

58th Annual

# Underground Corrosion Short Course Program

February 26-28, 2019

Purdue University, West Lafayette, Indiana



**PURDUE**  
UNIVERSITY®

Register today! [www.conf.purdue.edu/corrosion](http://www.conf.purdue.edu/corrosion)

## Who Should Attend

Anyone interested in the causes of corrosion and its control should attend this course. Engineers, corrosion technicians, construction foremen, and maintenance foremen will find that this program fits their needs.

## Sections and Offerings

**Basic Section** – This section will provide a structured course designed to assist in the preparation for the Cathodic Protection Tester Certification test. A voluntary test will be offered at conclusion of the course.

**Intermediate Section** – This section will discuss rectifiers, galvanic and impressed current anode systems, and both DC and AC interference. A voluntary test will be offered at the conclusion of the course.

**Advanced Section** – This section will present advanced techniques, materials, and design. A voluntary test will be offered at conclusion of the course

**Practical Applications of Corrosion Control** – This course is designed for engineers, operators, field laborers, and supervisors that want a basic understanding of the concepts of corrosion. Basic fundamentals and hands-on training will be covered. A voluntary test will be offered at the conclusion of the course.

**Coatings Section** – This section will address Surface preparation and coating fundamentals, inspection techniques in the field and coating mills, knowledge of proper coating selection, and hands-on field application procedures.

**Internal Corrosion Section** – This section will have industry experts presenting the latest information on internal corrosion and internal corrosion control.

**Integrity Management Special Topics** – This section covers advanced topics relating to integrity management. Topics change each year based on new industry trends, technologies, and interpretation of DOT rule-making from transmission and distribution viewpoints. This section is coordinated with “basic fundamentals of integrity management”, so that similar classes of differing levels are offered at the same time.

**\*NEW\* Basic Fundamentals of Pipeline Integrity Management** – This section is designed for people new to integrity or that would like a complete overview of most areas relating to integrity management. This course is structured and is meant to be taken in whole, with a competency test at the conclusion. This course is coordinated with the “Integrity Management Special Topics” course, so that if a particular class is too rudimentary for your experience level, you may choose to sit in the other section to gain more advanced knowledge.

**Special Topics** – This section will address current issues and problems facing the industry, and will endeavor to find solutions.

## Additional Offerings

**Rectifier School** – Tuesday February 26th 8:30-4:00 in room 214. Corrosion technicians can learn about the fundamentals of troubleshooting, maintenance, and operation of rectifiers. In the class, students will be able to work physically with the equipment. **Separate registration fee charged.**

**NACE Corrosion Technician Review Course & Exam Proctoring** – Tuesday February 26th from 11:00 - 4:00 pm in room 202. This is a 4-hour review course with a one-hour break to allow participants to visit the hands-on section. An additional registration fee of \$99 will be charged to take the review course. All registrations for this course or exam must be completed by February 15th, 2019.

The 2-hour proctored NACE International Corrosion Technician certification exam on Thursday, February 28th at 1:30 – 3:30 in room 202 will be available to attendees who have completed the following steps:

1. You must be an active member of NACE and in good standing
2. Contact Marie Dover, [marie.dover@nace.org](mailto:marie.dover@nace.org), to register for the exam. NACE will require an exam fee of \$100 paid directly to NACE at the time of registration;
3. Register, pay for, and attend the Corrosion Technician Review Course here at Purdue.

**The NACE application fee does not need to be paid until test results of the exam are received. This is the advantage to taking the exam at Purdue. Upon passing the exam, a \$200 application fee will need to be paid to NACE in order to receive the certification.**

Registered attendees of the review course will receive a printed copy of the review material.

This certification is geared towards personnel with at least 2 years of experience and who possess basic knowledge of corrosion and corrosion control and are capable of performing routine, well defined work under the close direction of a Specialist or Senior Technologist personnel. Please go to the NACE website to review all certification requirements and recommended reference materials.

**Hands-on Training Opportunity** – Tuesday, February 26th, 12:00-3:00 p.m. in room 302. Multiple hands-on training stations including ultrasonic instrument and pit gauge measurements, line locating, setting current interrupters in rectifiers, and taking the basic bond measurement. Students will learn how to properly operate the equipment at each station.

**\*\*NEW\*\* How to Get Involved in the Corrosion Short Course** – Tuesday February 26th 3:00-3:45 pm in room 278. Not sure what is involved. Come learn what the different roles are, time commitments, and how you can help others grow in the profession.

**The Corrosion Roundtable Forum** – Tuesday February 26th 4:00-5:30 pm in room 279. This is an excellent opportunity to compare corrosion practices and ask questions to the group.

**General Session** – Wednesday Feb. 27th 8:00-9:15 am. Fowler Hall in Stewart Center.

## Professional Development Hours (PDH)

PDH are available for the sessions identified as such. PDH are a standardized, nationwide method of recognition for participation in approved, non-credit educational activities. Attendance at the entire session (Basic, Intermediate, Advanced, or Practical Application) is required for credit. Recordkeeping for your PDH requirements is your responsibility.

## Program and Registration Information

*For registration information, please contact:*

**Amanda Johnson**, Conference Coordinator, or a **Registration Assistant** at (866) 515-0023 or [confreg@purdue.edu](mailto:confreg@purdue.edu)  
**[www.conf.purdue.edu/corrosion](http://www.conf.purdue.edu/corrosion)**

*For course content information, please contact:*

**Brad Malcolm**, General Chairman  
(260) 241-6898 or [bmalcolm@nisource.com](mailto:bmalcolm@nisource.com)

Once you are registered, you will receive an electronic confirmation letter with parking information, links to maps, and other information.

## Parking

Parking is available in the Grant Street Parking Garage, which is across the street (east) from the Purdue Memorial Union. The daily fee is \$10, with hourly rates for lesser time. Parking is free to Union Club Hotel guests. Please have your garage ticket validated at the Union Club desk prior to leaving the garage.

## Refunds

Refunds will be granted upon written request received by February 5, 2019. Purdue University is not responsible for costs incurred due to cancellation.

## Vendor Show

The Four Points by Sheraton (1600 Cumberland Avenue, West Lafayette) is the location for the Supplier Hospitality and Information Show. The show will be held Tuesday (5:30-8:30pm) and Wednesday (5:00-7:30pm). Join a number of industry experts in a casual atmosphere to obtain the latest information on CP services and products. Food and beverages will be provided by the exhibitors. For your convenience, a shuttle bus between the Purdue Memorial Union and the Four Points by Sheraton will be provided. Tuesday shuttle times are 5:00-9:00pm and Wednesday shuttle times are 4:45-7:00 pm. (Four Points by Sheraton to Purdue campus). For more information, contact Kelley Barron at kbarron@chasecorp.com or (517) 962-8129. **The Purdue pick-up location will be at Grant and North Street next the Grant Street Garage.**

## Preferred Lodging

A limited number of rooms will be available at both the Union Club Hotel in the Purdue Memorial Union, adjacent to Stewart Center, and Four Points by Sheraton (host hotel), where the Vendor Show will be held. (A shuttle bus will be available to take participants to Purdue; please check at the hotel desk for information).

Please mention this conference when registering at the Four Points by Sheraton. There has been a block of rooms reserved for Purdue Corrosion Short Course participants. You are urged to make housing reservations early.

## Preferred Lodging

Union Club Hotel, Purdue Memorial Union.....	765-494-8900 or 800-320-6291
Four Points by Sheraton, US 52 and Cumberland.....	765-463-5511

## Alternate Lodging

Comfort Inn, 4701 Meijer Court.....	765-447-3434
Comfort Suites Hotel, 31 Frontage Road.....	765-447-0016
Days Inn, I-65 and State Road 26 East.....	765-446-8558
Fairfield Inn, State Road 26 East.....	765-449-0083
Hampton Inn, I-65 and State Road 26 East.....	765-447-1600
Hilton Garden Inn, Tapawingo Dr. and State Road 26.....	765-742-2100
Holiday Inn, 515 South Street.....	765-423-1000
Homewood Suites, 3939 State Rd 26 East.....	765-448-9700
Quality Inn, 4221 State Road 26 East.....	765-447-3434
Towne Place Suites, 163 Frontage Road.....	765-446-8668

# 58th Annual Underground Corrosion Short Course Schedule

*All times are Eastern Standard Time • All sessions in Stewart Center*

## Tuesday, February 26

**8:30 am – 4:00 pm**    **Rectifier School | Stewart Center, Room 214**

Separate registration fee required (\$175 by 1/31, \$200 after 1/31)

**8:00 am – 4:00 pm**    **Registration | Stewart Center in the East Foyer on the Main Floor**

Check-in registration and receive materials and more information about the courses

**11:00 am – 4:00 pm**    **NACE Corrosion Technician Review Course & Exam Proctoring | Stewart Center, Room 202**

A separate registration fee of \$99 will be charged to take the review course. An Exam fee of \$100 will need to be sent to NACE with your exam. A \$200 application fee will need to be paid to NACE, to receive the certification (the application fee will not need to be paid until test results are received).

**12:00 – 3:00 pm**    **Hands-On | Stewart Center, room 302**

This will be an open forum with multiple stations. Several knowledgeable industry professionals will be available to demonstrate, answer questions, and help students use equipment at each station. The following stations will be available:

- Anode display (Impressed and Galvanic)
- Current interrupter installation
- Ultrasonic measurement testing
- Taking pipe-to-soil potentials
- Bond test station
- Pit depth measurements
- Rectifier
- Coating thickness profile
- Locating

**3:00 – 3:45 pm**    **How to Get Involved in the Corrosion Short Course | Stewart Center, Room 278**

Come learn what the different roles are, time commitments, and how you can help others grow in the profession. Learn how to get involved and give back.

**4:00 – 5:30 pm**    **Roundtable | Stewart Center, Room 279**

Roundtable discussion. This is an open forum for students with any corrosion related question.

**5:30 – 8:30 pm**    **Vendor Show | Four Points by Sheraton**

Shuttle bus will board at Grant and North Street next the Grant Street Garage starting at 5:30 p.m. on a rotating basis. Last bus returning to PMU will board at 8:30 p.m. The pick-up location will be at Grant and North Street next the Grant Street Garage.

# Wednesday, February 27, 2019

Registration begins at 7:00 a.m. in Stewart Center in the East Foyer, Main Floor | General Session is from 8:00-9:15 a.m. in Fowler Hall (located next to the registration window in Stewart Center)

	Period 1 9:30 – 10:30	Period 2 10:45 – 11:40	Lunch 11:45 – 1:00	Period 3 1:00 – 2:00	Period 4 2:15 – 3:15	Period 5 3:30 – 4:30
<b>Basic Section</b> Brent Shuler, Chair STEW 218 ABCD	<i>Principals of Basic Electricity</i> Michael Placzek, Ark Engineering	<i>Corrosion Fundamentals</i> Dan Rowe, NIPSCO	PMU Ballroom	<i>Corrosion Control</i> Michael Placzek, Ark Engineering	<i>Fundamentals of Cathodic Protection (Part 1)</i> Josh Brewer, Integrity Solutions	<i>Fundamentals of Cathodic Protection (Part 2)</i> Josh Brewer, Integrity Solutions; Brent Shuler, Columbia Gas of Ohio
<b>Intermediate Section</b> Patrick Elpers, Chair STEW 214 CD	<i>Rectifiers/Solar Panels, Part 1</i> Don Olson, IRT	<i>Rectifiers/Solar Panels, Part 2</i> Don Olson, IRT	PMU Ballroom	<i>Galvanic Anode Systems</i> Eric Langelund - Piping & Corrosion Specialties, Inc.	<i>Impressed Current Anode Systems</i> Eric Langelund - Piping & Corrosion Specialties, Inc.	<i>Interference Testing DC Part 2</i> Mike Placzek - ARK Engineering
<b>Advanced Section</b> Rogelio de las Casas, Chair STEW 214 AB	<i>Impressed Current CP Design, Part 1</i> Keith Boswell, NPS	<i>Impressed Current CP Design, Part 2</i> Keith Boswell, NPS	PMU Ballroom	<i>Cathodic Protection Installation</i> Nathan Wood, Central Michigan CP	<i>Deep Anode Cathodic Protection Design</i> Nathan Wood, Central Michigan CP	<i>Soil Resistivity Testing for CP Design</i> Lukas Szapak, Vectren
<b>Practical Applications of Corrosion Control</b> Mark James, Chair STEW 306	<i>Introduction to Corrosion Control</i> Phil Eggen, EN Engineering	<i>Coatings</i> Doug Klingensmith, Unconventional Solutions	PMU Ballroom	<i>Coating Hands-On</i> Doug Klingensmith, Unconventional Solutions	<i>Cathodic Protection</i> Steve Padden, Corpro Companies	<i>Cathodic Protection</i> Steve Padden, Corpro Companies
<b>Basic Fundamentals of Pipeline Integrity Management</b> Josh Brewer, Chair STEW 278	<i>History of Regulations</i> Kevin Cowan, Kleinfelder	<i>Pre and Post Assessmt</i> Britney Strout, DCP	PMU Ballroom	<i>Indirect Inspections</i> Josh Brewer, Integrity Solutions	<i>ILI Basics</i> Ray Bingman, Vectren	<i>Direct Examinations</i> Mark Anderson, Mercer Technical
<b>Integrity Management Special Topics</b> Mike Mertes, Chair STEW 279	<i>Regulatory Changes</i> Chuck Kanoy, NiSource	<i>Determining ILL Feasibility</i> Joseph Craycraft, NiSource	PMU Ballroom	<i>DCVG Dig Selection - Above and Beyond % IR</i> Ryan Swor, Lake Superior Consulting	<i>Characterization of ILL Anomalies</i> Henry Green, Enduro	<i>History and Comparison of RSTRENG, B31-g.</i> Keith Leewis, Leewis and Assoc.
<b>Pipeline Coatings</b> Frank Rampton, Chair STEW 302	<i>Successful Field Coating Application</i> Scott Feuquay, S.L. Feuquay	<i>Transition Coatings- Lessons Learned</i> Neil Pittman, Lake Superior Consulting	PMU Ballroom	<i>Coating Inspection Techniques</i> Chris Buyle, SME	<i>Coating Inspection Equipment/Calibrations</i> Chris Beninati, Elcometer	<i>Hands On, rotating stations: Coating &amp; inspection equipment</i> N.Pittman, T. Vorhies, C. Buyle, F. Rampton
<b>Special Topics</b> Jim Dooley, Chair STEW 202	<i>AC Mitigation + Mitigation Solutions</i> Clay Brelsford, Bass Engineering	<i>Ultrasonic Coupon Monitoring</i> Jim Warner, Consumers Energy	PMU Ballroom	<i>NDT Testing for Weld Inspections</i> Ken Dean, BSI	<i>Coatings for HDD Applications</i> Tammy Bomia, Neptune Research	<i>Vapor Corrosion Inhibitors (Tanks &amp; Casings)</i> Kelly Baker, ZeRust
<b>Internal Corrosion</b> Jane Brown, Chair STEW 206	<i>Internal Corrosion, An Operator's Perspective</i> Joe Galbraith, Phillips 66	<i>Internal Corrosion Threat and Probability Assessment</i> Bruce Cookingham, DNV	PMU Ballroom	<i>Methods for Corrosion Control, Corrosion Testing, and Materials Selections</i> Yolanda DeAbreu, Nalco Champion	<i>IC Risk Assesment</i> Lyneise Bensen, DNV	<i>Field Sampling Methods for ICM</i> Jason Rine, American Innovations

# Thursday, February 28, 2019

**Period 6**  
8:30 – 9:30

**Period 7**  
9:45 – 10:45

**Break**  
10:45 – 11:15

**Period 8**  
11:15 – 12:15

**Period 9**  
12:30 – 1:30

**Basic Section**  
Brent Shuler, Chair  
STEW 218ABCD

*Cathodic Protection Measurement Basics (Part 1)*  
Luke Harris, Integrity Solutions

**Intermediate Section**  
Patrick Elpers, Chair  
STEW 214CD

*Interference Testing DC, Part 2*  
Mike Placzek, ARK Engineering

**Advanced Section**  
Rogelio de las Casas, Chair  
STEW 214AB

*Galvanic Anode CP Design, Part 1*  
Rogelio de las Casas, DLCCP

**Practical Applications of Corrosion Control**  
Mark James, Chair  
STEW 306

*Electrical Isolation*  
Mark Anderson, Mercer Technical Services

**Basic Fundamentals of Pipeline Integrity Management**  
Josh Brewer, Chair  
STEW 278

*ICDA / SCCDA / Hydro*  
TBD

**Integrity Management Special Topics**  
Mike Mertes, Chair  
STEW 279

*Defect Analysis and Assessments*  
Dr. Thomas Bubenik, DNV GL

**Pipeline Coatings**  
Frank Rampton, Chair  
STEW 302

*Pig applications & in place pipeline coatings*  
Katie Duda, Highland International

**Special Topics**  
Jim Dooley, Chair  
STEW 202

*Electrical Utility Interference White Paper*  
Mike Tachick, Dairyland

**Internal Corrosion**  
Jane Brown, Chair  
STEW 206

*Molecular Microbiology and IC*  
Tom Pickethall, Enhanceco

*Monitoring Cathodic Protection*  
Steve Glover, Vectren

*AC Interference, Part 2*  
Mike Baxter, TRC

*Impressed Current CP Design Exercise*  
Keith Boswell, NPS

*Rectifier Inspection & Resistivity Measurements*  
Tom Mollica, III, Piping and Corrosion Specialties

*Risk Management*  
Eric Coyle, Integrity Solutions

*Stepping into Probabilistic Risk*  
Jeff Lachey, DNV GL

*FBE, Liquid Epoxies & Patch Sticks on Pipelines*  
Steve Hall, 3M

*Active Shooter Protection Strategies*  
Joe Crimmins, Serve & Protect Law

*Internal Corrosion Monitoring Systems*  
James Grey, Metal Samples

Snacks & Drinks  
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*Cathodic Protection Measurement Basics (Part 2)*  
Mark Anderson, MTS

*AC Interference, Part 1*  
Mike Baxter, TRC

*Galvanic Anode CP Design, Part 2*  
Rogelio de las Casas, DLCCP

*Test Stations & Potential*  
Mark James, Marathon Pipeline

*DIIMP*  
Mike Klees, Vectren

*Intrudition to Pipeline Safety Management Systems*  
Mark Rokos, NiSource

*(1) Pipeline Coatings & 192/195*  
Chuck Weindorf, IURC;  
Bill Lowry, PHMSA

*(2) Pipeline Coating Failures & Roundtable*  
Chuck Weindorf, IURC; J. Utley, Denso

*CP Utilites Working Together with Ductile Iron*  
Paul Hanson, DIPRA

*Corrosion Coupons, What Do The Results Mean?*  
Joe Galbraith, Phillips 66 & Brown Corrosion Services

*Cathodic Protection Measurement Basics (Part 1)*  
Luke Harris, Integrity Solutions

*Interference Testing DC, Part 2*  
Mike Placzek, ARK Engineering

*Galvanic Anode CP Design, Part 1*  
Rogelio de las Casas, DLCCP

*Electrical Isolation*  
Mark Anderson, Mercer Technical Services

*ICDA / SCCDA / Hydro*  
TBD

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Dr. Thomas Bubenik, DNV GL

*Pig applications & in place pipeline coatings*  
Katie Duda, Highland International

*Electrical Utility Interference White Paper*  
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## Short-Course Registration Fee

The general registration fee is \$150, rectifier school is \$175, and NACE is \$99 through January 31, 2019. After that, a late fee of \$25 will be added. The luncheon on Wednesday is included with registration.

## Fitzgerald Award

The Fitzgerald Award is the highest honor a Purdue Underground Corrosion Short Course student can receive. It has been awarded to a deserving student since 2004. This award is not given out every year, as some years no student is able to meet the criteria.

John Fitzgerald III, the award's namesake, was a 1955 graduate of Yale University, professional engineer, NACE Corrosion Specialist, and was involved with corrosion work since 1959. John was a Air Force Veteran, NACE International Fellow, authored over 75 technical papers, and served as NACE International president from 1990 to 1991.

John passed away in 2018. At the short course he was a teacher, chairman, advisor, mentor, and for those of us lucky enough to have known him, he was a friend. His imprint on this course, this industry, and his colleagues, is nothing short of extraordinary. He is profoundly missed.

**The 2018 winner is Dan Berry - NIPSCO**

## Pierce Award

The Pierce Award is an honor presented to a committee member or an individual that contributes to and adds value to the Purdue Underground Corrosion Short Course. 2013 was its inaugural year.

Jay Pierce began with the Purdue Underground Corrosion Short Course in 1980. He chaired the Power and Communications Section from 1985 and served 7 years as General Chairman. Jay is retired from the University but continues to assist the course committee as an advisor.

# 58th Annual Purdue Underground Corrosion Short Course Planning Committee and Sponsors

### *Hands-on Section*

Luke Harris, Integrity Solutions Field Services

### *Basic Section*

Brent Shuler, Columbia Gas of Ohio

### *Intermediate Section*

Patrick Elpers, Vectren Energy

### *Advanced Section*

Rogelio de las Casas, DeLasCasas CP

### *Practical Application*

Mark James, Marathon

### *Rectifier Section*

Matt Hoekstra, Buckeye Pipeline

### *Coatings School*

Frank Rampton, Trenton

### *Internal Corrosion*

Jane Brown, Brown Corrosion

### *Integrity Mgt. Special Topics*

Mike Mertes, NIPSCO

### *Special Topics*

Jim Dooley, BSI

### *Testing*

Brent Shuler, Columbia Gas of Ohio

### *Vendor Representative*

Kelley Barron

### *Basic Fund of Pipeline Integrity*

Josh Brewer, Integrity Solutions Field Services

### *General Chairman*

Brad Malcolm, NIPSCO

### *Vice Chairman*

Josh Brewer, Integrity Solutions Field Services

### *Veterans Program*

James Morrow, Integrity Solutions Field Services

### *Advisers*

Josh Brewer, Integrity Solutions

Jeff Brown, Buckeye Pipeline

Mike Mertes, NISOURCE

Jay Pierce

Jim Utley

Ned Gisel

Bill Fields, Ohio Valley Gas Corporation

Jim Shank, Miller Pipeline

### *Associations*

Chicago Regional Committee on Underground Corrosion

Indiana Corrosion Society

Michigan Electrolysis Committee

NACE International – Southwest Ohio Section

NACE International – Detroit Chapter

Ohio Corrosion Committee

Purdue Physical Facilities Utilities Department

**NOTE: Purdue University, Underground Corrosion Short Course, the planning committee, and the committee officers are not responsible for statements made by the speakers.**

## Registration

Registration will be available online only and no registration forms will be available to mail in. Register today online at [www.conf.purdue.edu/corrosion](http://www.conf.purdue.edu/corrosion). If you have any questions regarding registration or need any assistance please call our toll free registration line 1-866-515-0023, Monday – Friday 8:00 am – 4:30 pm.

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If you plan to call in and register over the phone for the short course, please be ready to select which section you plan on attending. Descriptions are on page two of the brochure.

- Basic Section
  - Intermediate Section
  - Advanced Section
  - Practical Applications of Corrosion Control
  - Coatings Section
  - Internal Corrosion Section
  - Integrity Management Special Topics
  - **\*\*NEW SECTION\*\*** Basic Fundamentals of Pipeline Integrity Management
  - Special Topics
- 

Below are the registration fees for the 2019 course. You have until February 5th to cancel and receive a refund.

General Registration by January 31: \$150

General Registration after January 31: \$175

Rectifier Registration by January 31: \$175

Rectifier Registration after January 31: \$200

NACE Corrosion Technician Review: \$99

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Purdue is committed to making its programs accessible to individuals with disabilities. If you require an accommodation or special assistance for this program due to a disability, please contact us at (866) 515-0023.

**Register today at [www.conf.purdue.edu/corrosion](http://www.conf.purdue.edu/corrosion)**

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**PURDUE CONFERENCES**

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