



MANHATTAN COLLEGE SCHOOL OF ENGINEERING



ANNOUNCEMENT PE and CONTINUING EDUCATION SESSIONS - 2006

The [School of Engineering](#) schedules a variety of continuing education hour sessions per year with each session worth four (4) CEHs of credit applicable to PE license registration or applicable to continuing education/professional development requirements. Successful completion of each of the Continuing Education sessions will earn the participant four (4) CEHs and a Certificate of Completion. Each session will include, at least, 240 to 255 minutes of contact including lecture, Q&A and a 15 minute break. Participants will receive course materials, as appropriate, for each session.

Schedules and Descriptions

CEH Session #1: Quality Engineering - 4 CEH

Instructor: Graham Walker, PhD, Professor of Mechanical Engineering
3:30pm to 7:45pm; March 24th, 2006; Leo Engineering Building, Manhattan College

Overview:

This session will provide engineers and managers with an overview of modern quality techniques. A brief review of Basic Statistics will be provided during the first portion of the session. During the remainder of the session selected topics chosen from the following list will be presented and discussed: Acceptance Sampling, Statistical Process Control (SPC), Quality Function Deployment (QFD), and Quality Assurance (QA). At the end of the session participants will have a better understanding of associated terminology and will be exposed to how basic quality analyses are performed.

Price: \$120/session

CEH Session #2: Control Technologies - 4 CEH

Instructor: Thomas McKee, MS, Adjunct Professor of Electrical Engineering
2:00pm to 6:15pm; April 21st, 2006; Leo Engineering Building, Manhattan College

Overview:

SCADA or "Supervisory Control and Data Acquisition" systems are real-time industrial process control systems used to centrally monitor and control remote or local industrial equipment such as motors, valves, pumps, relays, etc. SCADA is used to control chemical plant processes, oil and gas pipelines, electrical generation and transmission equipment, manufacturing facilities, water purification and distribution infrastructure, etc. SCADA control systems are the computer equivalent of a person reading gauges and recording values on a clip board, or opening a breaker and operating a local disconnect when a schedule says it is time to do so. This session will define SCADA and explore the technology used to implement it in a number of industries. The legacy issues of SCADA, which leave it open to manipulation, will be discussed. A number of examples of SCADA system compromises will be presented. Finally, a number of solutions to SCADA vulnerabilities will be offered.

Price: \$120/session

Schedules and Descriptions (con't)

CEH Session #3: Methods and Applications of Instrumentation - 4 CEH

Instructor: Graham Walker, PhD, Professor of Mechanical Engineering
2:00pm to 6:15pm; May 26th, 2006; Leo Engineering Building, Manhattan College

Overview

This session will provide engineers and managers with an overview of the common instrumentation required to acquire physical quantities such as position, velocity, acceleration, force, pressure, flow rate, and temperature. Topics covered can include: Instrument Response, Position Measurement, Velocity Measurement, Acceleration Measurement, Force/Load Measurement, Pressure Measurement, Fluid Flow Measurement, Temperature Measurement, and Instrument Interfacing. Particular attention will be placed on appropriated equipment selection, operating principles, and correct installation.

Price: \$120/session

CEH Session #4: Ethics in Engineering - 4 CEH

Instructor: Angelo DeVito, MS, Adjunct Professor of Electrical Engineering
2:00pm to 6:15pm; June 2nd, 2006; Leo Engineering Building, Manhattan College

Overview:

This session is organized into four 60-65 minute sections. The first section is devoted to a case study of the Ford Pinto and a review of ethical principles. During the second section the students develop their own class-wide code of engineering ethics and then compare it to the various codes within their engineering discipline. The third section that culminates the module is devoted to a case study of the fictional "Incident at Morales." The fourth class period is a study of the Space Shuttle Challenger Case. At the end of the session, students will have a better understanding of the need for and how to apply a professional code of ethics in dealing with situations requiring ethical choices.

Price: \$120/session

CEH Session #5: New Power Technologies - 4 CEH

Instructor: Angelo DeVito, MS, Adjunct Professor of Electrical Engineering
2:00pm to 6:15pm; June 16th, 2006; Leo Engineering Building, Manhattan College

Overview

This session will enhance a participant's understanding of electric power technology by developing a fundamental theoretical understanding of emerging capabilities related to the generation, transmission and distribution of energy. Successful completion of this course will enable the participant to contribute to the planning, design, and operations associated with the delivery of energy to the community. Concepts within power technology will include trends in: coal gasification, turbines, superconductivity, and thermocooling. Alternate/advanced energy sources will be discussed including: fuel cells, storage batteries, organic energy, ocean, thermionic generators, and other sources. In addition, emissions and scrubbing will be discussed, as well as their environmental implications.

Price: \$120/session

Schedules and Descriptions (con't)

CEH Session #6: New Concrete Solutions to Bridge Decks - 4 CEH

Instructor: Seamus Freyne, PhD, PE, Assistant Professor of Civil Engineering
2:00pm to 6:15pm; August 11th, 2006; Leo Engineering Building, Manhattan College

Overview:

In 2005, the FHWA found that nearly 200,000 bridges or 30% of all bridges nationwide are inadequate and in a state of decline. Problems with the bridge decks were determined to be the most common cause of structural deficiency. A vital link to our nation's mobility and prosperity, these bridges will have to be repaired or replaced as soon as possible. Today's concrete contains a wide variety of cements, supplementary cementitious materials, aggregates, chemical admixtures, and fibers. This session will examine which of these concrete materials, and which mixture designs and construction practices are necessary to attain specific performance criteria such as ease of placement, volume stability, and improved durability. Thin concrete overlays will be shown to be an economical way to extend the life of concrete bridge decks by 10 years or more. A new ASTM test that can provide an assessment of the bond between the new and old concrete and may be useful as a guide to the kind of bridge deck repair that is necessary will be described.

Price: \$120/session

CEH Session #7: Engineering Economics - 4 CEH

Instructor: Paul Marnell, PhD, Associate Professor of Chemical Engineering
2:00pm to 6:15pm; September 29th, 2006; Leo Engineering Building, Manhattan College

Overview:

Engineers and managers must be able to (1) determine the anticipated profitability of a project, (2) choose the cost effective alternative from two or more alternatives, and (3) select the most profitable project from a set of mutually exclusive projects. This session will introduce and discuss tools to assist individuals in carrying out these fundamental tasks of engineering economics. At the end of the session participants will be better able to: Compare cost reduction proposals and equipment bids and select the most cost effective alternative; prepare the data for a profitability analysis; estimate the internal rate of return of project; select the best alternative from a set of mutually exclusive projects; and, make a sensitivity analysis to estimate the uncertainty in the profitability analysis of a project.

Price: \$120/session

CEH Session #8: Engineering Risk and Decision Analysis - 4 CEH

Instructor: Graham Walker, PhD, Professor of Mechanical Engineering
2:00pm to 6:15pm; October 27th, 2006; Leo Engineering Building, Manhattan College

Overview

This session will present the analytical tools needed to make decisions using incomplete information under uncertain conditions and to assess the risk associated with different decision options. In the decision analysis portion of the course techniques such as Hurwitz's Rule, Minimax, and Opportunity Loss will be covered. More advanced solutions such as Trade-Off and Sensitivity Analyses will also be presented with respect to minimizing the risk associated with any particular decision choice. Finally, the issue of evaluating risk will be studied with a specific emphasis being placed on extreme events.

Price: \$120/session

Schedules and Descriptions (con't)

CEH Session #9: Surface Water Quality Management - 4 CEH

Instructor: Kevin Farley, PhD, Professor of Environmental Engineering

2:00pm to 6:15pm; November 17th, 2006; Leo Engineering Building, Manhattan College

Overview

This session will provide engineers and scientists with an overview of current water quality regulations and standards that are applicable to the management of lakes, reservoirs, rivers, and coastal waters. Water quality monitoring approaches, modeling assessment methods and management strategies will be presented for the development of Total Maximum Daily Loads (TMDLs) and CERCLA exposure assessments. As part of the discussions, specific examples of water quality modeling/assessment studies will be presented for nutrient enrichment in Long Island Sound, and for the accumulation of toxic organic contaminants in NY-NJ Harbor sediments and fish.

Price: \$120/session

CEH Session #10: Legal Aspects in Engineering - 4 CEH

Instructor: Peter Sweeney, Ph.D., P.E., Adjunct Professor of Civil Engineering

2:00pm to 6:15pm; December 8th, 2006; Leo Engineering Building, Manhattan College

Overview:

The work environment for practicing engineers has changed over time to the point where it is now essential that they have a basic understanding of the potential legal consequences of their technical actions and decisions as well as those of their employers. Four key areas will be covered in this session, namely: (1) Contract fundamentals applicable to Engineering Professional Services and publicly bid construction projects; (2) Standard of Care for Professional Engineers; (3) Property Rights both Intellectual (e.g. Patents and Design Copyrights) and Tangible (Land and Water Rights), and, (4) Regulatory activities of Federal administrative agencies such as the Environmental Protection Agency, Nuclear Regulatory Commission, and the Occupational Safety and Health Administration.

National (e.g., Hyatt Regency Hotel Collapse) and local (e.g. PANY&NJ, NYCSCA projects) examples and cases will be used to illustrate the relevance of major principles covered.

Price: \$120/session

ENROLLMENT INFORMATION

The cost of enrollment in these CEH Sessions is \$30/CEH (\$120/CEH-session). The session enrollment cost includes participation in the session (four CEHs), a Certificate of Completion, course materials, and light refreshments during the break periods. Please continue to visit the School of Engineering web site (www.engineering.manhattan.edu) for additional details and updates.

Please Note:

The School of Engineering also offers these topics and others (contact the School of Engineering for additional details) to groups (e.g., 10 or larger) of engineers on-site at individual companies. Arrangements for these on-site sessions need to be made through the [Dean's Office](#) in the School of Engineering.

Contact info: Dean's Office, School of Engineering;

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Directions to the Leo Engineering Building are available at www.manhattan.edu