SCHOOL OF
CONTINUING EDUCATION

UNIVERSITY of WISCONSIN
UWMILWAUKEE

SPRING 2015

Engineering

LEARN FROM INSTRUCTORS WHO PRACTICE WHAT THEY TEACH

- Elastomers
- Electrical
- Facility Management
- Mechanical
- Plastics
- Six Sigma
- Water

UWM.EDU/SCE-ENG

POWERFUL IDEAS | **PROVEN RESULTS**®

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School of Continuing Education

(SCE) is the largest provider of noncredit continuing education in Southeastern Wisconsin, with over 15,000 participants, more than 1,000 programs and 600 practitioner instructors. Our state-of-the-art classrooms and conference services are located in downtown Milwaukee – the heart of the city's business and commercial district. SCE is one of 14 schools and colleges at the University of Wisconsin–Milwaukee.

5 to 95
Programs & Inspiration for Every Generation

LOOKING TO RENEW YOUR P.E. LICENSE?

ALL COURSES IN THIS CATALOG QUALIFY FOR PROFESSIONAL DEVELOPMENT HOURS (PDHs).

YOUR ENGINEERING CONNECTION

Murali Vedula
Program Director
mvedula@uwm.edu
414-227-3121

Marcia Gabriel
Program Manager
gabrielm@uwm.edu
414-227-3378

UWM SCHOOL OF CONTINUING EDUCATION

SCE CERTIFICATE PROGRAMS

40+ SCE Certificates

Complete *ANY* certificate in 18 months or less!

THE VALUE OF PROFESSIONAL CERTIFICATES

Professional certificates are an affordable and convenient way to increase your value in the workplace. Over the past several decades, certificates have been the fastest-growing postsecondary credential awarded. Frequently attained as a supplement or a stepping stone to a degree, certificates are earned through noncredit, hands-on professional development in a specific career discipline. Courses are taught by industry experts, and the skills acquired are relevant and immediately applicable on the job.

WHO SHOULD PURSUE A PROFESSIONAL CERTIFICATE?

- **Working Professionals** – update current skills, gain new ones, advance your career and increase your earning potential
- **Recent College Grads** – bridge the gap between your education and new job requirements
- **Career Changers** – jumpstart your employment in a new field, quickly and economically

WHY CHOOSE SCE?

A professional certificate from the School of Continuing Education comes with the distinction and quality that the University of Wisconsin-Milwaukee has to offer. UWM is Wisconsin's premier public, urban university with a strong international reputation for excellence in education.

- Local and national industry experts with real-world knowledge and advice
- Opportunity to network with like-minded professionals
- Convenient downtown location
- Amenities, including course materials, meals and discounted parking

ENGINEERING CERTIFICATE PROGRAMS

All eight programs are made up of courses that qualify for continuing education professional development hours (PDHs). All courses are taught by instructors that keep your attention, keep pace with the changing industry and keep you competitive.

- Dimensioning and Tolerancing
- Elastomer Technology
- Electrical Engineering
- Facility Management
- Gear Technology
- Plastics Technology
- Six Sigma Black Belt
- Water Technology

SEE 40+ CERTIFICATE PROGRAMS AT **UWM.EDU/SCE-CERTIFICATES**.

ELASTOMER TECHNOLOGY

uwm.edu/sce-rubber

Elastomer Technology Certificate

Make an impact on your elastomeric applications with new knowledge, cost-saving strategies, stronger designs and impressed clients. View full certificate and course details online at **uwm.edu/sce-rubber**. Individual courses may be taken without pursuit of the certificate.

Earn the certificate by completing nine or more days of related courses in as little as 18 months (not to exceed three years).

Molding of Rubber and Design of Rubber Molds

Learn the fundamentals of molding rubber mechanical goods and designing their rubber molds, with no reference to the molding of tires. Review applicable molding methods with emphasis on compression, transfer and injection processes. Bring drawings or troublesome parts to address real-world issues during class.

Learning Outcomes:

- Gain an integrated perspective on rubber molding and design of rubber molds
- Understand current principles and techniques in the design of molds and molded part design
- Explore useful design information - valuable for beginners and seasoned practitioners

Wed.-Fri., Apr. 15-17, 8am-4:30pm
Instructors: Terry L. Chapin, Van T. Walworth
Fee: $1290
Early Bird: $1090 (register by Feb. 15)
CEUs: 1.8/PDHs: 18
Program No. 4830-7518

Rubber Compounding and Mixing for Performance

Start with the basics of formulating, the key processability characteristics, and the most common factory problems and causes, then go further in-depth in this three-day, intensive overview of rubber compounding and mixing.

Learning Outcomes:

- Know the five categories of rubber processability tests
- Understand the differences between general purpose and specialty elastomers, and how they affect compounding and mixing
- Review methodologies for solving factory problems

Wed.-Fri., Sept. 16-18, 8am-4:30pm
Instructors: John S. Dick, Peter C. Surette, Sr.
Fee: $1290
Early Bird: $1190 (register by July 16)
CEUs: 1.8/PDHs: 18
Program No. 4830-7929

Rubber Extrusion Technology

Learn applicable basic information on all aspects of the rubber extrusion process. Build a knowledge base that encompasses products ranging from intricate profile extrusions to tires, using compositions ranging from a single thermoplastic elastomer to multiple dense and cellular compounds coextruded with carriers and reinforcements.

Learning Outcomes:

- Understand compound ingredients, characterization and processing
- Become familiar with equipment for pumping, shaping, curing and monitoring
- Learn various methods related to process variation and control

Wed.-Fri., Apr. 22-24, 8am-4:30pm
Instructors: John S. Dick, James F. Stevenson
Fee: $1390
Early Bird: $1290 (register by Feb. 22)
CEUs: 2/PDHs: 20
Program No. 4830-7284

Silicone Elastomers Technology and Fabrication

Receive a comprehensive overview of silicone elastomers, including basic silicone chemistry, types of silicone elastomers, manufacturing processes, fabrication techniques, problem-solving and application areas. With an emphasis on liquid injection molding, learn from a panel of experts in the silicones field, and discuss specific projects of interest.

Learning Outcomes:

- Visit M.R. Mold & Engineering Corp. to experience the production of an actual liquid silicone rubber part
- Observe pump design and operation, machine setup and operation, flow analysis, and more
- Understand material selection, dispensing methods, injection molding process, tool design and bonding alternatives

Mon.-Thu., Feb. 16-19, 8am-4:30pm
Location: Embassy Suites Anaheim/Orange, Orange, CA
Instructors: Rick Finnie, Juergen Giesow, Bob Pelletier, John Timmerman, Mel Toub
Fee: $1290
CEUs: 2.4/PDHs: 24
Program No. 4830-7478

ELECTRICAL ENGINEERING

uwm.edu/sce-electrical

EARN 28 PDHS IN ONE WEEK

Our electrical engineering training sessions are designed to give busy professionals the most return on their investment. Choose from one of our three-course groupings, which include special PDH-booster courses, to earn 28 PDHs in just one week. Take advantage of this rare opportunity!

Courses can also be completed individually.

Electrical Engineering Certificate

The demand for engineering professionals versed in power components, structural and electrical design considerations, quality and safety is on the rise. Maximize your productivity, efficiency and innovation. View full certificate and course details online at **uwm.edu/sce-electrical**. Individual courses may be taken without pursuit of the certificate.

Earn the certificate by attending nine or more days of related courses in as little as 18 months (not to exceed three years).

Electrical Infrastructure A: Electrical Substation Equipment Aging

Get acquainted with aging mechanisms and the aging considerations for components found in substations. Being proactive is vital for the craftspeople, engineers, supervisors and managers responsible for performing, supervising and scheduling maintenance activities.

Learning Outcomes:

- Identify recognized failure modes and aging indicators
- Gain insight into periodic and in-service testing
- Save money by being proactive and avoiding repair/replacement costs

Tue.-Thu., June 9-11, 8am-4:30pm
Instructors: Jenifer Marchesi, Ph.D., Richard Martin, Anthony F. Sleva, P.E.
Fee: $1295
Early Bird: $1195 (register by Apr. 9)
CEUs: 2/PDHs: 20
Program No. 4840-7893

Electrical Infrastructure B: Introduction to Materials Used in Electrical Equipment BOOSTER

Compare and contrast the purposes for a variety of materials used in electrical equipment design and construction. As a professional who did not focus on material science during your undergraduate studies, it's important to understand the limitations of various materials you might encounter on the job.

Learning Outcomes:

- Analyze ferrous materials, aluminum, plastics, polymers, ceramics and coatings
- Discuss various properties and molecular structures of materials
- Understand the advantages, disadvantage and limitations of different materials in electrical applications

Mon.-June 8, 1-5pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7894

Electrical Infrastructure C: Presentation of Forensic Investigation Case Studies BOOSTER

Review the forensic investigations that were completed subsequent to the failure of components found in substations, power generating plants and industrial facilities. Case studies and discussion will help you prepare yourself for potential equipment failures at work.

Learning Outcomes:

- Understand why problems occur, such as why fusible elements might open or cable insulation might degrade
- Uncover failure modes and explanations of delayed rest
- Study heat migration and impacts

Fri. June 12, 8am-12pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7892

Power Systems A: Understanding Power System Design & Operation

Learn to communicate effectively with electrical engineers and system designers. This user-friendly course is geared toward managers, project coordinators, engineers, designers, technicians and other individuals who have little or no formal training in electrical power system design and operation.

Learning Outcomes:

- Understand key electrical parameters and fundamental operation of power systems
- Foresee localized interruptions, widespread outages and regional blackouts
- Examine case studies that include a list of modifications designed to minimize outages

Tue.-Thu., Apr. 21-23, 8am-4:30pm
Instructor: Anthony F. Sleva, P.E.
Fee: $1295
CEUs: 2/PDHs: 20
Program No. 4840-7539

Power Systems B: Introduction to Power System Load Models BOOSTER

Understand the way customer loads interact with electric power transmission and distribution systems during the performance of your routine job duties. Get an introduction to the way motors, light bulbs, power supplies, heaters, etc. are modeled when various calculations are developed.

Learning Outcomes:

- Discuss normal operating conditions, peak load conditions, energization, cold load pickup and FIDVR
- Analyze incandescent, mercury vapor and LED lights
- Cover induction motors, air conditioners, power supplies and lumped loads

Mon., Apr. 20, 1pm-5pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7540

See page 3 for Certificates

ELECTRICAL ENGINEERING

uwm.edu/sce-electrical

EARN 28 PDHS IN ONE WEEK

Our electrical engineering training sessions are designed to give busy professionals the most return on their investment. Choose from one of our three-course groupings, which include special PDH-booster courses, to earn 28 PDHs in just one week. Take advantage of this rare opportunity!

Courses can also be completed individually.

Power Systems C: Discussion of Widespread Power System Blackouts BOOSTER

Get introduced to transmission system design considerations through case studies of real-world events. You may find yourself in a position that requires you to be aware of the potential for trouble – understand the conditions and factors that lead to blackouts and develop recommendations on how to prevent them.

Learning Outcomes:

- Understand how to recognize pre-blackout conditions
- Identify major problem areas
- Forecast the most likely sequence of events that can lead to the next major, widespread blackout

Fri., Apr. 24, 8am-12pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7538

Protective Relaying A: Protective Relaying Principles & Applications

Learn the fundamental concepts of protective relaying – beginning with the basics, advancing to important setting considerations, and eventually ending with a discussion of fault and disturbance analysis. Gain confidence in your ability to recognize key protective relaying considerations for distribution lines, transmission lines, substations, transformers, buses and circuit breakers.

Learning Outcomes:

- Know criteria used to select protective relay settings
- Understand key design considerations and operations
- Examine case studies that include examples of correct and incorrect operation of protective relaying schemes

Tue.-Thu., May 5-7, 8am-4:30pm
Instructor: Anthony F. Sleva, P.E.
Fee: $1295
CEUs: 2/PDHs: 20
Program No. 4840-7530

Protective Relaying B: Introduction to the Cost of Electrical Power at Generator Stations BOOSTER

Learn to derive the price of power at a busbar adjacent to a generating station. Discuss the many variables you'll need to keep in mind as a designer, technician, project manager, engineer, analyst or other professional calculating these costs.

Learning Outcomes:

- Discuss generator station variables
- Understand the relationship between choice of busbar design and cost
- Get insight into the overall strategy behind generator station design

Mon. May 4, 1-5pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7531

Protective Relaying C: Introduction to the Cost of Power at Customer Meter Bases BOOSTER

Learn what to consider when deriving the price of power at your customers' meters. Discuss the many variables you'll need to keep in mind as a designer, technician, project manager, engineer, analyst or other professional calculating these costs.

Learning Outcomes:

- Discuss customer types: residential, commercial and industrial
- Identify load and operational considerations
- Get financing insights to ensure a greater return on investment

Fri., May 8, 8am-12pm
Instructor: Anthony F. Sleva, P.E.
Fee: $195
CEUs: 0.4/PDHs: 4
Program No. 4840-7529

Electrical Substation Design Fundamentals

Study substation design subjects at a level appropriate for those relatively new to the field. Get an introduction to technical requirements, configuration philosophies, design practices, information sources and work processes. Learn the fundamentals of electrical, civil and structural design issues of electric power substations.

Learning Outcomes:

- Understand substation project chronology and how to develop the scope and identify the constraints for the overall project
- Be familiar with costs and schedules
- Explore site grading design, foundations, insulation and insulation protection, and structures.

Mon.-Wed., Apr. 27-29, 8am-5pm
Instructor: Dan Chaply
Fee: $1295
Early Bird: $1195 (register by Feb. 27)
CEUs: 2.1/PDHs: 21
Program No. 4840-7702

FACILITY MANAGEMENT NEW!

uwm.edu/sce-FacilityManagement

LOOKING TO RENEW YOUR P.E. LICENSE?

ALL COURSES IN THIS CATALOG QUALIFY FOR PROFESSIONAL DEVELOPMENT HOURS (PDHs).

Facility Management Certificate NEW!

Facility Management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology. Facilities are typically a company's second-largest asset, right after its employees. A well-designed, well-managed facility can help employees be more productive and can have a positive impact on a company's bottom line. View full certificate and course details online at **uwm.edu/sce-FacilityManagement**.

Earn the certificate by completing nine or more days of coursework in the facility management program area in as little as 18 months (not to exceed three years).

Introduction to Facility Management, Business Planning and Service Delivery NEW!

Learn the basics of facility management. From operations and maintenance to facility planning, we'll cover all of the areas that a facility manager is responsible for when managing buildings.

Learning Outcomes:

- Gain an understanding of the basics of facility management
- Learn about the typical hard and soft services that facility managers are responsible for delivering
- Gain an understanding of the planning and business side of delivering facility management services

Tue.-Wed., Jan. 13-14, 8am-4:30pm
Instructors: Mark R. Sekula, FMP, CFM, LEED-AP, IFMA Fellow, Cornel Rosario
Fee: $595
CEUs: 1.4/PDHs: 14
Program No. 4820-7880

Beyond Facility Management Service Delivery NEW!

Learn about aspects of facility management beyond the delivery of basic services such as operations and maintenance. We'll discuss issues relating to the health, safety and protection of a company's people and buildings; the technologies that facility managers use to manage their services and buildings; and the important aspect of providing a well-designed workplace for an organization's employees.

Learning Outcomes:

- Learn about the technologies used to manage buildings, the FM function and the technologies that allow an organization's employees to communicate with each other and the world at large
- Understand the importance of, and the means to, keep a company's employees safe, and to protect company assets
- Learn what it takes to provide and manage a well-designed workplace so that an organization's employees can be most productive and satisfied

Tue.-Wed., Jan. 27-28, 8am-4:30pm
Instructors: Mark R. Sekula, FMP, CFM, LEED-AP, IFMA Fellow, Cornel Rosario
Fee: $595
CEUs: 1.4/PDHs: 14
Program No. 4820-7879

Practices in Leadership and Strategy

Develop strategies to successfully carry out major initiatives by influencing the decisions and attitudes of others. Examine the concepts of leadership and strategy through a theoretical lens as well as real-life experience and examples of effective approaches.

Learning Outcomes:

- Align your organization's mission with resources to maximize effectiveness
- Understand how innovation can affect strategic positioning
- Implement effective strategies that integrate people, places, processes and technology

Tue.-Wed., Mar. 10-11, 8am-4:30pm
Instructor: Mark R. Sekula, FMP, CFM, LEED-AP, IFMA Fellow
Fee: $595
Early Bird: $495 (register by Apr. 9)
CEUs: 1.4/PDHs: 14
Program No. 4820-7865

See page 3 for Certificates

FACILITY MANAGEMENT

uwm.edu/sce-FacilityManagement

MECHANICAL ENGINEERING

uwm.edu/sce-eng

LOOKING TO RENEW YOUR P.E. LICENSE?

ALL COURSES IN THIS CATALOG QUALIFY FOR PROFESSIONAL DEVELOPMENT HOURS (PDHs).

Facility Management Administration and Sustainability

NEW!

Many building occupants think facility management involves mostly hands-on maintenance and repair, like replacing a burned out light bulb or adjusting the temperature of a building. But there is another side of facility management that most occupants don't see – the administrative side. In this module, students will learn about how facility managers deal with design and construction, contracts and relocation planning. We'll also discuss the policies and procedures that originate from facility management, that govern how occupants access the workplace and traverse through it every day.

Learning Outcomes:

- Understand how facility managers administer and manage construction and relocation projects
- Learn about the policies and procedures developed and administered by facility managers that impact building occupants on a daily basis
- Learn how facility managers contribute to their company's social responsibility through sustainable building operations

Tue.-Thu., Mar. 24-26, 8am-4:30pm
Instructors: Mark R. Sekula, FMP, CFM, LEED-AP, IFMA Fellow, Cornel Rosario
Fee: $795
CEUs: 2/PDHs: 20
Program No. 4820-7875

Dimensioning and Tolerancing Certificate

Ensure consistency and quality throughout the entire production process by learning this universal engineering language. View full certificate and course details online at **uwm.edu/sce-eng**. Individual courses may be taken without pursuit of the certificate.

Earn the certificate by completing three courses in as little as 18 months (not to exceed three years).

Geometric Dimensioning & Tolerancing

Detail critical information on the basics of GD&T. From there, dive into the more difficult principles through lectures, realistic examples, discussions and application problems. Learn and apply these techniques in datum selection and tolerancing optimization. This approach preserves functional product requirements, while taking into consideration manufacturing difficulties, introducing more producible tolerances, practical datum structures and pre-planning measurement methods.

Learning Outcomes:

- Interpret and apply the latest standards - ASME Y14.5-2009
- Reduce drawing changes and interpretation errors while designing for maximum profitability
- Bid contracts with confidence

Wed.-Fri., Mar. 18-20, 8am-4:30pm
(Ends at Noon on Day 3)
Instructor: James D. Meadows
Fee: $1290
CEUs: 1.7/PDHs: 17
Program No. 4830-7294

Tolerance Stack-Up Analysis

Apply tolerance stack-up analysis techniques to a variety of assemblies. Explore loop analysis, number charting, virtual condition, resultant condition, inner and outer boundaries, minimum airspace, maximum wall thickness, maximum interference, minimum and maximum overall thickness, and fixed and floating fastener assembly conditions.

Learning Outcomes:

- Calculate minimum and maximum wall thicknesses, airspaces and interferences for assemblies
- Examine gaps for assemblies that use a variety of datum structures
- Learn a system of logic and mathematics to analyze tolerances

Wed.-Fri., May 13-15, 8am-4:30pm
(Ends at noon on day 3)
Instructor: James D. Meadows
Fee: $1095
CEUs: 1.7/PDHs: 17
Program No. 4830-7293

Congratulations to these recipients of the Gear Technology Certificate.

Gear Technology Certificate

Although some level of complexity is involved with any manufacturing, the fickle and intricate nature of gear technology makes quality training all the more vital. View full certificate and course details online at **uwm.edu/sce-eng**.

Earn the certificate by completing three courses in as little as 18 months (not to exceed three years).

Advanced Gear Design and Theory

Prerequisites: A knowledge of geometry, trigonometry, and elementary algebra is required. Basic strength of materials is helpful but not essential.

Explore manufacturing methods and considerations, inspection and quality control, materials and heat treatment, drawing data requirements, specifications, basics of load capacity rating and lubrication types and methods. With a strong emphasis on the proper selection, design application and use, rather than fabrication, designers, users and beginning gear technologists can all benefit from the curriculum.

Learning Outcomes:

- Further your understanding of the manufacturing processes that may be used to bring design concepts to reality
- Create drawings that convey full, complete and unambiguous definitions of gears
- Learn the basic methods of analysis for each of the major design factors (wear, scoring, strength and durability)

Tue.-Thu.-May 19-21, 8am-4:30pm
(Ends at 2pm on day 3)
Instructor: Raymond J. Drago, P.E.
Fee: $1095
CEUs: 1.7/PDHs: 17
Program No. 4810-7729

Fundamentals of Gear Design

Prerequisites: A knowledge of geometry, trigonometry, and elementary algebra is required. Basic strength of materials is helpful but not essential.

Develop your understanding of the history, basic gear tooth nomenclature, types of gears, gear arrangements, theory of gear tooth action, and failure modes and prevention. This course was recently updated and expanded to comprehensively cover important topics relating to gear system design consideration.

Learning Outcomes:

- Build your knowledge of modern gear system design and analysis
- Be able to distinguish between types of gears and gear arrangements
- Discuss theory of gear tooth action, and derive parameters as they're presented

Tue.-Thu., Mar. 10-12, 8am-4:30pm
(Ends at Noon on Day 3)
Instructor: Raymond J. Drago, P.E.
Fee: $1095
CEUs: 1.7/PDHs: 17
Program No. 4810-7561

PC Applications in Parallel Axis Gear System Design and Analysis

Gain an understanding of parallel axis gear design, and learn to use the software tool, PowerGear, to analyze the main parameters involved. (A student version of the software is included in the price of the course.) Cover the basics of gear load capacity evaluation from a theoretical viewpoint, and use the PC as a tool to apply these theoretical concepts.

Learning Outcomes:

- Understand durability (surface fatigue and wear), strength (tooth fracture) and scoring
- Discuss typical sets of problematical design parameters from your current work assignments
- Experience hands-on design perspective through group projects

Tue.-Thu., Aug. 11-13, 8am-4:30pm
Instructor: Raymond J. Drago, P.E.
Fee: $1195
CEUs: 1.7/PDHs: 17
Program No. 4810-7728

The Women in Science & Engineering (WiSE) breakfast series serves a nutritious helping of insight, networking and value the first Thursday of every month. Each session examines unique challenges and opportunities for women in these traditionally male-dominated fields.

Membership includes unlimited access to the events all year long.

***Membership Fee:** $60 **Student Membership Fee:** $20 **Non-Member Fee:** $20 per session*

For more information visit uwm.edu/sce-WiSE or contact Marcia Gabriel at 414-227-3378 or gabrielm@uwm.edu.

See page 3 for Certificates

PLASTICS TECHNOLOGY

uwm.edu/sce-plastics

Plastics Technology Certificate

As in most disciplines, cost savings play an important role in plastics engineering – position yourself to be a valuable and economical asset to your organization. View full certificate and course details online at **uwm.edu/sce-plastics**. Individual courses may be taken without pursuit of the certificate, in addition, any of the tolerancing courses may be applied toward this certificate.

Earn the certificate by completing nine or more days of related courses in as little as 18 months (not to exceed three years).

Designing Plastic Parts for the Injection Molding Process

Prerequisites: Some knowledge of plastic materials, injection molding and engineering principles is useful, although the basics are introduced.

Get a fundamental overview of plastic part design for the process of injection molding – ideal for engineers and designers who are accustomed to working with metals, but faced with metal to plastic concerns. Examine plastic materials, behavior and selection, engineering design, manufacturing considerations and assembly methods.

Learning Outcomes:

- Learn how to select an appropriate plastic material formulation
- Discover how to work within the manufacturing limitations associated with the injection molding process
- Understand how to approach plastic product development and establish end use requirements

Mon.-Tue., May 11-12, 8am-4:30pm
Instructor: Nick Schott
Fee: $990
Early Bird: $890 (register by Mar. 12)
CEUs: 1.4/PDHs: 14
Program No. 4830-7526

> *Relevant to issues encountered in my work environment.*
>
> -- Mario Gonzalez

Plastic Injection Mold Design Basics

Get a practical and comprehensive look at injection mold design and learn to contribute to the overall success of projects. Receive a unique blend of very detailed mold design concepts set forth in the context of the whole design process, and on the final day, participate in that process.

Learning Outcomes:

- Understand mold design concepts
- Avoid costly mistakes
- Specify and evaluate your purchases of molds

Mon.-Wed., Apr. 20-22, 8am-4:30pm
Instructor: John Vosmeier
Fee: $1290
Early Bird: $1190 (register by Feb. 20)
CEUs: 2/PDHs: 20
Program No. 4830-7847

Plastic Injection Mold Design Advanced

Prerequisites: Completion of Plastic Injection Mold Design Basics or a solid knowledge of the subject matter.

Take your understanding of the inner workings of injection molds to the next level. With a focus on cost savings throughout, work on "mini-projects" at each important juncture in order to master advanced concepts.

Learning Outcomes:

- Understand advanced parting line, shut-off development, advanced slide and lifter design
- Learn to do advanced cavity and core inserting
- Analyze your current issues regarding the subject matter

Thu.-Fri., Apr. 23-24, 8am-4:30pm
Instructor: John Vosmeier
Fee: $1090
Early Bird: $990 (register by Feb. 23)
CEUs: 1.4/PDHs: 14
Program No. 4830-7846

LEGEND: = Face-to-Face = Online

SIX SIGMA

uwm.edu/sce-eng

Six Sigma Black Belt Training Certificate

Obtain proven six sigma skills and practical experience to transform your organization beyond world-class performance. View full certificate and course details online at **uwm.edu/sce-eng**.

Earn the certificate by completing four modules and homework assignments as well as a capstone project. If you are already a Six Sigma Green Belt, you may be able to enroll in Modules III and IV of our Black Belt Series and receive a Black Belt upon completion of a capstone project.

Learning Outcomes:

- Understand the DMAIC (Define, Measure, Analyze, Improve and Control) methodology
- Apply the appropriate strategy and statistical techniques to help eliminate mistakes, reduce processing times and decrease operating costs
- Learn advanced control charting methods, hypothesis testing and correlation analysis

Module I - Define and Measure
Tue.-Thu. Mar. 10-12, 8am-4:30pm
Instructor: Davis R. Bothe
Fee: $1295
CEUs: 2/PDHs: 20
Program No. 4830-7793

Module II - Measure and Analyze
Tue.-Wed., Mar. 31-Apr. 1, 8am-4:30pm
Instructor: Davis R. Bothe
Fee: $1195
CEUs: 1.4/PDHs: 14
Program No. 4830-7792

Module III - Analyze and Improve
Tue.-Wed., Apr.21-22, 8am-4:30pm
Instructor: Davis R. Bothe
Fee: $1195
CEUs: 1.4/PDHs: 14
Program No. 4830-7794

Module IV - Improve and Control
Tue.-Thu., May 12-14, 8am-4:30pm
Instructor: Davis R. Bothe
Fee: $1295
CEUs: 2/PDHs: 20
Program No. 4830-7791

EVERYDAY ENGINEERING

uwm.edu/sce-eng

Civil Engineering Refresher

Review civil engineering fundamentals and their applications to prepare for the State of Wisconsin PE exam or for general review.

11 Thu.-Jan. 22-Apr. 2
6:30-8:20pm
Instructors: Mahmoud Maamouri, Hani Titi, John Rolfes, Peter Huttelmaier, Cliff Crandall, Dick Osantowski, P.E., Wayne Higgins, Dan Talarczyk
Fee: $795
CEUs: 2.2/PDHs: 22
Program No. 4860-7845

Engineering Ethics

This online course (2 PDHs) will meet the minimum requirement in the area of professional conduct and ethics during each biennial registration period for professional engineer registrants per Chapter A-E-13.

Verification of Completion document (listing 2 PDHs earned) is mailed at the end of the course upon satisfactory completion of the material as determined by the instructor.

Payment for this course must be received at time of registration.

Sessions begin the first Monday of every month
Instructor: Barbara Bartlein
Fee: $99
CEUs: 0.2/PDHs: 2.0

See page 3 for Certificates

WATER TECHNOLOGY

uwm.edu/sce-WaterTechnology

Water Technology Certificate

Discover the latest technology, law, policy, and practices related to storm water, waste water and drinking water. Our Water Technology programs are relevant to inspectors, consultants, municipal facility managers, contractors, city, state and federal employees, lawyers, and others involved with water issues. View full certificate and course details online at **uwm.edu/sce-WaterTechnology**.

Earn the certificate by attending nine or more days of related courses within two years.

Design and Maintenance of Storm Water Infiltration Practices

Infiltration of storm water has become an important topic in the management of urban runoff. Many communities now require infiltration of storm water to help reduce pollutant discharges and recharge local groundwater systems. Under Wisconsin Administrative Code NR 151.12, a percent of storm water runoff must be infiltrated on new development and redevelopment. Prior to infiltration, pretreatment is required for parking lot runoff and for runoff from new road construction in commercial, industrial and institutional areas. Discover the planning, design, construction and maintenance of complex infiltration systems.

Learning Outcomes:

- Evaluate water quality as it relates to storm water runoff
- Perform site investigations and monitoring
- Learn how to plan infiltration systems

Thu.-Fri.-Jan. 15-16, 8am-4:30pm
Instructor: Neal O'Reilly, Ph.D., PH
Fee: $295
CEUs: 1.4/PDHs: 14
Program No. 4820-7849

Sustainable Water Management - An Introduction

Lay the foundation for quality water resources in the future by learning to manage them today. Cover concepts for long-term sustainability by focusing on environmental science, engineering, public health, and the social and economic benefits that clean, safe water provides.

Learning Outcomes:

- Recognize sustainable water management practices
- Provide clean, safe water for your community
- Apply basic design concepts for sustainable water management

Thu.-Feb. 12, 8am-4:30pm
Instructor: Dick Osantowski, P.E.
Fee: $290
CEUs: 0.7/PDHs: 7
Program No. 4820-7851

Introduction to Wastewater Treatment

Develop a fundamental background in municipal and industrial wastewater treatment, from theory to practical applications with real-world case studies. Build your knowledge base with an overview that includes relevant legislation, sampling and analytical procedures, and wastewater treatment processes.

Learning Outcomes:

- Gain an understanding of the Clean Water Act
- Identify physical, chemical and biological treatment processes
- Know the basics in municipal and industrial treatment options

Thu., Feb. 26, 8am-4:30pm
Instructor: Dick Osantowski, P.E.
Fee: $290
CEUs: 0.7/PDHs: 7
Program No. 4820-7850

Wisconsin Sedimentation & Erosion Control Inspector (WISECI)™ Best Management Practices

Learn techniques to establish storm water Best Management Practices (BMPs) for your construction site, and eliminate problems before they cause higher costs and slowdowns for your project. Save time and money by avoiding erosion and sediment releases. Learn about proper installation and maintenance of typical BMPs as well as proper documentation to help keep your project in compliance with local and state regulations.

Learning Outcomes:

- Develop expertise in site inspection and reporting
- Assess erosion and sedimentation releases
- Earn the designation WISECI when you pass the exam at the end of this course

Thu.-Fri., March 12-13, 8am-4:30pm
Instructors: Ginny Plumeau, Scott Bordeau, Kellen Black, Adam Dunkelberg, Peter Shedivy, Pete Wood, P.E.
Fee: $395
CEUs: 1.4/PDHs: 14
Program No. 4820-7525

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FOR MORE INFORMATION

Murali Vedula
Program Director
mvedula@uwm.edu
414-227-3121

Marcia Gabriel
Program Manager
gabrielm@uwm.edu
414-227-3378

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Program Director
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Program Cancellations/Refunds A full refund is issued to program participants if the School of Continuing Education cancels a program for any reason. Participant withdrawals made at least two weeks (14 days) prior to the start of a program can receive a 100% refund. When a participant withdraws less than two weeks prior to the program start, participants may have their fees transferred one time to any **currently available** program, otherwise participants will receive a refund minus a 20% administrative fee. For programs with a fee of $35 or less, no refund will be given. Once a program has begun, refunds are no longer issued.

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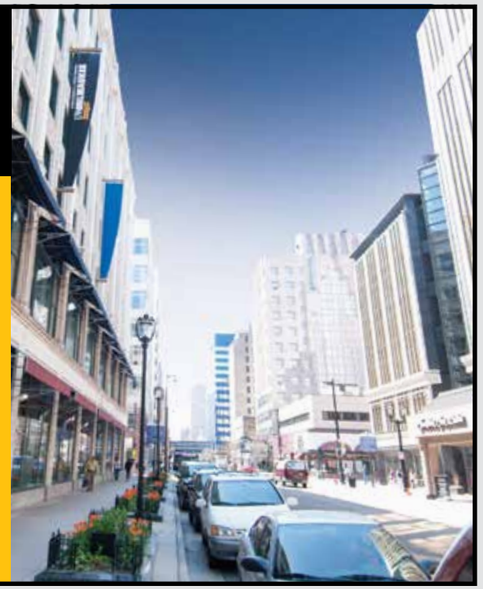

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