmetallic Composite Repair systems: High Risk Applications) provides guidance for the design, assessment, and installation of composite repair systems and is the primary basis industry has for evaluating composite repair technologies. Attendees receive guidance in the ASME PCC-2 Standard to evaluate composite repair designs, as well as repair technology insights and how to repair pipeline anomalies properly, including corrosion, dents, mechanical damage, wrinkle bends, and vintage girth welds using composite repair systems. Unique applications such as the reinforcement of branch connections, pipeline fittings, and offshore installations are also covered throughout the course.

Who Should Attend

Engineers, project managers, technicians, operators, and regulators who want to broaden their knowledge in using composite repair technologies, as well as engineers new to the pipeline industry seeking better understanding of how to repair damaged pipelines for long-term service.

Prerequisite knowledge includes a background in engineering and basic knowledge of pipeline design methods.

INSTRUCTOR: Chris Alexander
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

DEFECT ASSESSMENT*

IPTI280

This course provides a broad overview of analysis methods for defects in pipeline. Day one includes a summary of important material properties and a review of integrity assessment methods for pipeline defects. Additionally, analysis methods for corrosion are covered, including each of the methods cited in the most recent version of ASME B31G-Manual for Determining the Remaining Strength of Corroded Pipelines. The day ends with a discussion on analysis methods for mechanical damage.

The second day covers analysis methods for cracks and begins with a basic introduction to fracture mechanics. Methods of measuring toughness associated with linearly elastic and elastic-plastic behavior are covered. Next, the use of failure assessment diagrams and the development of the log-secant equation are discussed, followed by J-integral based assessments. Finally, both propagating fractures and fatigue are covered.

Who Should Attend

Engineers wishing to learn more about analyzing defects in transmission pipelines. Attendees should have at least 2 to 4 years' experience related to pipeline integrity management and/or defect assessment technologies.

INSTRUCTOR: Dr. Tom Bubenik
2 Days, 13 PDHs
MEMBER $1,500 / List Price $1,700

DESIGN AND SELECTION OF COMPRESSORS*

IPTI250

Compressors perform a major role in pipelines and many types of plant processes. This course thoroughly describes the technology of compressors and their design and selection. The main focus will on centrifugal, reciprocating and screw compressors. Participants will receive a fundamental understanding of all of the basic components of compressors and their auxiliary systems. The different drivers for compressors will be covered. A thorough understanding of compressor performance is important for design and testing. Reference will be made to the various standards used by manufacturers and purchasers.

Who Should Attend

Engineering and associated staff involved with compressor equipment who are involved in providing, specifying and selecting compressors in various types of applications, including pipelines and process plants. Attendees should have had some exposure to compressors and their operation.

INSTRUCTOR: Tom Van Hardeveld
3 DAYS, 20 PDHS
MEMBER $2,550 / List Price $2,700

***For more information this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz as serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**

DESIGN AND SELECTION OF GAS TURBINES*

IPTI295

Gas turbines perform a major role in power generation, compression and plant processes. This course is a thorough description of the technology of gas turbines and their design, operation and selection. A wide range of gas turbine types in use today is covered from industrial units to aero-derivatives along with their auxiliary systems. New technologies such as low Nox, performance monitoring and efficiency improvements are explained. The topics and principles covered in the course apply to all types of gas turbines used for industrial applications, including oil and gas, petrochemical, manufacturing and off-shore.

Who Should Attend

Design, operations and maintenance personnel involved with gas turbine equipment, as well as engineering staff involved with specifying gas turbines, including both new and experienced staff. Attendees shoujld have had some exposure to gas turbines and their operation.

INSTRUCTOR: Tom Van Hardeveld
2 Days, 13 PDHs
MEMBER $1,700 / List Price $1,800

DESIGN, OPERATION AND MAINTENANCE OF GAS TURBINES*

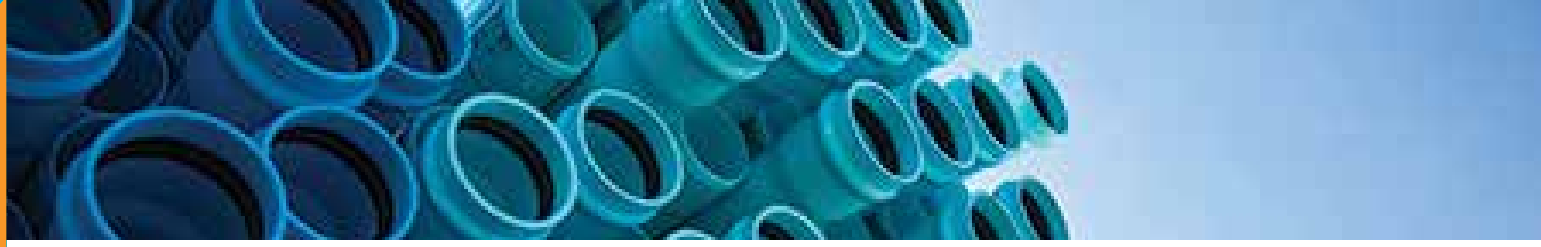
IPTI240

Gas turbines perform a major role in power generation, compression and plant processes. This course thoroughly describes the technology of gas turbines and their design, operation and selection. A wide range of gas turbine types in use today is covered from industrial units to aero-derivatives along with their auxiliary systems. New technologies such as low NOX, performance monitoring and efficiency improvements are explained. Participants will receive an overview of all of the basic components of managing gas turbines with special emphasis on modern approaches to operations and maintenance practices. The topics and principles covered in the course apply to all types of gas turbines used for industrial applications, including oil and gas, petrochemical, manufacturing and off-shore.

Who Should Attend

Operating and maintenance personnel involved with gas turbine equipment, including engineering staff involved in specifying gas turbines. Attendees should have had some exposure to gas turbines and
their operation.

INSTRUCTOR: Tom Van Hardeveld
2 DAYS, 13 PDHS
MEMBER $1,700 / List Price $1,800



IN-LINE INSPECTION*

IPTI220

In this broad overview of in-line inspection (ILI) technologies, starting with the API 1163 "In-line Inspection Systems Qualification Standard," attendees learn the basic steps to take before, during and after the the inspection. Capabilities and limitations of the most common technologies used on smart pigs are covered, as well as planning and conducting post-inspection verification programs. The course addresses how to deal with discrepancies between reported and actual defects and anomalies. It provides an understanding of how inspection technologies are selected and used in typical applications.

Who Should Attend

Pipeline integrity engineers with limited exposure to in-line inspection and to other engineers interested in the relative strengths and weaknesses of different inspection technologies

INSTRUCTOR: Tom Bubenik
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

INTEGRITY MANAGEMENT*

IPTI210

This course provides a basic introduction to integrity management programs (IMPs) for pipelines. Federal regulations for gas and liquid pipelines are summarized, and the implications of recent regulatory modifications and proposed rules are addressed. Examples from several case studies help attendees understand strengths and weaknesses of typical IMPs. It covers recent and future trends.

Who Should Attend

Pipeline engineers with two to five years of practical experience who possess a basic understanding of design, construction and operations

INSTRUCTOR: Tom Bubenik
1 Day, 6.5 PDHs
MEMBER $850 / List Price $900

ONSHORE DESIGN AND CONSTRUCTION*

IPTI200

This comprehensive overview of the varied activities involved in designing and constructing onshore pipeline infrastructure to transport hydrocarbons in a cost effective manner. The material covers: facilities planning, hydraulic design, mechanical/geotechnical design, materials selection and construction. Practical examples are used throughout and the lectures are supplemented by video presentations.

Who Should Attend

Project managers, pipeline design engineers, pipeline operators, contractors, supervisors, inspectors, equipment suppliers, environmental specialists and land agents

INSTRUCTOR: Alan Murray
3 Day, 20 PDHs
MEMBER $2,550 / List Price $2,700

PIPELINE CONSTRUCTION*

IPTI285

Attendees receive a comprehensive overview of the many and varied activities that are involved in designing and constructing onshore pipeline infrastructure to transport hydrocarbons in a cost effective manner. The material is presented in a logical sequence of five blocks covering Facilities planning, hydraulic design, mechanical / geotechnical design, materials selection and construction. Practical examples are used throughout and the lectures are supplemented by video presentations.

Who Should Attend

Project Managers, pipeline design engineers, pipeline operators, contractors, supervisors, inspectors, equipment suppliers, environmental specialists and land agents

INSTRUCTOR: Joe Paviglianiti
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

PIPELINE GEOHAZARD MANAGEMENT*

IPTI235

Pipeline geohazard management is a relatively new field within the pipeline industry that is the subject of rapid development. This one-day tutorial provides a broad overview of the state of practice of the main elements of this topic. A balance between global and South American practices will be presented.

Who Should Attend

Managers, engineers and technical staff involved in pipeline geotechnical hazard management

INSTRUCTOR: Moness Rizkalla
1 Days, 6.5 PDHs
MEMBER $750 / List Price $850

PIPELINE HYDRAULIC DESIGN*

IPTI201

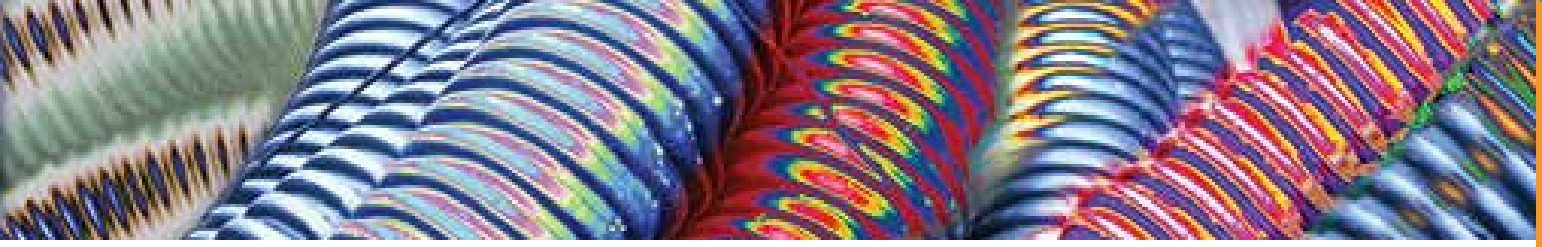
This course is intended to provide a good understanding of the principles and processes involved in the economic design of the hydraulics of natural gas and liquid hydrocarbon pipeline systems.

Who Should Attend

Individuals involved in any aspect of the pipeline engineering industry, especially those who are in the early stages of their career or have been reassigned in pipeline hydraulic system design, including engineers, managers and regulators

INSTRUCTOR: Mike Yoon
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

***For more information this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz as serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**



PIPELINE PRESSURE TESTING*

IPTI203

Recent PHMSA advisories and pending regulations will soon mandate pressure tests for operating gas and liquid pipelines that have not been previously subjected to pressured leak and strength tests. This overview of the planning and implementation processes necessary to plan, execute and document pipeline pressure tests efficiently to consistently satisfy code requirements as defined by CFR 49 Parts 192 and 195. Topics include: terminology, requirements, planning, permitting, preparation, testing and returning the line to service and documentation.

Who Should Attend

Engineers, project managers, technicians, and operating, construction and testing supervisors, and company or contract personnel charged with certifying that a test was conducted properly and successfully

Special Requirements: Prerequisite knowledge includes a back-ground in pipeline operations, engineering, construction or testing.

INSTRUCTORS: Larry Decker, William Byrd
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

RELIABILITY DESIGN AND ASSESSMENT FOR NATURAL GAS PIPELINES*

IPTI260

The purpose of the course is to familiarize participants with the basic principles of Structural Reliability Methods and to illustrate how they can be used to improve pipeline design and operational decisions.

Who Should Attend

Engineers, pipeline operators, regulators and service providers interested in the use of structural reliability-based methods to make informed design, operational and maintenance decisions

INSTRUCTORS: Mark Stephens, Maher Nessim, Alan Murray
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

RELIABILITY IMPROVEMENT OF ROTATING EQUIPMENT*

IPTI290

This course concentrates on ways to improve the reliability of rotating equipment. With a solid basis in the concepts of reliability and reliability engineering, it focuses on problems and solutions surrounding rotating equipment failures, diagnostics and methods to prevent them. This will help achieve measurable results in more efficient plant maintenance, increased operational efficiency, lower operating costs and improved plant reliability and availability. Various case studies are presented.

Who Should Attend

Reliability engineering, operations and maintenance personnel involved with rotating equipment in all types of applications, including engineering and support staff

INSTRUCTOR: Tom Van Hardeveld
2 Days, 13 PDHs
MEMBER $1,700 / List Price $1,800

STRESS CORROSION CRACKING*

IPTI270

This course provides an in-depth overview of high pH and near neutral pH stress corrosion cracking (SCC). Topics covered include history and characteristics of SCC, causative and non-causative factors related to SCC, coating effects, SCC direct assessment, susceptibility assessments/site selection, field inspection protocols, mitigation, and the CEPA guidelines.

Who Should Attend

Engineers interested in learning more about SCC and conducting SCC integrity assessments.

Special Requirements: Prerequisites include 2 to 4 years' experience related to pipeline integrity management and/or involvement in SCC direct assessment programs. Some prior exposure to high pH or near neutral pH SCC is desired.

INSTRUCTOR: Dr. Tom Bubenik
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

SUBSEA PIPELINE DESIGN OVERVIEW*

IPTI230

Attendees are provided with a comprehensive overview of Subsea Pipeline Design and Engineering, including both the theoretical and practical aspects of this area.

The main elements of pipeline design, fabrication, construction and operation are covered, as well as operational information and techniques related to the Pipeline Industry's move into the harsher environments of ultra-deep water and higher temperatures. This course serves as a valuable reference source for an industry whose markets and workforce are constantly in flux.

Who Should Attend

Practicing design engineers, analysis engineers, project managers and managers, and practicing engineers working in Offshore and Subsea Engineering, as well as new engineers transitioning to this field.

INSTRUCTOR: Burak Ozturk, Paul Jukes
1 Day, 6.5 PDHs
MEMBER $750 / List Price $850

***For more information this ASME-IPTI course – denoted by "IPTI" in the course number – contact Lydia Serenil or Melanie Diaz as serenil@asme.org or diazm@asme.org, respectively, or visit www.asme-ipti.org.**

FRP PIPING FABRICATION AND INSTALLATION PROCESSES

Online Instructor-Supported Course EL522

This course covers the application of Bonding Procedure Specifications (BPS) required by B31 codes. It covers the qualifications for people, material and the procedure.

You Will Learn

- To describe FRP (Fiberglass Reinforced Plastic) piping fabrication and installation processes
- To define typical problem areas and what can be done to avoid problems
- How to apply the ASME B31 Code requirements to the Flue Gas Desulfurization System installation application

CEUs: 2.3 PDHs: 23
MEMBER $595 List Price: $695

Also available as a 1-day Public Course: PD593, "FRP Piping Fabrication and Installation Processes"

HYDRAULIC DESIGN OF LIQUID OR WATER PIPING SYSTEMS

Online Self-Study Course EL539

This course covers the basic fundamentals and flow equations used for sizing flow lines or solving the line pressure drop of steadystate simple hydraulic systems flowing non-flashing incompressible Newtonian liquids or water. Industry's generally accepted fundamental Darcy's equation and the empirical Hazen-Williams formula for water flows are introduced as the models of calculating the frictional pressure drop. Explicit equations between pipe pressure drop and parameters such as pipe inside diameter, fluid's flowing velocity or flow rate and pipe run length are also provided in order for the participants to gain insight of their direct relationship. Working equations provided in this
course allow participants to effectively perform hydraulic analysis and evaluate design options of de-bottlenecking their piping or flow line infrastructure for future service requirement.

You Will Learn

- Basic principles that govern the fluid flow in pipes
- How to describe and calculate specific gravity, pressure heads, velocity heads, head losses and pressure losses
- The dependence of frictional pressure drop on pipe flowing velocity, pipe mass flow rate, pipe inside diameter
- The trade-off between the pipe inside diameter and run length at constant pressure drop
- The considerations of consulting experts and considering guidelines involved in selecting optimal pipe sizes for piping line sizing

PDHs: 10
MEMBER $295 List Price: $395

DESIGN OF BURIED HIGH DENSITY POLYETHYLENE (HDPE) PIPING SYSTEMS

Online Self-Study Course EL544

This course provides training on the design and analysis of buried high density polyethylene (HDPE) pipe in accordance with the ASME Boiler and Pressure Vessel Code Case N-755. The course covers all aspects of the design of buried HDPE pipe including pressure design, soil loadings, thermal expansion loads and seismic design requirements. The design of coupled buried HDPE and above ground steel piping systems is also presented. The class includes in-class piping design exercises as well as a complete set of handouts and identification of applicable reference documents.

You Will Learn

- The scope of Code Case N-755 and its relationship of Code Case N-755 to the ASME BPV Code
- HDPE piping design requirements and analysis methods as specified in Code Case N-755
- Calculation methods for soil springs and other needed soil parameters
- Design of coupled buried HDPE and above ground steel piping systems

PDHs: 10
MEMBER $295 List Price: $395

Also available as a 2-day Public Course: PD617, "Design of Buried High Density Polyethylene (HDPE) Piping Systems"

BPV CODE, SECTION III, DIVISION 1: CLASS 1 PIPING DESIGN

Online Self-Study Course EL542

This course provides information and instruction on the design and construction of nuclear power plant piping systems consistent with ASME Boiler and Pressure Vessel Code (BPV Code), Section III, Division 1, Subsection NB. The course incorporates a brief historical perspective on as well as general overview of the BPV Code. The balance of the course focuses on the appropriate use of BPV Code Section III, Division 1, Subsection NB for the design and construction of Class 1 piping systems.

You Will Learn

- An overview of the ASME Boiler and Pressure Vessel Code
- Code requirements for Class 1 Piping Design Specifications
- Class 1 Piping Design by Rule (NB-3600)
- Class 1 Piping Design by Analysis (NB-3200)

PDHs: 10
MEMBER $295 List Price: $395

Also available as a 2-day Public Course: PD599, "BPV Code, Section III, Division 1: Class 1 Piping Design"

eLEARNING COURSES

BPV CODE, SECTION III, DIVISION 1: CLASS 2 & 3 PIPING DESIGN

Online Self-Study Course EL543

This course provides information and instruction on the design and construction of nuclear power plant piping systems and the appropriate use of ASME Boiler and Pressure Vessel Code, Section III, Division 2 & 3, Subsection NC and ND with respect to Class 2 & 3 piping systems. While they will be discussed briefly, detailed instruction will not be provided on the design and construction of Class 2 & 3 pipe supports. Participant exercises are provided as an integral part of the training program.

You Will Learn

- Class 2 & 3 Piping Design by Rule methods
- Class 2 & 3 pipe supports design requirements
- Selected individual piping component design requirements
- Design of a simple Class 2 & 3 piping system
- To describe “non-Code” but related nuclear piping design issues

PDHs: 10
MEMBER $295 List Price: $395

Also available as a 1-day Public Course: PD600, “BPV Code, Section III, Division 1: Class 2 & 3 Piping Design”

Essentials: B31.8 Gas Transmission and Distribution Piping Systems
Online Assessment Based Course ZABC12
This course introduces the requirements and scope of B31.8, including its history, the types of systems to which it applies, the organization and intended use of the Codebook as well as the requirements for pipeline materials and equipment, welding and design, installation and testing of pipeline systems.

PDHs: 2
PRICE: $195

ESSENTIALS: B31.1 POWER PIPING

Online Assessment Based Course ZABC14

This course introduces the B31.1 Power Piping code and discusses its relationship with BPV Code, Section I: Rules for Construction of Power Boilers and the requirements for design, fabrication and testing. It covers the jurisdictional limits of the B31.1 code and the ASME Boiler and Pressure Vessel Code, Section I and design issues specific to power piping systems. Also reviewed are qualification requirements for operators and
operating procedures for welders and brazers, along with nondestructive examination requirements.

PDHs: 2
Price: $195

ESSENTIALS: B31.3 PROCESS PIPING CODE

Online Assessment Based Course ZABC15

This course explains how piping systems function and what the code requirements are for various types of piping installations, including guidance and limitations on the selection and application of materials and components. Also covered are requirements for fabrication, assembly, inspection, examination and testing, as well as special types of piping.

PDHs: 2
Price: $195

go.asme.org/eLearning

PROCESS SAFETY AND RISK MANAGEMENT FOR MECHANICAL ENGINEERS NEW!

PD702

This course covers Process Safety, Risk Understanding and Management (PSM) principles, and the value of performance beyond regulatory requirements. It covers the overall benefits of an effective PSM and risk management program, plant and companywide. This course includes topics (that engineers and supervisory personnel need to know) about process safety regulatory compliance, actual implementation of appropriate programs and procedures, and auditing for compliance and effectiveness.

Participants learn why past process safety failures occurred and of the need for effective process safety programs in "today's and "tomorrow's" worlds. In doing so, it assists each student in understanding why and how such programs should be instituted in their particular work environments and the part each of them should and must play for the programs to be implemented and maintained at peak performance. That is, students learn how to Walk the Talk and establish their roles in setting the facility's culture. Participants also gain insight through lecture, discussions, and problem solving workshops that will assist in implementing and/or evaluating/auditing a process safety and Risk Management program in your company or facility.

This course uses the OSHA PSM regulation 29CFR1910.119 as a guidance document for requirements and "mentions" the EPA Prevention Program process safety regulatory requirements only when the differences from the OSHA regulation are "significant."

Each participant will receive the textbook, Guidelines for Risk Based Process Safety, (published by Wiley for AIChE's Center for Chemical Process Safety).

You Will Learn To

- Describe how to meet the requirements of OSHA PSM Standard 29CFR 1910.119
- Identify the significant differences (from OSHA) in the EPA Prevention Program 40CFR Chapter 1, Part 68 process safety regulatory requirements
- Explain the part an individual (and groups) play in setting the "Culture" of process safety management and risk evaluation and decision-making in the day-to-day "real world."
- Describe what a Mechanical Engineer is expected to do to ensure that Process Safety Management programs and Risk Management concepts are put into effect in his or her company and/or facility
- Explain how to apply Recognized And Generally Accepted Good Engineering Practices (RAGAGEP) in implementing an effective and compliant PSM and Risk Management program

Who Should Attend

Engineers from a variety of disciplines including new and experienced front line mechanical engineers responsible for design, maintenance, manufacturing or supervision, managers and engineers responsible for regulatory compliance, auditors (for regulatory and/or company policy compliance), insurance inspectors, compliance program managers and engineers, as well as plant managers and department managers along with corporate process safety support staff

INSTRUCTOR: Adrian L. Sepeda
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

ASME BOOKS OF INTEREST

Companion Guide to the ASME Boiler and Pressure Vessel and Piping Codes, Fourth Edition - Volume 1
900 pp ISBN: 9780791859865
Print Book Member $287.00 / List price $359.00
Order Number: 859865

Companion Guide to the ASME Boiler and Pressure Vessel and Piping Codes, Fourth Edition - Volume 2
900 pp ISBN: 9780791859872
Print Book Member $287.00 / List price $359.00
Order Number: 859872

Containment Structures of U.S. Nuclear Power Plants
180 pp. ISBN: 9780791860175 Order No. 860175
Member $149 / List price $199

Design and Analysis of ASME Boiler and Pressure Vessel Components in the Creep Range
240 pp ISBN: 9780791802847
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International Project Management for Technical Professionals (2009) by Brian E. Porter, PE, PMP
180 pp ISBN 9780791802885
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Order Number 802885

Knowledge Tornado: Bridging the Corporate Knowledge Gap, Second Edition
200 pp ISBN 9780791859957
Print Book Member $39.00 / List price $49.00
Order Number: 859957

Power Piping: The Complete Guide to ASME B31.1 by Charles Becht IV
260 pp ISBN: 9780791860144
Print Book Member $87.00 / List price $109.00
Order Number: 860144

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GET MORE INFORMATION

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Email: francisp@asme.org

go.asme.org/corporate1

RISK-BASED ASSET MANAGEMENT NEW!

PD700

Risk-Based Asset Management guides you through the fundamental building blocks to create a strategy for implementing a successful asset management program from cradle to grave. During the class, participants receive hands-on instruction while preparing control strategies that ultimately help reduce risk and achieve the greatest asset utilization at the lowest total cost of ownership.

Risk-Based Asset Management takes a holistic approach that addresses not only infrastructure needs, but also the supporting people, business processes, data and enabling technologies critical to success.

You Will Learn To

- Describe the four phases in implementing a Risk-Based Asset Management program
- Demonstrate how to classify assets effectively
- Employ methods for analyzing assets
- Map control strategies to predominant failure modes
- Identify key performance indicators to measure control strategies effectively
- Calculate overall equipment effectiveness

Who Should Attend

This course is designed for people responsible for the installation, commissioning, operation or maintenance of capital assets and auxiliary equipment. This includes Project Engineers, Reliability Engineers, Maintenance Managers, Operations Managers, and Engineering Technicians.

INSTRUCTORS: William H. Closser, Jr., Keith Mobley
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

DEVELOPING CONFLICT RESOLUTION BEST PRACTICES

PD591

This course teaches how to minimize and resolve conflicts with co-workers, partners and business counterparts by providing simple, effective tools and techniques for handling conflict and improving interpersonal relationships. It was designed with an awareness of not only inter-organizational relationships and multiculturalism, but also educational, cultural and economic backgrounds.

The course also covers techniques for diffusing confrontational, volatile, and even dangerous situations which can develop during team building or critical meetings, a highly sought after skill in today's multicultural workplace environments.

Each participant will receive a copy of the book, The Knowledge Tornado: Bridging the Corporate Knowledge Gap, and a copy of the book, Conflict Resolution: Concepts & Practice (The Technical Manager's Survival Guides), both by Marcus Goncalves.

You Will Learn To

- Describe the nature of conflict and how to recognize positive versus negative conflict
- Identify the elements of effective communication
- Determine who owns a problem
- Recognize vicious cycles
- Assert yourself respectfully
- Explain the methods used for reducing tensions and resolving conflicts

Who Should Attend

This course is for anyone who works in a group setting.

INSTRUCTOR: Marcus Goncalves
2 Days, 1.5 CEUs, 15 PDHs
MEMBER $1,375 / List Price $1,485

ROOT CAUSE ANALYSIS FUNDAMENTALS

PD618

This 3-day course provides an introduction and extensive discussion of many different tools for root cause analysis. Each one is presented in an easy-to-follow structure: a general description of the tool, its purpose and typical applications, the procedure when using it, an example of its use, a checklist to help you make sure it is applied properly along with different forms and templates (contained in the book provided with the course materials).

The examples used can be tailored to many different industries and markets. The layout of this course has been designed to help speed participants' learning through short videos depicting well-known scenarios for analysis in class.

Each participant will receive a copy of the book, Root Cause Analysis: Simplified Tools and Techniques, (2nd Edition), by Bjørn Andersen and Tom Fagerhaug.

You Will Learn To

- Explain the concept of root cause analysis
- Describe how to use tools for problem cause brainstorming
- Develop strategies for problem cause data collection and analyWho Should Attend

All professionals involved in maintenance and reliability management strategies and tasks

INSTRUCTORS: Marcus Goncalves, Bernie Nally, Brian E. Porter
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

RISK AND RELIABILITY STRATEGIES FOR OPTIMIZING PERFORMANCE

PD619

Intended to bridge the gap between designers/maintainers and reliability engineers, this course provides a clear explanation of the value and benefits of maintenance management to foster risk and reliability strategies. Participants will examine the role of maintenance in minimizing the risk of safety or environmental incidents, adverse publicity and loss of profitability. Participants will also discuss risk reduction strategies and tools, focusing on their applicability to specific situations, enabling them to select the tool that best fits their requirements.

Each participant will receive a copy of the book, Effective Maintenance Management: Risk and Reliability Strategies for Optimizing Performance by Vee Narayan, in addition to a table of fixed format codes that can be used directly or adapted for use in most maintenance management systems.

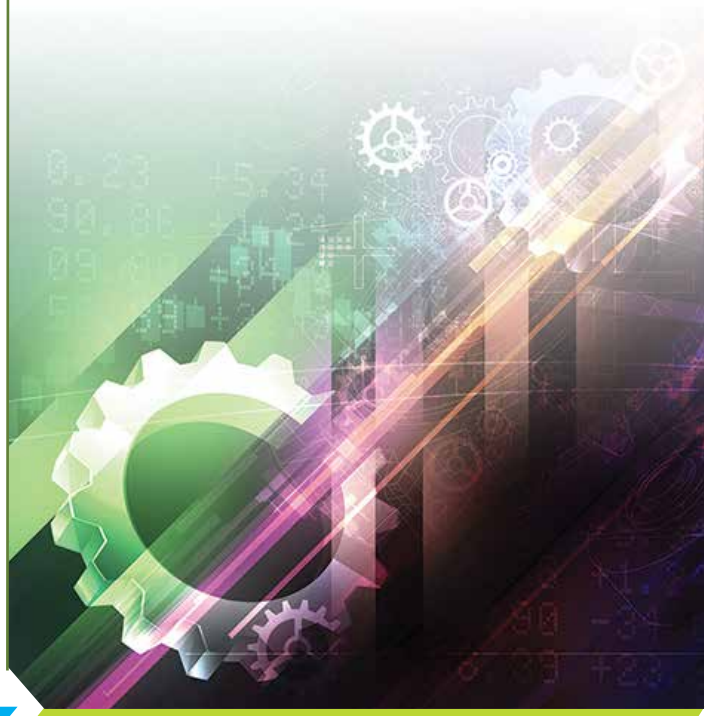
You Will Learn To

- Explain which management tasks are required and when they must be done to achieve optimum performance and reliability
- Describe the risk reduction model, which links maintenance to these risks
- Explain the connection between maintenance and safety, profitability and asset life

Who Should Attend

All professionals involved in maintenance and reliability management strategies and tasks

INSTRUCTORS: Robert A. Cimini, Marcus Goncalves, Brian E. Porter, Jim Willey
3 Days, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895



PREDICTIVE MAINTENANCE TECHNOLOGIES NEW!

PD698

Predictive maintenance (PdM) is not a tool, technique or certification. Predictive maintenance is a philosophy that uses the equipment's operating condition to make data-driven decisions and improve quality, productivity and profitability. Unlike industry courses that focus on applying specific technologies like vibration monitoring or oil analysis, this course focuses on establishing, managing and sustaining results from a comprehensive PdM program.

The Predictive Maintenance Strategy course considers predictive maintenance as a component of a larger asset management strategy to diagnose, prevent and postpone failures. During this three-day course, the theory and application of multiple PdM technologies are explained. Critical success factors of results-producing PdM programs are reviewed. Through group activities and case studies, you will determine which predictive technologies to use, how to set goals for your program, track progress and practice how to communicate results to different stakeholders. By the end of the session, you will have outlined what a successful PdM program can look like within your organization.

You Will Learn To

- Explain the role of a predictive maintenance plan in an effective asset management strategy
- Describe the theory, application and safety considerations of 5 PdM technologies
- Recognize visual inspection as a component of a PdM program
- Draft a predictive maintenance strategy that incorporates critical success factors
- Explain how Operating Dynamics Analysis™ manages machinery/assets that cannot be monitored by the five traditional predictive maintenance technologies (vibration analysis, thermography, tribology (oil analysis), ultrasonics, and motor circuit analysis)
- Compare your current PdM program to best practice and build a plan to meet your PdM goals

Who Should Attend

Maintenance Managers, PdM Managers, Maintenance professionals and any individual responsible for justifying or managing duties related to a PdM program

INSTRUCTOR: Andrew Norman
3 DAYS, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

RELIABILITY EXCELLENCE FUNDAMENTALS NEW!

PD699

Reliability Excellence Fundamentals (RxF) is a three-day, interactive course in which participants experience the fundamental concepts of Reliability Excellence to drive performance improvement efforts within an organization.

RxF is highly concentrated and hands-on, opening with a reliability assessment and exercises focused on the value Reliability Excellence can bring to an organization. Participants discuss the impacts of business process re-engineering and examine best practices to support a reliable environment. RxF introduces essential reliability tools to build a case for reliability and document reliability improvement efforts at their facility. The course concludes by defining objectives, goals and targets to align your organization on the path to Reliability Excellence.

You Will Learn To

- Build a case for Reliability Excellence implementation
- Explain the Reliability Excellence model and methodology that's proven to deliver results
- Analyze fundamental reliability processes
- Discuss the business process re-engineering methodology as it relates to your reliability processes
- Explain operations' contribution to reliability
- Draft Reliability Excellence objectives, goals and targets required to achieve the business case

Who Should Attend

RxF engages plant personnel involved in applying Reliability Excellence. Suggested participants include people who influence business process improvement and frontline employees impacted by Reliability Excellence.

INSTRUCTOR: Ron Leonard, P.E.
3 DAYS, 2.3 CEUs, 23 PDHs
MEMBER $1,795 / List Price $1,895

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GRÁTIS!

Introdução às Normas e Certificação da ASME ZABC60

Este curso oferece uma introdução às Normas da ASME e ao processo de certificação. Aborda temas como por qué temos normas, o processo para criá-las, e quem é o responsável pela manutenção dos documentos. O curso também descreve o papel da ASME no desenvolvimento e manutenção das Normas, e também a forma como ASME certifica as organizações na aplicação destas normas.
Para mais informações, visite go.asme.org/zabc60

ASME B31.8: Sistemas de Tubulação de Distribuição e Transmissão de Gás ZABC62 $195

O curso apresenta os requisitos do ASME B31.8 – Código de Sistemas de Tubulação para Transmissão e Distribuição de Gas. Ele cobre o escopo da B31.8, incluindo sua história, os tipos de sistemas aos quais se aplica, sua organização e utilização prevista para o Codebook. Ele também introduz requisitos de materiais de tubulação e de equipamentos, de solda e de projeto, instalação e testes dos Sistemas de Tubulação. Outros tópicos incluem procedimentos de operação, manutenção, e controle de corrosão dos gasodutos, e requisitos para a transmissão de gas offshore e serviço de gás ácido.2
Para mais informações, visite go.asme.org/zabc62

Fundamentos sobre o Código ASME B31.3 Tubulação de Processo ZABC61 $195

Este curso introduz o Código B31.3 Tubulação de Processo. O objectivo deste curso é explicar como é o funcionamento dos Sistemas de Tubulação e quais são os requisitos do Código para vários tipos de instalações. O código B31.3 fornece orientação e limitações sobre a seleção e aplicação de materiais e componentes; requisitos para a fabricação, e montagem da tubulaçã além dos requisitos para verificação, inspeção e teste da tubulação.
Para mais informações, visite go.asme.org/zabc61

BPV CODE, SECTION IX: WELDING, BRAZING AND FUSING QUALIFICATIONS

PD190

This is a basic course that instructs attendees how to comply with the requirements of ASME Section IX, Welding, Brazing and Fusing Qualifications. Participants gain a working knowledge of ASME Section IX. A review of the welding processes and variables – along with a review of basic welding metallurgy – is conducted to provide all participants with sufficient background in welding technology.

This background knowledge is essential in order for participants to interpret Section IX effectively.

The mechanics of using Section IX and how to address its requirements and its relationship with other code sections is explained in a simple, straightforward manner. Emphasis is placed on qualifying procedures in a cost-effective manner and on writing welding procedures that contribute positively to the manufacturing process. The requirements for qualification of welders, brazers and operators are examined, with particular emphasis on minimizing the cost and maximizing the usefulness of qualifications.

Time is provided to address individual participant's problems and concerns.

All attendees receive the current edition of BPVC Section IX – Welding, Brazing and Fusing Qualifications codebook.

You Will Learn To

- Explain how Section IX is organized and how to locate requirements for welding, brazing and fusing qualifications
- Consider the metallurgy and welding process knowledge that forms the basis for the rules for welding qualifications
- Formulate and write practical and instructive welding, brazing and plastic fusing procedures that are compliant with Section IX
- Determine and confirm welder performance qualifications that are compliant with Section IX
- Review welding documentation for compliance with Section IX

Who Should Attend

Mechanical and welding engineers, quality control personnel, welding supervisors, inspectors as well as project managers

INSTRUCTOR: Walter J. Sperko
3 DAYS, 2.3 CEUs, 23 PDHs
MEMBER $2,050 / List Price $2,150

PRACTICAL WELDING TECHNOLOGY

PD359

This course is designed for individuals seeking to expand their core competence on the subject of welding. Designers, inspectors, managers or welders with a need to understand the fundamentals of welding will also benefit from the practical aspects of welding technology presented in this course. This is the course that should have been part of your college curricula.

In-class exercises are employed to reinforce class lectures on the subjects of welding and NDE symbols, carbon equivalence, heat input, A-numbers, calculated strength of welds, joint details, welding procedures as well as selection of filler metals, determining preheat requirements and reviewing a WPS for code compliance.

Participants receive a course notebook, a copy of *Modern Welding Technology, 6th Edition* along with a copy of *AWS A3.0 Standard Welding Terms.*

You Will Learn To

- Explain welding terms and definitions
- Explain how to properly specify various weld types and nondestructive testing using standard AWS welding symbols
- Explain basic ferrous welding metallurgy
- Describe post weld heat treatments, residual stresses, and distortion control
- Explain welding processes typically used to fabricate pressure vessels and piping systems
- Explain the interrelationship between AWS, ASME, and API codes and standards as they relate to pressure vessels, piping systems, and related facilities
- Explain Welding Procedure and performance qualification documentation and methodology applicable to pressure vessels and piping systems.
- Explain common weld defects, causes, and corrective actions
- Identify major considerations when designing a weld
- Identify common NDT used to examine welds
- Identify the elements of a cohesive welding program that includes design, purchasing, fabrication, inspections, and delivery

Who Should Attend

Managers, engineers, production and maintenance staff, inspectors, welders and others who are involved with welding of pressure vessels, piping systems and related facilities

SPECIAL REQUIREMENTS
Participants should be prepared for extended class time as well as bring a calculator and several pencils or a mechanical pencil to class.

INSTRUCTOR: Andrew Norman
4 DAYS, 3.0 CEUS, 30 PDHS
MEMBER $2,195 / List Price $2,295

eLEARNING
WELDING

PRINCIPLES OF WELDING

Online Instructor-Supported Course EL515

This course provides an introduction to the principles of welding technology, and is specifically designed for professionals who wish to understand the fundamental principles of welding to control and troubleshoot welding processes, reduce operating cost and improve the quality of their products. It describes the process of welding and how it affects welded materials and structures. It describes the electric circuits that are used to generate welding arcs, material properties, and the metallurgical and dimensional effects of welding on structures. The course also provides an overview of weld design concepts including efficient weld sizing and communication of weld and welding information through weld symbols on drawings. The course is an ideal prerequisite to the ASME BPV Code, Section IX for those individuals with little or no prior welding experience.

You Will Learn

- Use and application of common welding processes
- The technical factors that describe each welding process
- The advantages and disadvantages of each process
- Weld examination methods and quality issues

CEUs: 2.3 PDHs: 23
MEMBER $595 List Price: $695

BPV CODE, SECTION IX: WELDING AND BRAZING QUALIFICATIONS

Online Instructor-Supported Course EL516

This course covers the layout, scope, and use of Section IX of the ASME Boiler and Pressure Vessel Code through illustrative examples. It explains and demonstrates the rules for qualification of welding and brazing procedures and personnel, and presents basic rules for the use of Section IX in conjunction with other construction codes. These rules include the identification of responsibilities for procedure and personnel qualification as well as the activities that can be subcontracted by the manufacturer. The course presents basic metallurgy and characteristics of the welding processes to assist in understanding essential and nonessential variables for the qualification of procedures and personnel. Examples of documentation for welding procedure and personnel qualification are included to demonstrate how the essential and nonessential variables are identified and documented.

You Will Learn

- Layout and scope of Section IX
- Qualification of procedures and personnel in Section IX
- Basic features of the commonly used welding processes
- The concept of carbon equivalent and hardenability of steels
- Nonessential variables and essential variables in the WPS
- How to prepare and modify the PQR and WPS from fundamentaldata
- Supplementary essential variables

CEUS: 2.3 PDHS: 23
MEMBER $595 LIST PRICE: $695

Also available as a 3-Day Public Course: PD190, “BPV Code, Section IX: Welding and Brazing Qualifications”

ESSENTIALS: BPV CODE, SECTION IX: WELDING AND BRAZING REQUIREMENTS

Online Assessment Based Course ZABC18

This course introduces Section IX: Welding & Brazing Requirements of the ASME Boiler and Pressure Vessel Code, covering the section’s scope, organization and requirements.

PDHS: 2
PRICE: $195

ESSENTIALS: BPV CODE, SECTION IV: RULES FOR CONSTRUCTION OF HEATING BOILERS

Online Assessment Based Course ZABC35

Provides an introduction to the ASME BPV Code, Section IV: Rules for Construction of Heating Boilers and discusses requirements for boilers constructed of wrought materials, cast iron and cast aluminum as well as those for potable water heaters.

PDHs: 3
PRICE: $195

go.asme.org/eLearning

ASME MASTERCLASS SERIES

ASME MasterClasses are premium learning programs comprised of advanced topics aimed at experienced professionals. MasterClasses emphasize learning through discussion of real world case studies and practical applications. Recognized experts lead in-depth sessions that address current issues and best practices to inspire interactive discussions and group knowledge-sharing.

In these practical, case study-driven training sessions, attendees are provided with an opportunity to discuss real issues as well as strategies and solutions that affect today's workplace.

APPLICATION OF THE A17.7 / B44.7 PERFORMANCE BASED CODE FOR ELEVATORS AND ESCALATORS

MC101

In recent years there has been an increasing demand for safe, reliable, innovative elevator products. The ASME A17.7/B44.7 Performance Based Code was developed to provide a structured process for ensuring safety while enabling innovation.

This MasterClass provides a broad understanding of the application of the A17.7/B44.7 Performance Based Code. Practical examples including a Risk Assessment exercise requiring active group participation will be used to demonstrate the application of the A17.7/B44.7 Code and the roles and responsibilities of the manufacturer, AECO and the enforcing authority.

Each participant will receive a copy of the *A17.7/B44.7 Performance-Based Safety Code for Elevators and Escalators Codebook.*

On completion of this ASME MasterClass, you will be able to

- Apply the requirements of the A17.7/B44.7 Code
- Describe the Relationship of the A17.7/B44.7 Code to the A17.1/B44 Code
- Explain Global Essential Safety Requirements and Safety Parameters
- Participate fully and efficiently in Risk Assessment Studies, and describe the process of hazard mitigation and risk reduction
- Describe how Code Compliance Documents are to be prepared, including the information that needs to be provided
- Describe the roles and responsibilities of Accredited Elevator/Escalator Certification Organizations (AECOs) and enforcing agencies
- Explain the inspection and test procedural information that is required to be available at the elevator site

Who Should Attend

This MasterClass is designed for engineering development professionals as well as Code experts involved in the development of innovative products based on new technology intended for deployment in North America. This MasterClass is of particular interest to any company planning to introduce innovative products not specifically covered by the A17.1/B44 Code to the North American market, as well as consultants, AECOs, and Enforcement Authorities engaged in the assessment of elevator equipment based on innovative technology.

SPECIAL REQUIREMENT

This MasterClass is structured on the assumption that This MasterClass is structured on the assumption that participants have a working knowledge of A17.1/B44 Code.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Louis Bialy
1 DAY, .8 CEUs, 8 PDHs
PRICING ON WEBSITE

REAL WORLD APPLICATION OF COMMERCIAL GRADE DEDICATION

MC102

Commercial Grade Dedication (CGD) is a process by which (off-the-shelf) Commercial Grade Items (CGI) are designated for use as basic components in a nuclear facility. The acceptance process was initiated within the nuclear industry in the late 1970s, and has become a routine method of procuring components from a decreasing pool of qualified suppliers who maintain traditional Quality Assurance Programs.

Most stakeholders in the industry are familiar with the processes of procuring and dedicating hard commodities, such as materials, parts, and components. However, significant changes in 10CFR50 Part 21 and the relevant documents that are driven by federal requirements have increased the number of organizations allowed to perform commercial grade dedication, as well as expanded the pool of items, services, and activities that must be dedicated. Utility cooperative auditing efforts have imposed additional customer expectations for CGD that need to be addressed, as well as the regulatory requirements.

This one-day MasterClass focuses on the application of Commercial Grade Dedication to meet current industry needs and requirements. Case studies and best practices with an emphasis on non-traditional dedications such as software, calibration, and other services are used to demonstrate the application of current Commercial Grade Dedication requirements and the roles and responsibilities of Owners, EPCs, and Suppliers. The requirements of ASME NQA-1 2012 - Quality Assurance Requirements for Nuclear Facility Applications are used as the framework for this discussion.

On completion of this ASME MasterClass, you will be able to

- Identify the important underlying requirements, documents and changes in the process of Commercial Grade Dedication since the 1970's
- Explain the concepts of dedication of hard goods and the current and persistent gaps in the dedication process
- Identify common errors that occur during the process of developing dedication plans and provide alternate solutions to minimize these errors
- Describe the expectations of utility auditing teams

Who Should Attend

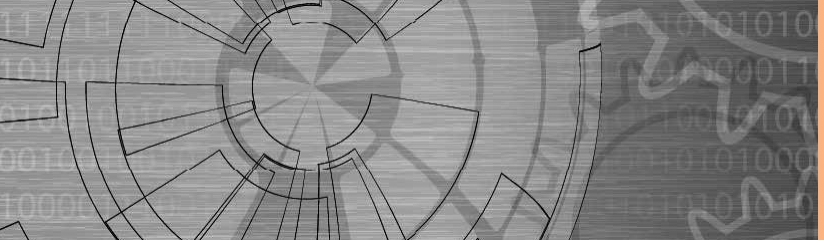
This MasterClass is designed for experienced nuclear industry professionals involved in planning, procurement, engineering, contract review, and quality assurance.

SPECIAL REQUIREMENT

This MasterClass is structured on the assumption that participants have a basic understanding of CGD of hard goods and items.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Doug Brown
1 DAY, .8 CEUs, 8 PDHs
PRICING ON WEBSITE



IDENTIFYING AND PREVENTING THE USE OF COUNTERFEIT, FRAUDULENT, AND SUSPECT ITEMS (CFSI)

MC103

What are Counterfeit, Fraudulent and Suspect Items (CFSI)? They are typically the following:

- An unauthorised copy
- Does not conform to original equipment/ component manufacturer (OEM/ OCM) design, model and/or performance standards
- Not produced by the OEM / OCM - unauthorised contractors
- An off-specification, defective or used OEM/OCM product sold as "new" or working
- CFSI are generally "assumed" to be imported – but often are "Made in the USA"
- Has incorrect or false markings and/ or documentation

In short, CFSI do not meet the rigorous Nuclear Industry technical and quality requirements, and cause a significant reduction in the public perception of the Nuclear Industry integrity, as well as a significant increase in Nuclear Power Plant operational costs to contain and correct substandard items. This one-day MasterClass focuses on the identifying and preventing the use of Counterfeit, Fraudulent, and Suspect Items (CFSI) to ensure that industry and regulatory expectations are met. This class highlights case studies and best practices, with an emphasis on review of procurement documentation, vendor selection and history, including incorporation of robust receiving criteria. 10 CFR Part 50, NRC Generic Letter 89-02, and ASME NQA-1-2008 (with 2009 Addenda) Quality Assurance Requirements for Nuclear Facility Applications are used as the framework for this discussion.

On completion of this ASME MasterClass, you will be able to

- Explain the impact of Counterfeit, Fraudulent, and Suspect Items (CFSI) in the Nuclear Industry
- Describe the development of tools to assist engineering, procurement and quality in the identification and containment of CSFI, including documentation, inspection and testing
- Identify common errors that occur during the procurement and Receipt processes and provide alternative solutions to minimise these errors
- Identify the expectations of industry auditing teams

Who Should Attend

This MasterClass is designed for experienced nuclear industry professionals involved in planning, procurement, engineering, contract review, quality control inspection and quality assurance.

SPECIAL REQUIREMENT

This MasterClass is structured on the assumption that participants have a basic understanding of material and services control including, procurement, Receipt inspection and material identification.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Clayton T. Smith
1 DAY, .8 CEUs, 8 PDHs
PRICING ON WEBSITE

BASES AND APPLICATION OF HEAT EXCHANGER MECHANICAL DESIGN RULES IN SECTION VIII OF THE ASME BOILER AND PRESSURE VESSEL CODE

MC104

The rules of Part UHX have parameters and options that can have a significant impact on the design of heat exchangers. This interactive two-day MasterClass offers a thorough insight into the history and bases for the mandatory rules for the mechanical design of shell and tube heat exchangers supplied with the ASME Mark. The program provides a review of the detailed design procedures and a thorough explanation of the significant parameters and available options. Through both presentation and discussion, attendees will gain a greater appreciation and understanding of how these parameters and options can impact their designs.

The class includes detailed example problems that demonstrate, for "real world," heat exchangers, how the rules are to be applied, and how the options can influence the final design. Examples will be worked in "real time" using Mathcad models of the UHX procedures.

On completion of this ASME MasterClass, you will be able to

- Define the analytical basis of heat exchanger design rules contained in Section VIII of the ASME Boiler and Pressure Vessel Code
- Evaluate the significance of the various parameters used in tubesheet design/tube loading and how they can impact the final heat exchanger design
- Apply the step-by-step design procedure for determining tubesheet stresses tube loading
- Interpret the significance of the calculated stresses and the importance of stress categories

Who Should Attend

This MasterClass is an essential resource for heat exchanger engineers/designers, developers of heat exchanger design software, as well as managers/supervisors of heat exchanger design activity. This MasterClass is structured on the assumption that participants have a basic understanding of ASME Boiler & Pressure Vessel Code Section VIII.

SPECIAL REQUIREMENT

This MasterClass is structured on the assumption that participants have a basic understanding of ASME Boiler & Pressure Vessel Code Section VIII.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Urey R. Miller
2 DAYS, 1.4 CEUs, 14 PDHs
PRICING ON WEBSITE

ASME MASTERCLASS SERIES

ASME MasterClasses are premium learning programs comprised of advanced topics aimed at experienced professionals. MasterClasses emphasize learning through discussion of real world case studies and practical applications. Recognized experts lead in-depth sessions that address current issues and best practices to inspire interactive discussions and group knowledge-sharing.

In these practical, case study-driven training sessions, attendees are provided with an opportunity to discuss real issues as well as strategies and solutions that affect today's workplace.

SOFTWARE DEDICATION TRAINING ON USE OF COMMERCIAL GRADE COMPUTER PROGRAMMEMES FOR DESIGN AND ANALYSIS IN NUCLEAR APPLICATIONS

MC105

In June 2009, the Nuclear Regulatory Commission (NRC) issued Regulatory Guide 1.28 Revision 4, which endorsed ASME NQA-1-2008 with the 2009 addenda. RegGuide 1.28 describes methods that the NRC considers acceptable for complying with the provisions of 10 CFR 50 and 10 CFR 52, which refer to 10 CFR 50, Appendix B for establishing and implementing a quality assurance (QA) program for the design and construction of nuclear power plants and fuel reprocessing plants. The 2009 addenda to ASME NQA-1 require computer programs that were not developed to the requirements of NQA-1 be dedicated as required by Requirement 7 and Subpart 2.14. Computer programs most significantly impacted by this change are those used in design and analysis. Topics emphasize classifying computer programs, applying the ASME NQA-1 requirements to computer programs, leveraging approaches suggested by the EPRI and ASME guidance to show how a technical evaluation can be completed for a computer program used to perform design and analysis in nuclear applications. Ten CFR Part 50 and ASME NQA-1-2008 with the 2009 Addenda Quality Assurance Requirements for Nuclear Facility Applications are used as the framework for this discussion.

On completion of this ASME MasterClass, you will be able to

- Explain the terms and definitions applicable to computer programs and commercial grade dedication (CGD)
- Determine what computer programs should be subject CGD
- Recognize where requirements for computer programs can be found in NQA-1 and which are applicable to the CGD process
- Describe the relationship between the NQA-1-2012 guidance and the EPRI TR 1025243 Plant Engineering: Guideline for the Acceptance of Commercial-Grade Design and Analysis Computer Programs Used in Nuclear Safety-Related Applications
- Review the non-mandatory guidance that will be provided in the NQA-1-2012 edition
- Walk through the Technical Evaluation process for commercial grade computer programs and software services
- Explain the content of a CGD Plan for commercial grade computer programs and software services

Who Should Attend

This MasterClass is an essential resource for any NRC or DOE facility, regulatory, customer, contractor, EPC, or supplier that must meet the requirement ASME NQA-1-2008 with the 2009 addendum.

SPECIAL REQUIREMENTS

This MasterClass is structured on the assumption that participants have a basic understanding of the software QA requirements found in ASME NQA-1 Parts I and II.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Norman P. Moreau
1 DAY, .8 CEUs, 8 PDHs
PRICING ON WEBSITE

BASES AND APPLICATION OF EXTERNAL PRESSURE AND COMPRESSIVE STRESS MECHANICAL DESIGN RULES IN SECTION VIII & CODE CASE 2286 OF THE ASME BOILER AND PRESSURE VESSEL CODE

MC106

This one-day MasterClass provides the history and bases for the compressive stress related procedures and rules for the mechanical design of pressure vessels that are supplied with the ASME Mark. The rules of Division 2 Part 4.4 & Code Case 2286 were developed from a long term extensive testing program. These rules and methodology are applicable to a wide range of plate structures including tanks and tubular structures. Through both presentation and discussion, attendees gain a greater appreciation and understanding of how these compressive stress application rules can be applied to practical design situations.

The class includes detailed example problems that demonstrate how the rules are to be applied as well as their limitations. Examples are illustrated using Mathcad models of the compressive stress calculation procedures with comparison to allowable stress criteria.

On completion of this ASME MasterClass, you will be able to

- Explain the basis of Section VIII, Division 1 sections UG-23, UG-28 & UG-29 current rules and how they compare to the CC 2286 technology and procedures
- Evaluate the significance of the various parameters used in the design of pressure vessels and other large plate structures (tanks) designed for load conditions that produce compressive stress
- Apply calculation applications and procedures that optimize design of plate structures for compressive stress conditions
- Interpret the significance of calculated compressive stresses

Who Should Attend

This MasterClass is an important resource for engineers involved in the design/construction of large scale process vessels, tanks, tubular column and/or plate structures that are subject to compressive loading conditions.

SPECIAL REQUIREMENT

This MasterClass is structured on the assumption that participants have a basic understanding of ASME Boiler & Pressure Vessel Code Section VIII.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: Wesley S. Jacobs
1 DAY, .8 CEUS, 8 PDHs
PRICING ON WEBSITE

DESIGN BY ANALYSIS REQUIREMENTS IN ASME BOILER AND PRESSURE VESSEL CODE SECTION VIII, DIVISION 2 – ALTERNATIVE RULES

MC107

This MasterClass program provides an understanding of the analytical methods found in Part 5 of Section VIII, Division 2 as well as to convey practical information on how to meet the requirements using Finite Element Analysis (FEA). Discussion on the background of the analysis methods and their appliction is presented through the ASME Pressure Technology Bulletins, PTB-1-2013 Section VIII - Division 2 Criteria and Commentary and PTB-3-2013 Section VIII - Division 2 Example Problem Manual. The attendees gain an appreciation and understanding of how these analytical techniques can be applied to practical design situations. The class will include detailed example problems that demonstrate how the analytical techniques are to be applied, and their limitations. Detailed FEA models will be presented to help illustrate the various analytical techniques.

This MasterClass provides an in-depth examination of the techniques used in Design by Analysis (DBA) of pressure vessel design. The program includes discussions on general requirements for numerical simulation using FEA; material modeling requirements for use with FEA; design load combinations for pressure vessel design; design for protection against plastic collapse using elastic stress analysis, limit load, and elastic-plastic stress analysis; background and requirements for the new strain limit criterion; buckling analysis types and differences in design margins; fatigue analysis using smooth bar and welded joint technology in the new structural stress approach; ratcheting assessment using both elastic and elastic-plastic analysis; and a special emphasis on the evaluation of thermal stresses.

On completion of this ASME MasterClass, you will be able to

- Define the basis and application of the design by analysis techniques to ensure proper vessel design.
- Apply the design by analysis techniques to the evaluation of inservice components through the Life-Cycle Management Process and the relationship to API 579-1/ASME FFS-1 Level 3 Assessments.
- Evaluate the basis of design by analysis techniques; compare with other International Pressure Vessel Codes, EN 13445 and PD 5500.

Who Should Attend

This Masterclass is intended for pressure vessels engineers working for Owner-Users, manufacturers or engineering and design construction firms in the refining, petrochemical, and other comparable industries that desire a practical understanding of one of the major areas of the new Division 2 of ASME Boiler and Pressure Vessel Code Section VIII.

SPECIAL REQUIREMENTS

This MasterClass is structured on the assumption that participants have a basic understanding of ASME Boiler & Pressure Vessel Code Section VIII Division 2 and FEA.

Prior to the event, attendees will be given the opportunity to submit questions or examples of real-life scenarios that they would like discussed in-class with the group.

INSTRUCTOR: David A. Osage
1 DAY, .7 CEUs, 7 PDHs
PRICING ON WEBSITE

The ASME MasterClass Series is a new learning format recently launched by ASME Training and Development. They are premium learning programs comprised of advanced topics aimed at experienced engineers, emphasizing learning through discussion of real world case studies and practical applications. Recognized experts lead in-depth sessions that address current issues and best practices to inspire interactive discussions and group knowledge-sharing.

A roster of MasterClasses are currently in development in addition to the available programs listed in this Catalog.

Topics include:

- Turbine Generator Failure Prevention
- Vibration Failures of Turbines and Generators
- Application of Piping Flexibility Analysis to ASME B31 Codes
- Piping Design Practices and Failure Issues for Power Piping Systems
- Piping Vibration Causes and Remedies – a Practical Approach
- Structural Materials and Design for Elevated to High Temperatures
- Techniques and Procedures in API 5 79-1/ ASME FFS-I for State-of-the-Art Fitness for Service Assessments

… and more

Additional ASME MasterClass learning programs are in development.

For the latest information about the MasterClass Series, visit go.asme.org/masterclass or contact Jennifer Delda, Program Manager, at deldaj@asme.org

eLEARNING COURSES

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- Advanced Finite Element Analysis **EL508** **TOP SELLER**
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25 August – 6 October, 2014
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8 December 2014 – 12 January 2015
26 January – 9 March, 2015

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- Basic Gas Turbine Engine Technology **EL540**
- BPV Code, Section III, Division 1: Class 1 Piping Design **EL542**
- BPV Code, Section III, Division 1: Class 2 & 3 Piping Design **EL543**
- Design of Buried High Density Polyethylene (HDPE) Piping Systems **EL544**
- FE Exam Review Online Self-Study Course **EL537**
- Heating, Ventilation and Air-conditioning (HVAC) **EL538**
- Hydraulic Design of Liquid or Water Piping **EL539**

ONLINE ASSESSMENT BASED

- ASME Boiler & Pressure Vessel Certification Process **ZABC9**
- ASME/ANS RA-S Standard for Level 1/ Large Early Release Frequency PRA for NPP Applications **NEW!** **ZABC55**
- Basic Gas Turbine Engine Technology **NEW!** **ZABC49**
- Changing Organizational Culture **ZABC8**
- Energy Choices: The Facts, Challenges and Limitations of Energy Sources **ZABC1**
- Essentials - A17.6 Standard **NEW!** **ZABC28**
- Essentials - ASME B133.8-2011 Gas Turbine Installation Sound Emissions **NEW!** **ZABC44**
- Essentials - B30 Safety Standard **ZABC27**
- Essentials - B31.1 Power Piping **ZABC14**
- Essentials - B31.3 Process Piping **ZABC15**
- Essentials - B31.8 Gas Transmission and Distribution Piping Systems **ZABC12**
- Essentials - Basic Concepts of PTC-19.1 Test Uncertainty **NEW!** **ZABC31**
- Essentials - Bioprocessing Equipment (BPE) **ZABC13**
- Essentials - BPV Code, Section III, Division 1: Rules for the Construction of Nuclear Facility Components **ZABC20**
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- Essentials - BPV Code, Section IV: Rules for Construction of Heating Boilers **ZABC35**
- Essentials - BPV Code, Section IX: Welding and Brazing Qualifications **ZABC18**
- Essentials - BPV Code, Section V: Nondestructive Examination **ZABC17**
- Essentials - BPV Code, Section VIII, Division 3 **ZABC11**
- Essentials - BPV Code, Section XI, Division 1: Rules for Inservice Inspection of Nuclear Plant Components - A Detailed Overview **NEW!** **ZABC51**
- Essentials - BPV Code, Section XII: Rules for the Construction & Continued Service of Transport Tanks **ZABC10**
- Essentials - CSD-1 Control & Safety Devices for Automatically Fired Boilers **NEW!** **ZABC48**
- Essentials - ASME Nuclear Air and Gas Treatment (CONAGT) **NEW!** **ZABC46**
- Essentials - Performance Test Codes: PTC-4 Fired Steam Generators **NEW!** **ZABC52**
- Essentials - PTC-25 Pressure Relief Device **ZABC36**
- Essentials - PTC-6 Testing Steam Turbines **NEW!** **ZABC37**
- Essentials - PVHO-1 Standard **ZABC16**
- Essentials - Rules for Construction of Single-Failure-Proof Cranes and Cranes in ASME NOG-1 and ASME NUM-1 **ZABC38**
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- Financial Resource Management for Engineers **ZABC40**
- Fundamentals of Nanomanufacturing and Applications **ZABC25**
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Visit: go.asme.cursosespanol

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20 octubre-1 diciembre, 2014
08 diciembre 2014-12 enero 2015
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Timothy M. Adams is the corporate chief mechanical engineer of JD Stevenson and Associates. He has over 29 years experience in the design of pressure retaining components to Section III and Section VIII of the ASME Boiler and Pressure Vessel Code and the B31 series codes. Adams is responsible for project management; and provision of technical consulting and design work in the areas of design/analysis of piping systems; pressure vessels/tanks; mechanical equipment; structures; and application of industry consensus codes and standards for the electric power generation; petrochemical; and process industries and DOE nuclear waste processing facilities. He serves on several ASME committees and has authored over 50 publications.

Ted Anderson, Ph.D., P.E., is chief technology officer, Quest Integrity Group, is a world-renown expert in fracture mechanics and fitness-for-service methods. He is the author of a best-selling book on fracture mechanics, which is a required text in over 100 universities worldwide. He was instrumental in the development of the original API 579 Fitness-for-Service document, and continues to be active on the joint API/ASME Fitness-for-Service Committee. He founded Structural Reliability Technology (SRT) in 1995, which was acquired by the Quest Integrity Group in 2007. Previously, he was a member of the mechanical engineering faculty at Texas A&M University. Prior to that he was a senior research engineer at The Welding Institute in Cambridge, England. He received a Ph.D. from the Colorado School of Mines.

George Antaki, P.E., is a fellow of ASME, and is chair of ASME III Working Group Piping Design and chair of the ASME B31 Mechanical Design Committee. Antaki has over 38 years' experience in tanks, vessels and piping systems in the power and process industries. He has authored two textbooks on the subject including Piping and Pipeline Engineering as well as many papers and bulletins in the field of equipment integrity and failure prevention. A practicing mechanical engineer, he is active in equipment and systems design, analysis and qualification, procurement, construction, inspection, maintenance, fitness-for-service and failure investigation.

Thomas L. Bever, P.E., is a veteran of numerous engineering design and management positions in aerospace, electronics, pumps, chemicals, gasses and automotive equipment. Bever is currently senior project manager at CDG Enterprises. He came to CDG following seven years with Permea, a division of Air Products Corporation. The holder of two patents on machinery for the manufacture of semiconductor materials, Bever is an adjunct professor of mechanical engineering at Washington University in St. Louis as well as past chairman of the St. Louis section of ASME.

John Blanton is chief consulting engineer, Heat Transfer, for GE Energy. With over 30 years' engineering design and analysis experience in industrial and aircraft engines with GE Research, GE Aviation and GE Energy, his work has included leadership of industrial gas turbine alternative fuels research programs, including industrial gas turbine compressor design and SCRAMjet propulsion system studies. For the past 20 years his work has focused on gas turbine heat transfer and thermal management. Blanton also has been an adjunct faculty at Union College in Schenectady, New York, and at the University of Cincinnati. He is an active member of ASME and AIAA and serves on several IGTI technical committees.

Robert D. Blevins, Ph.D., is a member of the ASME Special Working Group on Structural Dynamics and the Pressure Vessel Research Council's Committee on Dynamic Analysis of Pressure Components. Blevins has more than 25 years' experience in flow-induced vibration. Having earned a Ph.D. from the California Institute of Technology, he is a frequent consultant to government and industry. Blevins is the author of three books and over 30 papers on fluid flow, structural dynamics and flow-induced vibration.

Douglas A. Brown has been involved with the nuclear power industry for more than 33 years. His activities have included design, procurement, construction, testing, operations, maintenance and refueling of both BWRs and PWRs. A leader in the development of ASME codes and standards, Brown is the past chairman of the ASME Nuclear Quality Assurance Committee.

Greg W. Brown, Ph.D., is principal consulting engineer and general manager of Advanced Engineering for the Quest Integrity Group. In 2001, he joined Structural Reliability Technology (later became part of Quest Integrity Group). Previously, he developed algorithms to update industrial finite element models using experimental measurements and performed flutter analyses of F16 and F18 fighter aircraft. Structural Reliability Technology performed much of the work that was incorporated into API 579. He currently performs computational mechanics and CFD analyses, specializing in litigation and failure analysis. His group performs Fitness-For-Service assessments for a variety of industries using API 579. He also develops specialized software and methodologies for structural analysis and life assessment.

Terrance L. Chan, P.E., is the founder of Bay Group International, a consulting firm specializing in the areas of nuclear regulatory assistance and response, regulatory licensing, design, construction, inspection, ASME Boiler and Pressure Vessel Code and independent third-party assessments. He has over 33 years' experience in the nuclear power industry, including nuclear construction and the US Nuclear Regulatory Commission. Chan is a member of the ASME Boiler and Pressure Vessel Code, Section XI Standards Committee, as well as ASME Section XI technical committees including Subgroup on Nondestructive Examination and the Special Working Group on Industry Experience for New Plants.

Bruce Chehroudi, Ph.D., has been an award-winning scientist for nearly 20 years in several engineering disciplines. He has worked in various capacities with some of the country's leading corporations and institutions, including Raytheon STX, Ford, The University of Illinois, Princeton University, GM, Honda R&D, Honeywell, NASA and TRW. He is the author of more than 90 publications in scientific and management areas.

Derrick Chevalier is an internationally acclaimed consultant with more than 21 years' experience who has facilitated hundreds of seminars and workshops throughout the United States, Canada, Mexico, and elsewhere. He has consulted and worked with engineers, technical professionals, project managers, business development executives from a wide range of disciplines and areas including, electrical, mechanical, bridge maintenance, aerospace, transportation, manufacturing, Information technology, bio-chemistry, pharmaceuticals, nutrition, real estate, finance and accounting.

Robert A. Cimini, PMP, has over 30 years' diverse manufacturing and consulting experience with companies serving the biopharma, automotive, aerospace, agricultural, OEM, plastics molding, specialty machinery and natural gas/ LNG markets. He has held positions from process engineer through plant management with small, privately owned operations as well as large, multiple division corporations. He is currently a Project Management Consultant. A certified project management professional (PMP), Cimini is a member of the Project Management Institute (PMI) as well as the institute's New Hampshire Chapter. He held the position of Risk Special Interest Group Liaison and served as a team member on PMI's Program/ Portfolio Management Standards project. Rob earned his B.S. degree in Chemical Engineering from the University of Notre Dame and a Master's Degree in Chemical Engineering from the University of New Hampshire.

William H. Closser, Jr., serves as senior consultant for physical asset management and equipment reliability programs. His areas of expertise include work management and control, spare parts planning and procurement, plant configuration management, equipment reliability and plant operations to improve performance through the implementation of physical asset management and equipment reliability best practices. With over 25 years' experience in physical asset management and equipment reliability, Closser has led teams and managed projects for clients in industries ranging from fossil and nuclear power generation, open-pit copper mining, steelmaking and airplane manufacturing, to semiconductors, petrochemicals and government. His work has included developing strategic plans and leading client teams in developing and implementing processes, procedures, and key performance indicators for work management, equipment reliability, procurement, warehousing, configuration management, document control, and risk management.

Jack R. Cole, P.E., has over 35 years' experience in the nuclear power industry, including nuclear waste management, plant construction and commercial power plant design. Cole is retired from Energy Northwest, the operator of the Columbia Generating Station BWR in Richland, Washington. He last served as the Design Authority responsible for plant civil/ structural/stress licensing basis compliance. Cole has been an active member of ASME Section III Codes and Standards for the past 26 years. He is currently vice chairman of BPV Committee on Construction of Nuclear Facility Components (III), chairman of the BPV III Executive Committee on Strategy and Project Management, chairman of the Special Committee on Interpretations (BPV III), member of the Subgroup on Component Design (BPV III), member and past chairman of the Working Group on Piping, and past member of the Working Group on Supports (III). He is currently an advisory engineer to Becht Engineering's Nuclear Services Division

Gary Dichtenberg is a recognized expert in persuasion and communications skills. He is the president of training and development firm Professional Development Associates, which he founded following similar work at Citicorp and Consolidated Edison. He has since conducted numerous workshops and provided consulting services to companies such as MassMutual, Delta Air Lines, Lucent Technologies and Pfizer. Dichtenberg is a member of the commercial panel of the American Arbitration Association, the Network of Organizational Development Practitioners and the American Society for Training and Development.

Paul Drake developed the successful application of Six Sigma mechanical processes at Raytheon Systems Company, where he co-managed the Mechanical Tolerancing and Performance Sigma Center for Excellence. Drake is an ASME certified senior level geometric dimensioning and tolerancing professional, a registered professional engineer and has earned a Six Sigma black belt.

Philip D. Flenner, P.E., has spent more than 38 years in welding qualifications and training, engineering training, power plant maintenance and performance assessment. He has developed several guidelines on material control, repair methods and the use of codes and standards for the power industry. He participates significantly on several piping codes, welding qualification codes and materials codes, and has gained the honor of ASME fellow. He has taught multiple ASME continuing education courses for over 20 years.

Joe Frey, staff consultant at Stress Engineering Services, Inc. (SES) is a licensed engineer who previously spent 24 years at Houston Lighting & Power and Reliant Energy where he was responsible for providing engineering support for the FFS program for all boilers, pressure vessels and high energy piping. Since joining SES in 2004 he has worked several emergency repairs, including eight fire assessments in the last four years. He is currently chair of the ASME B31.1 Power Piping Code Committee.

Marcus Goncalves has over 15 years' management consulting experience in North America, South America, Europe, the Middle East and Asia. Goncalves specializes in Knowledge, Project Change and Risk Management practices, and has published more than 30 books in the United States, and is often invited to speak on these subjects worldwide. He is a member of the project Management Institute and a certified project management professional (PMP), and was simultaneously awarded Who's Who in the "US Executives" and in the "Computer Industry" by the Rockefeller and Carnegie Foundations. He holds a master's degree in Computer Information Systems and a BA in Business Administration.

Dyer Harris, Ph.D., P.E., is currently a senior consulting engineer with the Warren Group and president of Equipment Engineering Services. He has over 30 years' experience in industrial thermal systems analysis, heat exchangers, process equipment, two-phase flow and HVAC. As a research engineer for DuPont at the Savannah River Site (SRS), Harris specialized in heat transfer at high thermal flux in reactors and heat transfer related to nuclear waste processing. As a consulting engineer he analyzes, designs and troubleshoots heat treatment processes for various industries. He has taught thermodynamics and heat transfer at the University of South Carolina and Villanova University, and currently teaches at the University of Delaware.

Ronald W. Haupt, P.E., has more than 40 years' experience in the design and analysis of industrial process and energy-related structures, equipment, piping, pipelines and supports. Currently a consulting piping engineer for Pressure Piping Engineering Associates, he is an active member of several ASME and other national codes and standards committees.

William R. Hayes, P.E., has extensive industrial experience in the design and application of pumps and valves for numerous major corporations. Currently president of consulting engineering firm W.R. Hayes Associates, he holds several patents in both the pump and valve fields. In addition to his work in pumps, valves and system hydraulics, Hayes has demonstrated expertise in noise and vibration analysis and solving problems in those areas.

Charles J. Hellier founded Hellier Technical Training and Consulting from which he retired in 2011. He is an independent consultant and principal of The Summit Group. He is also vice president of NDTclassroom, Inc., and is engaged in the development and promotion of a complete online training series on nondestructive testing and inspection. Active in the technology of nondestructive testing and related quality and inspection fields for over 50 years, Hellier is frequently called upon to provide independent third-party assessments and to assist in the resolution of disputes as an expert witness. Hellier authored the Handbook of Nondestructive Evaluation 2nd edition. He holds an ASNT Level III Certificate in five methods and is a Board Certified Forensic Examiner and holds memberships in ASME, ASTM, ASM, AWS, ACFE and ASNT (lifetime,fellow, and past president). He is also past president and remains active with the Nondestructive Testing Management Association (NDTMA).

Jeff Henry has worked in the power industry for more than 35 years, where his activities have focused on the elevated temperature behavior of materials, failure analysis, condition assessment, and welding metallurgy. He is active on several technical committees of the ASME Boiler and Pressure Vessel Code and is current chair of BPV II as well as the chair of the Task Group on Creep Strength Enhanced Ferritic Steels.

Jack Hipple is a principal of Innovation-TRIZ based in Tampa, FL. He leads innovation problem solving sessions with clients and trains in the TRIZ Inventive Problem Solving Process and other state-of-the-art innovation and creativity methods. Hipple has 35 years' experience in the chemical and materials industries and in the use of innovation and creativity tools, including 26 years with Dow Chemical, where he was responsible for global chemical engineering research as well as for the Discovery Research program at its largest technology location in Michigan. Subsequently, he was responsible for major new technology programs at Ansell Edmont and Cabot Corporation. Prior to forming his own company, Hipple was a senior consultant with Idea Connections and business development manager for Ideation International, a leading developer of TRIZ methodologies.

Greg L. Hollinger has over 35 years' experience in power related industries, including commercial nuclear power and other nuclear power technologies. He has 30 years' experience with The Babcock & Wilcox Nuclear Power Generation Group in areas of design, code certification, completed component shipping, quality assurance and technical training on nuclear and non-nuclear codes and standards. Hollinger currently is Senior Advisory Engineer at Becht Engineering's Nuclear Services Division. He is a member of ASME Boiler and Pressure Vessel Nuclear Code committees and the ASME Board on Nuclear Codes & Standards. He is an ASME Section III Appendix XXIII Certified Registered Professional Engineer. In 2004 he was honored with the ASME Pressure Vessels and Piping Division Medal.

Ronald H. Howell, Ph.D., P.E., has more than 40 years experience teaching refrigeration, heating and air conditioning, thermal analysis and related areas. He has also helped develop educational and experimental laboratory equipment. Howell's industrial and consulting work includes solving ventilation and condensation problems and creating and implementing a complete air curtain test program. A fellow of ASHRAE and a member of ASME, he was also chairman of mechanical engineering at the University of South Florida.

Gene Imbro has worked in the commercial nuclear power industry since 1969 and has broad knowledge of light water reactor (LWR) designs and operation. His career began at combustion engineering, a nuclear steam supply system vendor, where he was involved with the design of reactor coolant and accident mitigation systems. Imbro also worked for an architect/engineering firm as a systems designer for balance of plant and other A/E supplied systems before joining the United States Nuclear Regulatory Commission (USNRC) where he worked for 33 years. Imbro served as NRC's deputy director, Division of Construction Inspection and Operational Programs in the Office of New Reactors. During the past 20 years, Imbro has actively participated on ASME committees dealing with pressure boundary design and repair, operations and maintenance as well as nuclear quality assurance. Since his retirement from the NRC, Imbro has performed consulting work for the NRC, other foreign regulators and reactor vendors.

San Iyer has over 20 years of experience in the nuclear pressure vessel and piping industry. He is currently the manager of the engineering group responsible for the reactor design/analysis and fabrication with Atomic Energy of Canada Ltd. Dr. Iyer has guided several professional engineers for the successful completion of projects in nuclear pressure vessel and piping design, fabrication, and installation at reactor sites. His work has been published in several international journals and presented at conferences. Iyer is part of the Design & Analysis Committee in the Pressure Vessel & Piping division of ASME.

William S. Janna Ph.D., is a Professor of Mechanical Engineer at theUniversity of Memphis. He earned his BS, MS, and PhD degrees from the University of Toledo. He has taught at the University of Memphis for 24 years. Janna worked at the University of New Orleans for 11 years; serving four years as chair of the mechanical engineering department. Janna has written three textbooks: Introduction to Fluid Mechanics, Engineering Heat Transfer, and Design of Fluid Thermal Systems. He has also been a contributing editor to several handbooks, and has written numerous research papers. Janna serves as a textbook reviewer for Applied Mechanical Reviews, and has taught the economics of pipe size selection in the ASME Professional Development Program.

James D. Keith has extensive experience teaching all aspects of Geometric Dimensioning & Tolerancing, having worked in a variety of capacities within the GD&T field coupled with more than 40 years' experience in structural mechanical and electrical design/checking and manufacturing. Keith's background includes over 30 years' experience in course development and instruction of GD&T as well as design checking and blue print reading at the industry and college level. He is the vice chair of the Committee for the ASME Y14.43 Standard for Gages & Fixtures, and a member of the ASME Y14.3/4 Committee (Orthographic and Pictorial Views); ASME Y14.5 Committee (Dimensioning and Tolerancing); ASME Y14.8 Committee (Forging and Casting); ASME Y14.36 Committee (Surface Texture); ASME Y14.45 Committee (Measurement Data Reporting); ASME Y14/B89 Joint Working Group (Definition of Engineering Measurands); and ASME B89.4.21 Practical CMM Applications. Keith is the owner of Critical Concepts, a consulting and prototype manufacturing shop.

Carolyn Kolovich began her career at Kiefner and Associates after graduating from Ohio State University with a degree in mechanical engineering. During her time at Kiefner and Associates, she has been involved in many aspects of pipeline integrity including in-line inspection analysis, integrity management planning and defect assessment. She is a member of the ASME B31.4 Committee.

William Koves, Ph.D., P.E., has over 40 years experience in the designand analysis of pressure equipment. He is currently chair of the ASMEB31 Mechanical Design Technical Committee. Koves also has extensive involvement and leadership roles in other ASME committees in the areas of process piping, flaw evaluation, post construction repair, BPV design analysis, elevated temperature design, bolted flange joints, pressure vessel research on piping and nozzles, and shell interactions. He is author of over 30 publications and recipient of many committee, society and company awards. He holds 24 U.S. and three European patents.

Robert Krieger is a consultant in the elevator industry and a provider and facilitator of educational and administrative services to employers participating in vertical transportation education programs including the National Association of Elevator Contractors Educational Certification Programs. He has over 25 years' experience in the conveyance industry. Krieger holds certification as a CET-S with the National Association of Elevator Contractors, QEI with the National Association of Elevator SafetyAuthorities International, Journeyman Mechanic and NEIEP instructor with the International Union of Elevator Constructors and certified biomedical equipment technician with clinical lab specialty with International Union of Operating Engineers.

Paul Kurowski, Ph.D., is director of engineering development at Genexis Design Inc., a consulting firm specializing in product development and customized personnel training. He has taught element analysis, machine design, experimental stress analysis, solid modeling, biomechanics, mechanics of materials and design optimization at colleges, universities and companies. A member of the Society of Automotive Engineers and the Association of Professional Engineers of Ontario, he has written and lectured extensively.

David E. Lay, BA, MBA, is the director of Training for Hytorc, the largest manufacturer of hydraulic bolting tools. He has been involved in the teaching of both the theoretical and practical aspects of heavy industrial bolting since 1992 and has been involved in corporate training for over 25 years. He is the author of several multimedia courses that have been adopted as teaching standards for union apprentice programs in the millwright and pipefitter trades across North America. Lay is an affiliate member of ASME and brings a practical view of complex problems that can be understood by workers and non-engineers, yet withstands the rigors of quantitative review. He is a member of the Post-Construction Standards Committee and the Bolted Flange Joint Subcommittee of ASME, which recently created the PCC-1-2010 "Guidelines for Pressure Vessel Boundary Bolted Flange Joint Assembly" document.

Robert Allan Leishear, Ph.D., P.E., is a fellow engineer at the Savannah River National Laboratory. His focus has been on fluids, structural, and machinery dynamics. He has extensive experience as a research, design, test, and plant engineer. Leishear has created or taught several courses in areas such as pump technology used to remove nuclear waste, vibration analysis and water hammer. Leishear has served on the ASME B31.3. Committee, subgroup on design, and the ASME B31 Mechanical Design Committee, serving as a Project Manager and principal author for writing a new Standard, ASME B31D - Piping Design for Fluid Transient Dynamic Loads. He earned his B.S. in mechanical engineering from the Johns Hopkins University, and both his master's and doctorate in mechanical engineering from the University of South Carolina. He has published several research articles and text books.

Ron Leonard, P.E., is a 0rincipal consultant with Life Cycle Engineering (LCE), specializing in maintenance and reliability technology management. He has over 34 years' experience as a service/maintenance engineer in R&D, project engineer, supervisor, A/QC manager and chief inspector and, more recently, reliability lead for the Worldwide Maintenance Network. He specializes in change management as a Prosci® Authorized Training Provider Certified Instructor and practitioner. Leonard's change management instruction and consultation experience spans the medical appliance, health care, finance, pharmaceutical, food and mining industries. Serving ASME for over 40 years, he achieved the position of "fellow" in 2004, and is currently chair of ASME's Post Construction Standards Committee and a member of the Board on Pressure Technology Codes and Standards.

Bill Lowry, P.E. has 44 years' experience working in the design of industrial steam and power generation facilities. He has operated a municipal steam-electric generation plant, including a unit he designed. Recently retired, Lowry remains a consultant for power and steam projects. He is currently a member of ASME Code Subcommittee I-Power Boilers and has over 42 years of active ASME Code membership. Lowry recently completed an editorial rewrite of the ASME Code VII-Recommended Guidelines for the Care of Power Boilers.

Mohammad A. Malek, Ph.D., P.E., is a professional engineer registered in the United States and Canada. He has more than 25 years experience in design, construction, installation, operation, maintenance, inspection, and repair of boilers and pressure vessels. He was chief boiler inspector for the state of Florida from 1998- 2006, and has been an ASME instructor since 2001. Malek has authored the following books on boiler and pressure vessel engineering: Power Boiler Design, Inspection, and Repair (McGraw-Hill, 2004), Pressure Relief Devices (McGraw-Hill, 2005) and Heating Boiler Operator's Manual (McGraw-Hill, 2007).

Jackie Martin of Training Systems, Inc., is dedicated to helping small and medium size organizations enhance their ability to recruit, inspire and retain quality employees and improve performance through training. The company also provides training design and facilitation services to training companies, the training departments of large companies and trade and professional associations. Martin is also currently a leader in an international direct selling organization where she directs a team of independent business owners providing support and training both on a local and national level. She is also the former director of communications and training for Citizens Against Crime and a national franchise company, for which she has facilitated thousands of seminars for companies across the country.

Zack R. McCain Jr., P.E., runs McCain Engineering Associates, Inc., a company specializing in vertical transportation. Prior to that he worked in an engineering capacity for the U.S. Army Corps of Engineers, the General Services Administration and the U.S. Postal Service. An ASME fellow and certified elevator inspector, he is currently chair of the Working Committee on Maintenance, Repair and Replacement.

James D. Meadows is a consultant and seminar leader who has trained over 25,000 professionals and has written eight textbooks on applying and measuring geometric tolerances. He chair of the new standard, Dimensioning and Tolerancing Principles for Gages and Fixtures. Meadows is also active in 10 other ANSI/ASMEand ISO standards committees.

Keith Mobley is a principal consultant with Life Cycle Engineering. With an international reputation earned as a leader in corporate transformations, reliability engineering and process optimization, Mobley has 45 years' combined business, finance, engineering and consulting experience in a wide variety of industries. He has 20 years' international consulting experience and 25 years' experience in senior level corporate positions, including president and CEO of an international consulting, engineering services and training company specializing in corporate transformations. Mobley is on the advisory boards of ANSI, ISO and other organizations, a Distinguished Lecturer for ASME and recipient of the Smarro Award for outstanding contribution in engineering and reliability. He is also certified by Prosci in change management. Mobley is the author of 22 textbooks including Total Plant Performance Management and Introduction to Predictive Maintenance.

Kamran Mokhtarian, P.E., has 40 years' experience in design, analysis and fabrication of pressure equipment. He presently performs consulting services to the pressure vessel industry. He is a member and past vice chair of ASME Code Subcommittee VIII, a member of ASME Post Construction Committee, ASME/API Joint Committee on Fitness-For-Service and a number of other professional organizations. He is also a past chair of the Pressure Vessel Research Committee (PVRC).

Frederick J. Moody has spent more than four decades with General Electric Company designing and analyzing boiling water nuclear reactors, containment, components and fluid flow systems. He has taught advanced engineering courses for the company and as an adjunct professor at San Jose University. Moody received the George Westinghouse Gold Medal Award in 1980, the ASME Pressure Vessel and Piping Award in 1999, and was inducted into the Silicon Valley Engineers Hall of Fame in 2000.

Albert J. Moore Jr., is a principle of Marion Testing & Inspection, which has provided welding and NDT consulting services and third party inspections since 1989. His credentials include certifications as an AWS senior certified welding inspector with five endorsements and a NOCTI certified welding instructor. He currently holds ASNT ACCP Professional NDT Level III certificates in four NDT test methods: RT, UT, MT and PT. Moore earned an AS in civil technology (steel design), a BS in applied science and welding technology, an MBA as well as a certificate of professional development from the Department of Welding Engineering of Ohio State University. He has been certified for the SMAW, GMAW, FCAW, GTAW, and SAW processes. He is a member of the AWS Certification Committee and the AWS Committee for Methods of Inspection as well as several certification subcommittees and the subcommittees responsible for the Guide to Visual Inspection of Welds and the Welding Inspection Handbook. Moore is also a contributing author for Inspection Trends published quarterly by the AWS.

Norman P. Moreau is president and a senior management consultant for Theseus Professional Services, LLC. He has been involved in software development and software quality assurance for over 20 years. Since 1990 he has been an active participant on the ASME Committee on Nuclear Quality Assurance (NQA). Moreau was recently elected the first chair of the new Subcommittee on Software Quality Assurance. He has been a subject matter expert, auditor and appraiser on the behalf of commercial and government users of computer software. He is a registered professional engineer and holds a bachelor's degree in mechanical engineering and a master's degree in software engineering administration.

David Morley is the quality assurance manager at S.A. Technology, responsible for overseeing implementation of S.A. Technology NQA-1 and ISO-9000 QA programs. Morley has 25 years' experience in quality assurance and quality control. He is certified as alead auditor to ASME NQA-1, ISO 9001 and N45.23. Morley is also an ANSI N45.2.6.inspector. He possesses excellent experience and knowledge in DOE, commercial nuclear power and commercial industry programs and requirements. In 2009 Morley became an active member of the ASME NQA-1 Committee.

Bernie Nally, MBA, PMP, PgMP, holds a BS in engineering from the United States Military Academy at West Point, New York and an MBA from Oklahoma City University. He was a ballistic engineer for the United States Army Field Artillery serving in Europe and Director of the U.S. Army Rocket School at Fort Sill, Oklahoma. Nally is a reserve officer professor of military science at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. At AT&T, he is an outside plant telephone design engineer for Tulsa, Oklahoma, a project manager for a four-million dollar outside plant construction project for the US Army at Fort Monmouth, NJ and a mentor for Program Management Professional (PgMP) candidates in Hong Kong and Rio de Janeiro. He has been an ASME instructor, through the Marcus Goncalves Consulting Group.

Scott Neumann is a senior partner in Technical Consultants Inc. He specializes in geometric tolerancing and tolerance stack-up and analysis. Neumann has presented many geometric tolerancing training programs to engineering, manufacturing and quality personnel at major corporations in the United States and around the world. He was a major contributor to the Geometric Tolerancing Applications and Stacks workbook and the Geometric Tolerancing Stacks and Analysis workbook. He is certified as a geometric tolerancing professional and represents the US in the International Standards Organization, ISO TC10 Committee. He regularly attends the ASME Y14.5M Subcommittee on Dimensioning and Tolerancing.

(Ian) Andrew Norman has over 30 years' experience in the manufacturing industry as a lubrication specialist and manufacturing engineer, college instructor, equipment superintendent, diesel propulsion systems expert, maintenance consultant and mechanical equipment expert. Norman has held various positions in the lubrication field engineering arena with D-A Lubricants Co. and Chevron Lubricants Co., and was a certified lubrication specialist (CLS) with the American Society of Tribologists and Lubrication Engineers. He has broad experience in diesel engine manufacturing and management with Cummins Engine Company. Additionally, he published two textbooks on diesel engines and related heavy equipment during his tenure at Trident Technical College as head of their Diesel Heavy Equipment program. Norman has conducted extensive on-site assessment, training and consulting work with clients such as Georgia Pacific, Harley Davidson, Chemical Lime Corporation, Amoco Chemicals, Kerr-McGee Chemical, Lockheed Martin Corporation and Wyeth-Lederly Pharmaceuticals. He also served as Ashcom Technologies' Director of Maintenance Strategies, and currently serves as the executive vice president of Norman and Associates LLC. Norman earned his B.S. in Agricultural Sciences and Journalism from the University of Georgia.

Walter O'Brien teaches and consults on turbomachinery and gas turbines and is a consultant to industry and government in gas turbine related areas. He actively researches on unsteady processes in compressors and has conducted investigations on the use of alternate fuels in gas turbines. O'Brien is an active member of the AIAA, ASME and ISA, a U.S. AGARD panelist, and serves on several IGTI technical committees. He is Mechanical Engineering Department Head at Virginia Polytechnic Institute. His experience includes work in propulsion, combustion, instrumentation, analysis and design of electromechanical devices and product development.

Martin Phillips, Ph.D., ACC, joined Kiefner and Associates, Inc. in 2008 following 21 years with PII (now GE PII Pipeline Solutions) in the UK, Paragon Engineering Services in Houston and CC Technologies (a DNV Company) in Columbus, Ohio. His role at Kiefner & Associates, Inc. is to strengthen existing expertise in the use of different ILI technologies for pipeline integrity management, particularly for crack detection and evaluation, risk assessment and risk management, integrity management planning and procedure development. Previously Phillips gained expertise in assisting operators with responding to crack detection ILI reports, risk analysis, software development, probability of exceedance calculations special permit projects, an independent monitoring contractor role, failure investigations IMP development regulation interpretation and leak detection systems. He earned his B.Sc. in Physics & Chemistry and his Ph.D. in Physics, from Aston University in Birmingham, UK and his ACCA, Diploma in Accounting & Finance, from the University of Northumbria, UK. He is a member of NACE, PIPE, PPSA and the Institute of Physics (UK).

Brian E. Porter, P.E., PMP, has over a decade of experience in project management, product development, engineering, safety listings, patents, business strategy and start-up management in computer sales, consumer products, hazardous waste industry, industrial manufacturing and retail product markets. He has maintained his professional engineering license in the state of Illinois. He also has multiple patents within the US and numerous patents pending both domestically and internationally. Porter is a member of the Project Management Institute and has credentials as a project management professional (PMP) and is seeking his PgMP in the near future. His international efforts include working with firms in China, Canada, Mexico, Romania, Thailand, Malaysia, Australia, Japan, Sweden, Israel, Great Britain, Egypt, Italy and Germany. He holds a bachelor's degree in chemical engineering from the University of Illinois at Chicago and a master's degree in management with specialty in project management from Boston University.

James Payne, P.E., established JPAC Inc., in 1981 to provide mechanical engineering consulting services, specializing in bolted flanged joints and gaskets. Previously with Exxon Research & Eng. Co., he engaged in the mechanical design and troubleshooting of piping systems and pressure vessels and participated in 12 plant start-ups around the world. He has been active in the bolted joint and gasket activities of the PVRC, ASTM and ASME, is a contributing author to "Gaskets and Gasketed Joints" (Ed: J. Bickford, Marcel Dekker, 1998) and a founding member of the ASME Special Working Group on Bolted Flanged Joints. Payne is also a member of the Post Construction (PCC) and its Subcommittee on Flanged Joint Assembly, which is responsible for the Standard, "PCC-1 Guidelines for Bolted Flanged Joint Assembly."

A.S. (Abdulla) Rangwala, P.E., is a 30-year veteran in mechanical design and structural dynamics of compressors and gas turbines for aircraft engines, and steam and gas turbines for power plant applications. Currently technical director of the Machinery Dynamics Group of the Center for Engineering Technology, Rangwala is the author of the book, Turbo Machinery Dynamic, Design and Operation. He was also adjunct professor at Cincinnati State Technical College.

Rita M. Rizzo has over 22 years experience as a training facilatator and consultant. Her consulting company is dedicated to helping small and medium sized organizations enhance their ability to recruit, inspire, and retain quality employees and improve performance through training. She also provides training design and delivery services to training companies, the training departments of large companies and trade and professional associations.

Michael J. Rosenfeld, P.E., is president and senior structural engineer at Kiefner & Associates, Inc. His experience includes 25 years in the oil and gas pipeline industry, including design, stress analysis, failure investigation, fitness-for-service assessment, maintenance and repair, welding and risk assessment. He has conducted several pipeline industry sponsored research projects related to pipeline flaw and damage resistance, reliability, and safety. He is vice chair of the ASME B31.8 Section Committee, and is a member of the B31 Mechanical Design Technical Committee, the B31 Standards Committee and the ASME Board of Pressure Technology Codes and Standards.

C. Wesley Rowley, P.E., has 40 years of experience in the nuclear, fossil and hydro power industry. He has provided technical and management support services to nuclear utilities, the US Department of Energy, the US Nuclear Regulatory Commission, and the Electric Power Research Institute. His technical experience includes preoperationalstartup testing, equipment testing and qualification, inservice testing (including RI-IST), containment testing, codes and standards compliance, and maintenance plans development and implementation. Rowley is an ASME codes and standards expert. He was chair of the ASME Board on Nuclear Codes & Standards (VP-NC&S), and he has held several positions in ASME Operations and Maintenance Committee, Post Construction Committee and Boiler Pressure Vessel Committee.

Ranjit Roy, Ph.D., is president of Nutek, Inc., an engineering quality firm and was formerly employed at General Motors. He is the author of several textbooks on the Taguchi method of quality improvement. A fellow of the American Society for Quality and an adjunct professor at Oakland University in Rochester, Michigan. Roy is a long time employee of General Motors Corporation.

Michael W. Salmon is the team leader for the Probabilistic Structural Mechanics Team, part of the Nuclear Design and Risk Analysis Group in the Decision Applications Division of the Los Alamos National Laboratory. Prior to joining LANL, he served as a principal engineer at EQE Incorporated in Costa Mesa, CA, for seven years. Before that, he was employed as a staff engineer at ABB/Impell Incorporated and SMA/NTS in Southern California where he participated in a number of probabilistic risk assessments of commercial nuclear power plants for external events. Salmon has extensive experience in seismic risk assessment, dynamic analysis of structures and components, and structural and component fragility analysis. He is currently serving as the chair of ASCE's Dynamic Analysis of Nuclear Structures technical committee. He holds a BS in Civil/Structural Engineering from Purdue University, a MS in Civil/Structural Engineering from the University of Illinois, and a MBA from Long Beach State University. Salmon is the author of several research and conference papers.

Ronald C. Schrotke is the principal and owner of Ron Schrotke, LLC. He is a retired senior quality assurance project professional and engineer from the Pacific Northwest National Laboratory, Operated by Battelle. Schrotke has been involved in the development of software and the application of software quality assurance standards and practices for more than 30 years. Additionally, he has been involved in the development of quality assurance standards and requirements (for software and more traditional hardware activities) since 1986, both in the research and manufacturing sectors. Schrotke's understanding of quality assurance requirements has aided organizations across the country. Schrotke served as an NQA-1 Subcommittee chair for three years, and a vice-chair of the main committee for several years, and he is currently the chair of the NQA-1 Main Committee. He holds a bachelor's degree in computer science, with a minor in mathematics.

Adrian L. Sepeda, P.E., has more than 33 years' experience in the chemical industry. He retired from Occidental Chemical Corporation (OxyChem) in 2002 as its director of health, environment and safety risk management where he was responsible for process safety, risk management and accident investigations for OxyChem's worldwide operations. After retiring Sepeda established his own consulting firm, specializing in process safety and risk management, teaching classes and rendering services to small and large corporations. Sepeda earned his B.S. from Lamar University in Beaumont, Texas and has held a P.E. license in Texas for over 38 years. He is also a life member of ASME and a CCPS emeritus member.

William K. (Ken) Sowder, Ph.D., is a senior consultant to the nuclear industry. He works with manufacturers and suppliers to develop management systems, which meet requirements of codes and standards such as ASME NQA-1-2008, ISO 9001: 2008 and IAEA GS-R-3. Sowder worked for the ITER Project on-site in France from 2004-2007, as responsible officer and division head for ITER Quality Assurance, and from 2008–2009, as expert contractor reporting to the ITER's director general and deputy director general of safety and security. He helped to develop the ITER interfaces with international organizations such as IAEA, JSME and ISO. In addition, he works with code and standard writing organizations (SO) such as ASME, JSME and IAEA. He is a member of Section III Committees, NQA-1 Committees, the ISO 9001 TC 176 US TAG and is an ASME BNCS member.

Walter J. Sperko, P.E., is president of Sperko Engineering Services, Inc., a consulting firm specializing in metal fabrication technology. He is chair of its subgroups; a member of ASME Standards Committee III and its subgroup on Materials, Fabrication and Examination; a member of the ASME B31 Standards Committee; and past chair of AWS International Standards Activities Committee, which represents the US at meetings of ISO/TC44, Welding and Allied Processes and a member of AWS Technical Activities Committee. He is a professional engineer registered in several states and holds five US patents.

C. (Raj) Sundararajan has spent more than 25 years analyzing and designing mechanical components, equipment, piping, and structures subjected to dynamic forces. Currently president of EDA Consultants, he has held senior technical positions at an architect-engineering company, an equipment vendor and a consulting firm. The author of more than 50 technical papers and reports, Sundararajan received the ASME Best Paper Award in 1986.

Rick Swayne is a senior consultant with Reedy Engineering. He has worked in many different areas of the nuclear power industry for over twenty years. Swayne has experience in design, fabrication, quality assurance, inservice inspection, and repair, replacement, and modification activities.

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Executive Committee and the Section XI Subgroup on Water Cooled Systems.

Ed Wilcox is a staff machinery engineer with the Energy Technology Company (ETC) of Chevron. Previously he worked for Conoco and Lyondell Chemical as a machinery engineer. He has a bachelor's degree in mechanical engineering from the University of Missouri-Rolla and a master's degree from Oklahoma State University. He is a Vibration Institute category IV vibration specialist and a registered professional engineer in the State of Oklahoma.

Jim Willey, P.E., is the Director of Pearl Energy Philippines and the Facility Manager of Quezon Power, a 500 MW coal fired Power Plant. In his previous positions as COO Asia for Covanta Energy, and VP for Constellation Energy in the USA, he was responsible for managing a number of biomass, coal fired, geothermal, and waste to energy plants. Jim earned his BSME from the University of Texas at El Paso, is a Registered Professional Engineer in Texas, and has been a member of ASME for 30 years.

Bob Wilson is an engineering consultant with TWD Technologies in Burlington, Ontario, Canada and former engineering professor at Sheridan College. He is a member of the B31.1 Power Piping Section Sub Group on Design. Wilson has taught piping design and engineering courses for 30 years. He has been involved with the design, analysis, layout and support of piping systems since 1963, with petrochemical, power, steel, mining and processing companies in North America and Europe and is currently working as a piping stress engineer with experience in Caesar II, Caepipe and Autopipe analysis programs. He is the author of Detail Engineering and Layout of Piping Systems and former chair of ASME's Ontario Section.

Andrew Wolosik is the piping lead designer with Teng & Associates in Mississauga, Ontario, Canada. He has over 14 years' experience in the oil and gas refining and petrochemical industries. He has worked for world class EPCM companies, such as Bechtel/Bantrel and AMEC, where he has been involved in plant layout for large to small projects, including assignments in the United Kingdom and China. Wolosik has extensive experience in CAD coordination, estimating, 3D modeling, plant layout and 3D model design reviews, and has worked with and managed Autoplant and PDS software systems. Additionally, he is Six Sigma certified.

Glynn E. Woods, P.E., has spent more than 30 years sharing his extensive piping expertise with petrochemical and power plants. He employs computer evaluations and field experience to arrive at safe, economical piping designs and solutions to piping problems. Woods is an active member of ASME's Pressure Vessels and Piping Division.

Carl Zweben, Ph.D., has over 40 years' commercial and aerospace experience in composite materials technology. He pioneered a wide range of commercial and aerospace composite applications, including machine components, thermal management, micoelectronic and optoelectronic packaging, spacecraft and aircraft structures, automobiles, wind turbines, pressure vessels and weapon systems.

Public Course Calendar and Index

BOILERS AND PRESSURE VESSELS		PAGE	SEPT	OCT	NOV	DEC
PD448	BPV Code, Section VIII, Division 2: Pressure Vessels	3	Las Vegas 22-25		San Diego 3-6	
PD583	Pressure Relief Devices: Design, Sizing, Construction, Inspection & Maintenance	3	Las Vegas 25-26		Miami 10-11	
PD394	Seismic Design and Retrofit of Equipment and Piping	6		Atlanta 6-7		
PD077	Failure Prevention, Repair & Life Extension of Piping, Vessels and Tanks	6		Atlanta 6-8	San Diego 3-5	
PD146	Flow Induced Vibration with Applications to Failure Analysis	7		Houston 20-22		
PD395	API 579-1/ASME FFS-1 Fitness for Service	5		Houston 20-22		New Orleans 8-10
PD442	BPV Code, Section VIII, Division 1: Design & Fabrication of Pressure Vessels	2		Houston 20-22		New Orleans 8-10
PD443	BPV Code, Section VIII Division 1 Combo Course	2		Houston 20-24		New Orleans 8-12
PD665	BPV Code, Section 1: Power Boilers	7		Houston 20-24	San Diego 3-7	
PD441	Inspection, Repair and Alteration of Pressure Equipment	2		Houston 23-24		New Orleans 11-12
PD382	How to Predict Thermal-Hydraulic Loads on Pressure Vessels & Piping	5			San Diego 3-4	
PD389	Non-Destructive Examination-Applying ASME Code Requirements (BPV Code, Section V)	8			San Diego 3-5	
PD622	BPV Code: Plant Equipment Requirements	4			Miami 10-13	

BOLTING		PAGE	SEPT	OCT	NOV	DEC
PD539	Bolted Joints and Gasket Behavior	10		Atlanta 6-7	San Diego 3-4	
PD601	Bolting Combo Course	10		Atlanta 6-10	San Diego 3-7	
PD386	Design of Bolted Flange Joints	10		Atlanta 8	San Diego 5	
PD577	Bolted Joint Assembly Principles Per PCC-1-2013	11		Atlanta 9-10	San Diego 6-7	
PD313	Fundamentals of Fastening Systems	11		Houston 20-21		

CERTIFICATES		PAGE	SEPT	OCT	NOV	DEC
PD620	Core Engineering Management	12, 39	Las Vegas 22-25		Miami 10-13	

DESIGN AND MATERIALS		PAGE	SEPT	OCT	NOV	DEC
PD268	Fracture Mechanics Approach to Life Predictions	18	Las Vegas 22-24		Miami 12-14	
PD571	The Taguchi Design of Experiments for Robutst Product and Process Designs	16		Atlanta 6-8		
PD683	Probabalistic Structural Anaylsis, Design and Reliability-Risk Assessment	19		Atlanta 6-8		
PD432	Turbo Machinery Dynamics: Design & Operation	4, 16		Atlanta 6-10		
PD231	Shock and Vibration Analysis	19		Houston 20-22		New Orleans 8-10
PD567	Design, Analysis and Fabrication of Composite Structure, Energy and Machine Applications	17		Houston 23-24		
PD456	Tools & Methods of Finite Element Analysis	18				New Orleans 10-11
PD513	TRIZ The Theory of Inventive Problem Solving	17, 41		Atlanta 6-8	San Diego 3-5	

ELEVATORS AND ESCALATORS

		PAGE	SEPT	OCT	NOV	DEC
PD100	Introduction to Elevators and Escalators	22	Las Vegas 22-23		San Diego 3-4	
PD010	ASME A17.1 Safety Code for Elevators and Escalators	23	Las Vegas 22-25		Miami 10-13	
PD602	Elevator and Escalator Combo Course	22	Las Vegas 22-26		Miami 10-14	
PD102	How to Perform Elevator Inspections Using ASME A17.2	22	Las Vegas 24-26		San Diego 5-7	
PD107	Elevator Maintenance Evaluation	23		Atlanta 6-7		

FLUIDS AND HEAT TRANSFER

		PAGE	SEPT	OCT	NOV	DEC
PD387	Understanding Chiller Performance, Operation and Economics	24	Las Vegas 22		Miami 10	
PD673	Design and Selection of Heat Exchangers	27	Las Vegas 22-23		San Diego 3-4	
PD349	Design and Applications of Centrifugal Pumps	25	Las Vegas 22-24		San Diego 3-5	
PD657	HVAC Systems and Chiller Performance Combo Course	24	Las Vegas 22-25		Miami 10-13	
PD027	Heating, Ventilating and Air-Conditioning Systems: Sizing & Design	24	Las Vegas 23-25		Miami 11-13	
PD690	Economics of Pipe Sizing and Pump Selection	27	Las Vegas 24-25		San Diego 5-6	
PD624	Two-Phase Flow and Heat Transfer	26		Houston 20-21		New Orleans 8-9
PD679	Fundamentals of Pumps and Valves and Their Selection for Optimum System Performance	26		Houston 20-23		New Orleans 8-11
PD691	Fluid Mechanics, Piping Design, Fluid Transients and Dynamics	28, 65			Miami 10-13	
PD584	Centrifugal Compressor Performance Analysis	25				New Orleans 10-12

GAS TURBINES

		PAGE	SEPT	OCT	NOV	DEC
PD115	The Gas Turbine: Principles and Applications	30		Houston 20-21		New Oleans 11-12

GEOMETRIC DIMENSIONING & TOLERANCING

		PAGE	SEPT	OCT	NOV	DEC
PD561	Geometric Dimensioning and Tolerancing Advanced Applications with Stacks and Analysis	32	Las Vegas 22-23		Miami 10-11	
PD603	GD&T Combo Course	32	Las Vegas 22-25		Miami 10-13	
PD570	Geometric Dimensioning and Tolerancing Fundamentals 1	32	Las Vegas 24-25		Miami 12-13	
PD449	Mechanical Tolerancing for Six Sigma	33		Atlanta 8-9	San Diego 5-6	
PD515	Dimensioning and Tolerancing Principles for Gages and Fixtures	33			Miami 10-12	

LEGAL ISSUES FOR ENGINEERS

		PAGE	SEPT	OCT	NOV	DEC
PPD674	International Business Ethics and Foreign Corrupt Practices Act	35			San Diego 3-5	
PD681	International Business Ethics and Foreign Corrupt Practices Act Combo Course	35			San Diego 3-7	
PD680	Understanding the Foreign Corrupt Practices Act	35			San Diego 6-7	

Public Course Calendar and Index

MANAGING PEOPLE		PAGE	SEPT	OCT	NOV	DEC
PD475	The New Engineering Manager: Moving from Technical Professional to Manager	36	Las Vegas 22-23		Miami 10-11	
PD685	The New Engineering Manager: Moving from Technical Professional to Manager and Strategic Thinking Combo Course	36	Las Vegas 22-24		Miami 10-12	
PD676	Strategic Thinking	36	Las Vegas 24		Miami 12	
PD506	Research and Development Management	38		Atlanta 6-8		
PD575	Comprehensive Negotiating Strategies® (CNS: E&TP)	37		Atlanta 9-10	San Diego 6-7	
PD531	Leadership and Organizational Management	38			San Diego 3-4	
PD692	Communication Essentials for Engineers	37			San Diego 6-7	

MANAGING PROJECTS		PAGE	SEPT	OCT	NOV	DEC
PD467	Project Management for Engineers and Technical Professionals	40	Las Vegas 22-24		Miami 10-12	
PD629	Project Management Combo Course	40	Las Vegas 22-26		Miami 10-14	
PD496	Preparing for the Project Management Professional Certification Exam	40	Las Vegas 25-26		Miami 13-14	
PD513	TRIZ The Theory of Inventive Problem Solving	16, 41		Atlanta 6-8	San Diego 3-5	

NUCLEAR		PAGE	SEPT	OCT	NOV	DEC
PD599	BPV Code, Section III, Division 1: Class 1 Piping Design	44	Las Vegas 22-23			New Orleans 8-9
PD615	BPV Code, Section III, Division 1: Class 1, 2 & 3 Piping Design Combo Course	44	Las Vegas 22-24			New Orleans 8-10
PD711	ASME NQA-1 and DOE Quality Assurance Rule 10 CFR 830	52	Las Vegas 22-24			
PD184	BPV Code Section III, Division 1: Rules for Construction of Nuclear Facility Components	45	Las Vegas 22-25			New Orleans 8-11
PD600	BPV Code, Section III, Division 1: Class 2 & 3 Piping Design	44	Las Vegas 24			New Orleans 10
PD606	NQA-1 Requirements for Computer Software Used in Nuclear Facilities	48	Las Vegas 25-26		Miami 10-11	
PD597	Risk-Informed Inservice Testing	51		Atlanta 6-8		
PD632	Design in Codes, Standards and Regulations for Nuclear Power Plant Construction	13, 47		Atlanta 6-9		
PD675	ASME NQA-1 Lead Auditor Training	49		Atlanta 6-9		
PD523	Quality Assurance (QA) Considerations for New Nuclear Facility Construction	48		Houston 20-22		
PD633	Overview of Codes and Standards for Nuclear Power Plants	13, 46		Houston 20-22		New Orleans 8-10
PD672	BPV Code, Section XI, Division 1: Inservice Inspection 10-Year Program Updates for Nuclear Power Plant Components	51		Houston 20-23		
PD634	Comparison of Global Quality Assurance and Management System Standards fUsed for Nuclear Applications	49		Houston 23-24		New Orleans 11-12
PD595	Developing a 10-Year Pump Inservice Testing Program	50				New Orleans 8-9
PD644	Advanced Design and Construction of Nuclear Facility Components per BPV Code, Section III	46				New Orleans 8-11
PD192	BPV Code Section XI: Inservice Inspection of Nuclear Power Plant Components	45				New Orleans 8-12
PD596	Developing a 10-Year Valve Inservice Testing Program	50				New Orleans 10-12
PD631	Manufacturing, Fabrication and Examination Responsibilities in Codes, Standards and Regulations for Nuclear Power Plant Construction	13, 47				New Orleans 10-12

PIPING AND PIPELINES		PAGE	SEPT	OCT	NOV	DEC
PD013	B31.1 Power Piping Code	61	Las Vegas 22-26			
PD686	Layout of Process Piping Systems and Managing 3D CAD/CAE Systems	63	Las Vegas 22-26		Miami 10-14	
PD690	Economics of Pipe Sizing and Pump Selection	27	Las Vegas 24-25		San Diego 5-6	
PD391	ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids	62		Atlanta 6-7		
PD370	B31.8 Gas Transmission and Distribution Piping Systems	62		Atlanta 6-8		
PD706	Inline Inspections for Pipelines	65		Atlanta 9-10		New Orleans 11-12
PD410	Detail Engineering of Piping Systems	63		Houston 20-22		New Orleans 8-10
PD014	B31.3 Process Piping Design	60		Houston 20-23		New Orleans 8-11
PD581	B31.3 Process Piping Design, Materials, Fabrication, Examination and Testing Combo Course	60		Houston 20-24		New Orleans 8-12
PD457	B31.3 Process Piping Materials Fabrication, Examination & Testing	60		Houston 24		New Orleans 12
PD445	B31 Piping Fabrication and Examination	61			San Diego 3-4	
PD621	Grade 91 and Other Creep Strength Enhanced Ferritic Steels	64			San Diego 5-7	
PD691	Fluid Mechanics, Piping Design, Fluid Transients and Dynamics	28, 65			Miami 10-13	
PD617	Design of Buried High Density Polyethylene (HDPE) Piping Systems	64				New Orleans 11-12

PROCESS SAFETY		PAGE	SEPT	OCT	NOV	DEC
PD702	Process Safety and Risk Management for Mechanical Engineers	72		Houston 20-22		New Orleans 8-10

RISK AND RELIABILITY		PAGE	SEPT	OCT	NOV	DEC
PD618	Root Cause Analysis Fundamentals	75		Atlanta 6-8		
PD698	Predictive Maintenance Technologies	76		Atlanta 8-10		
PD591	Developing Conflict Resolution Best Practices	74		Atlanta 9-10		
PD619	Risk and Reliability Strategies for Optimizing Performance	75		Houston 20-22		
PD699	Reliability Excellence Fundamentals	76		Houston 22-24		
PD700	Risk-Based Asset Management	74			San Diego 5-7	

WELDING		PAGE	SEPT	OCT	NOV	DEC
PD359	Practical Welding Technology	78	Las Vegas 22-25		San Diego 3-6	New Orleans 8-11
PD190	BPV Code, Section IX: Welding, Brazing and Fusing Qualifications	78	Las Vegas 22-24		San Diego 3-5	

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