American Institute of Chemical Engineers, Cleveland Section

Visit our Web Page at: https://www.aiche.org/community/sites/local-sections/cleveland/newsletters

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Saturday, July 26, 2025

AIChE Membership is Not Required to attend any meetings

”CLE AIChE Steering Committee Annual Planning Meeting”

The Annual Planning Meeting

We hope everyone is enjoying a fun and safe summer of 2025. Recharging and ready for our next adventure! Each year in August the CLE AIChE Steering Committee gathers to plan the following year’s events and topics. Many of the events and topics are based on popular events from past years that attracted most members. Other meetings are based on some annual trends or themes displayed in the AIChE “Chemical Engineering Progress” monthly publication. A third source for our meeting topics is from a survey of comparable AIChE Local Section monthly meetings from across the nation (i.e., Midland, Michigan; Chicago, Illinois; and Houston, Texas). Finally, we do reference topics from our sister organization the American Chemical Society and their weekly-monthly publication “Chemical & Engineering News.” Examples of these sources of input for monthly meeting themes from our last year would be the safety seminars, the simulation seminars, and the environment meeting themes. In addition to much of this planning is to have more topics that will attract our Young Professionals as they are about to graduate or have already graduated from university. We plan career panel discussions at local student chapters of CLE AIChE and they have been well attended!

This year we are reaching out to you for your input in what meeting themes you may be interested in having for our next year! Some of these may be just a single monthly topic, a seminar, or a local tour of a facility open to public visits. Two in particular for this year we are hoping for another tour of the Perry Nuclear Reactor Simulator and Walk Through of the Protected Plant Area. Since this tour is limited to 14 people requiring background checks it will probably be done again like last year in May with a different group of visitors. Another talk & tour we are investigating is with the Morton Salt Plant by Lake Erie. We are also looking at more plant safety management and chemical process simulation seminars from both of our CLE AIChE Section Chairs..

Since we cover a rather large area from east side to west side we try to balance our meeting locations accordingly or have a city central location in Independence to balance accessibility to our membership (note you need not be an AIChE National member to attend any of our meetings, unless you wish to hold a CLE AIChE officers position on our Steering Committee).

We look forward to hearing from you with any recommendations you may have to help improve our meeting topic interest with you and our membership. Please send any replies before mid-August.

Thank you!

Joseph Yurko, PE, FAIChE

CLE AIChE Newsletter Editor-in-Chief

CLE AIChE Section Webmaster

Announcing an Intro to Quantum Computing at CSU (from August 25 to September 26)**:**

Last year we had an monthly meeting on the subject of Quantum Computing by Dr. Chansu Yu, Professor of Electrical and Computer Engineering at CSU. For further study in this area a new microcredential class on Quantumtum Computing is open to most other engineering disciplines..

Cleveland State University's **Introduction to Quantum Computing** microcredential offers an accessible, hands-on exploration of quantum computing for learners with a foundational understanding of linear algebra and matrices. The course breaks down complex quantum concepts into intuitive, interactive modules that introduce the principles of quantum information science. Participants will investigate how quantum systems operate, why they differ from classical computing, and how they are poised to transform areas such as secure communication and cryptography.

Using web-based simulations and guided experiments, learners will model quantum behaviors, test algorithms, and gain a deeper understanding of the potential applications of quantum technologies. Delivered primarily online, the course includes a collaborative discussion board and optional in-person sessions for hands-on labs, Q&A, and networking.

By the end of this course, students should be able to:

-Explain the differences between bits and qubits.
-Become familiar with 1-qubit and 2-qubit gate operations and gain the ability to build simple quantum circuits.
-Become familiar with the concepts of superposition and entanglement, and be able to analyze quantum state transformations.
-Understand quantum algorithms (Deutsch and Grover) and compare effectiveness versus classical algorithms.
-Understand the problem of noise and analyze the effectiveness of simple error correction codes.
-Describe the implications of quantum computing for cryptography, including quantum teleportation.

Recommended Prerequisites:

-Math: Basic Linear Algebra and Probability
-Programming (helpful, but not required)
-Logical Thinking
-Interest in Emerging Technologies

Course Features

This self-paced micro-credential includes a comprehensive set of materials designed to support your learning and skill development:

-30+ engaging lecture videos
-20 detailed lecture notes
-10 hands-on lab experiments
-15 short quizzes for reinforcement
-4 tests to assess your understanding

These resources provide structured, interactive, and in-depth instruction, whether you're exploring quantum computing for the first time or expanding your technical foundation.

Fully web-based with optional in-person labs on September 11th and September 25th at 6:00 p.m.

Cost:
$649 Early Registration *(before August 8)*
$749 Standard Registration *(after August 8)*
Registration closes **August 21**

- **Course Dates: August 25 – September 26**

Instructors

- Dr. Chansu Yu, Professor, Electrical and Computer Engineering, CSU
  216-687-2584 | c.yu91@csuohio.edu.
- Dr. Mehdi Rahmati, Assistant Professor, Electrical and Computer Engineering, CSU
  216-687-2538 | m.rahmati@csuohio.edu
- **Quantum Information Technology Advancement and Research (QUITAR)**
  Department of Electrical and Computer Engineering
  Washkewicz College of Engineering
  Cleveland State University

CLE AIChE Events from July 2025:

Members of CLE AIChE celebrated Nationa Engineers Week on July 3rd during the
"Summer Fun for Everyone" Event
at the Cuyahoga County Public Library, Strongsville Branch with 25 students (grades 2-6)

The July 6
Event was our second event studying energy as it transitions from potential energy to kinetic energy using a minature catapult that adjusts the angle of release from 0 to 90 degrees to vary the range and trajectory of a projectile. The students learned mechanical engineering basics under the theme we gave. They were acting out the story of Disney Pixar movie "A Bugs Life" where they were an ant colony protecting their food supply from the invading grasshoppers. The worst grasshopper and their target was Hopper!

Our "Summer Fun for Everyone" event volunteers: Front Row: Tim Protiva (Children's Librarian) and Valerie Congdon Back Row: Mike Galgoczy (CLE AIChE Chair), John Juchnowski (CLE AIChE Young Professional Chair), Joe Yurko (N.E.W. Local Chair), & Gary Peck (CLE AIChE Secretary). Not Shown: Rosanne McCay-Brunello

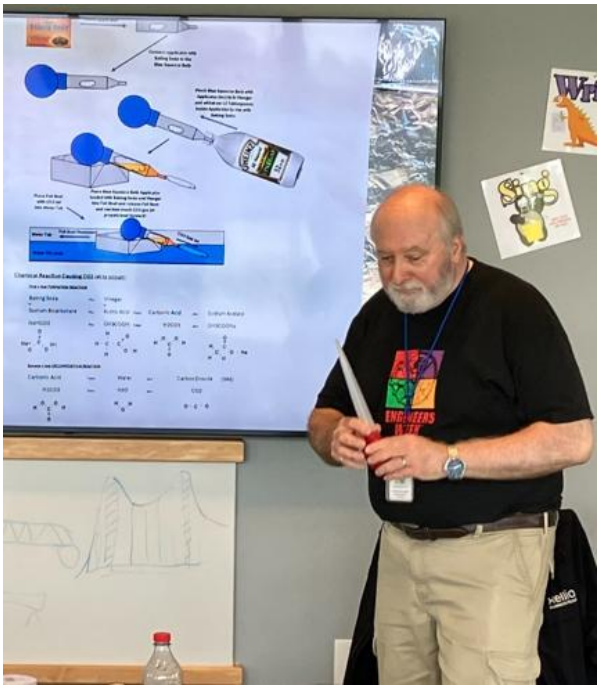
CLE AIChE Events from June 2025:

Members of CLE AIChE celebrated Nationa Engineers Week on June 5th during the
"Summer Fun for Everyone" Event
at the Cuyahoga County Public Library, Strongsville Branch with 25 students (grades 2-6)

Students with **Exercise # 1**: Build a Foil Bridge and test your design with glass pellets and count the glass pellets on the foil bridge when it fails. Most team pellets wins! This will expose the students to structural and civil engineering design principles.

Students with **Exercise # 2**: Build a Foil Boat And test your design with glass pellets and count the glass pellets in the foil boat when it fails. Most team pellets wins!
Students learn buoyancy and fluid hydraulics

Joe Yurko (to right) demonstrates chemical engineering by showing how a chemical reaction inside a "basting bulb" can propel a foil boat when we combine vinegar (acetic acid) and baking soda (bicarbonate soda) to generate carbon dioxide in the form of rapidly forming gas.



Special thanks from Joe Yurko to all the volunteers (L-R, above): Karen Sherwood, Valerie Congdon, Mike Galgoczy, Joe Spagnuolo, and Tim Protiva. Not shown are the volunteers from Laird Industries: Julia Lewins and Chloe Ziflak who made this event possible!

CLE AIChE Events from May 2025:

CLE AIChE Steering Committee Members and their guests (14 in all) on May 5th received a demonstration of the Perry Nuclear Reactor Simulator in several operating modes and were given a walking tour of the Protected Area by plant engineering experts.

Perry Nuclear Power Plant Training Center

(L-R) Raleigh Chiarelli (Nuclear Reactor Simulator Training Manager) and Andy Ohrablo (Vistra Corporation Nuclear Engineer) during a simulated earthquake at the plant site.

Deb Brink, Bob Brink, Amber Schmidt, Chris Hasek, John Juchnowski, Ray Zucker, Raleigh Chiarelli, Joe Yurko, Valerie Congdon, Mikala McCay, Rosanne McCay, Joe Spagnuolo, Mike Galgoczy, and Gary Peck

CLE AIChE Party # 1 arriving at the entrance to the Protected Area Tour,
(L-R) Joe Spagnuolo, Rosanne McCay, Joe Yurko, Deb Brink, Bob Brink, Valerie Congdon, Gary Peck, and Michael Prudic

The CLE AIChE Tour Group inside the Perry Nuclear Power Plant Protected Area