RAPID Releases Five eLearning Courses on Operator Training and Safety

The RAPID Manufacturing Institute — an AIChE community dedicated to transforming the process industries by advancing U.S. manufacturing through innovation, efficiency, and supply chain resiliency — has released five new eLearning courses that provide training on entry-level skills that are key to a process operator's career and day-to-day work. These courses were produced by the Virtual Technician & Operator Training Program (VTOTP), which aims to standardize technician and operator training, identify learning and development gaps, and align training with industry needs. VTOTP's content has been made possible thanks to it receiving a National Institute of Standards and Technology (NIST) Rapid Assistance for Coronavirus Economic Response (RACER) award under the Dept. of Commerce.

Four of these courses — "Basic Process Technology for Operators," "Process Technology Troubleshooting for Operators," "Piping and Instrumentation Diagrams (P&IDs) and Other Diagrams and Drawings," and "Facility Safety for Process Technology Operators" — introduce early-career process operators to relevant technologies and concepts that they will encounter throughout their career. The fifth course — "A Day in the Life of an Operator" — provides an introduction to process operations for those interested in entering the field. These virtual learning courses aim to give technicians a solid foundation of process design, operation, and maintenance that will help them keep their workspaces safe.

The "Basic Process Technology for Operators" course introduces new petrochemical employees to some of the basic process technologies that they will encounter throughout their careers. As many operators entering the chemical process industries (CPI) might not be familiar with industry-specific technologies, this course provides early-career operators with introductory training on the concepts required for long-term success in their role. Topics covered include an introduction to Windows-based computer systems; discussions of relevant physical properties and phenomena like density, pressure drop, compressibility of gas flow, and principles of liquid flow; and explanations of different pressure and temperature scales.

"Process Technology Troubleshooting for Operators" introduces new CPI employees to troubleshooting. This course covers the many ways that the CPI's complex technologies, processes, chemistries, and systems can diverge from expected operations and what operators do to bring them back on target. Some of the topics covered include how to determine when troubleshooting is required in a petrochemical facility; identify potential health, safety, or environmental hazards that can result from troubleshooting activities; state the steps an operator would take to troubleshoot a problem; and document activities in the plant operating history. Upon completion of the course, learners will better understand the various troubleshooting methods and how to go about solving problems in the field.

To help familiarize operators with vital process safety concepts, the course "Facility Safety for Process Technology Operators" introduces new petrochemical process operators to many different aspects of safety in the CPI. This course covers topics like a review of major industrial incidents, daily safety responsibilities, safety performance tracking, major safety-related systems, contractor safety, and tool and equipment safety. This course will help operators learn from past incidents and understand the significant safety programs of a petrochemical facility, with the goal of providing new operators with a better appreciation of the importance of process safety in petrochemical and related industries.

Many operators new to the CPI have likely never had to use and interpret complex, detailed drawings. The course "Understanding P&IDs and Other Facility Diagrams and Drawings" introduces new technicians to the great variety of process diagrams they will encounter over the course of their career. Its modules instruct learners on how to read block flow diagrams, control room graphics, process flow diagrams, mass and energy balances, P&IDs, and more. After attending this course, learners will have a better understanding of how to interpret different types of diagrams and which situations are appropriate for each type of drawing.

For those curious about what the role of a process operator entails and whether the career might be a good fit for them, "A Day in the Life of an Operator" walks learners through what it's like to be a process operator in a petrochemical facility. This course introduces students to the various tasks operators typically handle, the different forms of personal protective equipment (PPE), methods of assessing the functionality of industrial equipment, and the roles and responsibilities of process technology operators.

The courses are created and instructed by Michael J. Kean, P.E., a committed process safety practitioner with a combined 40 years of experience in education, industry, and teaching. Kean is a member of AIChE's Northern California Local Section and the North American Process Technology Association (NAPTA).

All courses are available through the AIChE Academy, an educational platform dedicated to helping engineers acquire or sharpen their skills with courses and webinars in chemical engineering and related fields. Find these courses and more at www.aiche.org/ili/academy. CEP