Self-Study Courses

This is a listing of self-study courses available for the powder and bulk solids industry. We welcome your suggestions for self-study courses not listed here and will include applicable information in our next *Reference & Buyer's Resource* issue. Contact Kayla Carrigan, Associate Editor, *Powder and Bulk Engineering,* 1155 Northland Drive, St. Paul, MN 55120; 651-287-5630, fax 651-287-5650 (kcarrigan@cscpub.com).

BULK SOLIDS HANDLING & PROCESSING

Introduction to Compressed Air Systems (Smart Site). Offered by the Compressed Air and Gas Institute (CAGI). Coursework consists of 8 modules and covers compressed air basics; types of compressors, capacity controls, and distribution systems; how to control wastes; and air system maintenance. Contact John Addington, 216-241-7333 (cagi@cagi.org, www.cagi.org).

CERAMICS

Ceramic Laboratory Procedures. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 15 lessons and 3 examinations and covers the scientific method and lab safety; preparing and processing test samples; ceramic properties and testing procedures; and measurement interpretation. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Ceramic Processing. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 10 sections and covers a wide range of ceramic processing technologies and all of its interrelationships, starting with raw materials selection and processing and ending with finishing processes. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Electronic Ceramics and Materials. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 15 lessons and covers electronic ceramics, including theory and properties; processing and testing; dielectric ceramics; magnetic materials; semiconductors; and films, coatings, and composites. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Fundamentals of Ceramics. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 31 lessons and 3 examinations and covers the basic principles of ceramic materials and their production. Topics include chemistry and crystal chemistry; ceramic manufacturing processes; ceramic product groups; process control and evaluation; and industrial challenges. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Materials Science for Industry. Offered by ASM International and The American Ceramic Society (ACerS). Course consists of 16 lessons and provides a comprehensive overview of modern materials, including metals, ceramics, plastics, and composites. Course is suitable for anyone involved in using or specifying materials. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Physical Properties of Ceramic Materials. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 16 lessons and 3 examinations and covers the types of behavior that ceramic materials exhibit at atomic, microscopic, and macroscopic scales. Topics include crystal chemistry, phase equilibria, and physical properties such as mechanical, thermal, optical, electrical, magnetic, and chemical. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Statistical Process Control for Ceramics and Glass. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 8 lessons focusing on statistical tools for process control and 12 lessons focusing on ceramic processing control. Course will provide students with statistical data and teach how to apply such data to control ceramic and glass processes. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

FOOD & FOOD PROCESSING

Cookie and Cracker Manufacturing Course. Offered by the American Bakers Association for its members. Course's flexible pace allows up to 2 years for completion. Course covers the fundamentals of cookie and cracker manufacturing, including ingredient handling and characteristics; the production process, including mixing, baking, cooling, and packaging; safety and sanitation; and equipment maintenance. Contact Vanessa Vial, 202-789-0300 (vvial@americanbakers.org, www.americanbakers.org/cca).

Entry-Level Training Program. Offered by the American Bakers Association for its members. Web-based training is offered in English or Spanish to individuals with little or no experience in a bakery environment. Training consists of 4 lessons: ingredients, mixing, forming, and baking. Students have access to a glossary of terms and can print a completion certificate upon successfully passing each lesson. Contact Vanessa Vial, 202-789-0300 (vvial@americanbakers.org, www.americanbakers.org/cca).

Fundamentals of Confectionary Science and Technology — Module 1: Sugar Confections. Offered by the University of Wisconsin–Madison's department of engineering professional development. Course topics include an overview of sugar and corn syrup chemistry and phase transitions; physical and chemical properties of sweeteners; crystallization principles; applications, including hard candies, fondants, creams, tablets, lozenges, caramel, fudge, and toffee; factors impacting sugar confections' quality and shelf life. Contact Douglas T. Reindl, 800-462-0876 (dreindl@wisc.edu, www.epd.wisc.edu).

Fundamentals of Confectionary Science and Technology — Module 2: Stabilized Confections. Offered by the University of Wisconsin–Madison's department of engineering professional development. Course topics include an introduction to hydrocolloid chemistry; the role of

stabilizers; processing principles; applications, including chewing and bubble gum, gummies and jellies, aerated candy, and sugar panning; and the relationship between hydrocolloids and both the texture and quality of stabilized confections. Contact Douglas T. Reindl, 800-462-0876 (dreindl@wisc.edu, www.epd.wisc.edu).

Fundamentals of Confectionary Science and Technology — Module 3: Chocolates. Offered by the University of Wisconsin–Madison's department of engineering professional development. Course topics include an introduction to fats, oils, and emulsifiers; the physical and chemical properties of lipids; chocolate and chocolate coatings; principles of processing chocolates; the science of chocolates — particle size and flavor, viscosity, fats and tempering, and panning; and troubleshooting chocolates. Contact Douglas T. Reindl, 800-462-0876 (dreindl@wisc.edu, www.epd.wisc.edu).

Intermediate Training Course. Offered by the American Bakers Association for its members. Course is for individuals beyond the beginner's level and consists of 12 separate lessons that take a cause-and-effect approach. Lessons cover various processes on the line, including the operator's roles and responsibilities at each part of the line, proper equipment use, safety, sanitation, pre-operation checks, and more. Contact Vanessa Vial, 202-789-0300 (vvial@americanbakers.org, www.americanbakers.org/cca).

GLASS

Glass Technology. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 16 lessons and 3 examinations. With an emphasis on production technology and glass technology, topics include commercial glass compositions, glass-to-metal seals, grinding and polishing, process control, and health and safety issues. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

MAINTENANCE

Gaskets and Bolted Flange Connections. Offered by the New Standard Institute. Course covers the importance of achieving a good flanged connection to limit emissions in valves, compressors, pumps, and other flanged equipment. Topics include gasket terminology and selection criteria; gasketed joint mechanics; functions of bolts, studs, and nuts; establishing a flange connection program; and flange leakage and maintenance. Contact the New Standard Institute, 203-783-1582 (nsi@newstandardinstitute.com, www.newstandardinstitute.com).

Machine Vibration Basics. Offered by the New Standard Institute. Course explains the physical basis for vibration monitoring, covers vibration analysis through identification of discreet frequencies, and provides problem-solving examples of machinery problems. Contact the New Standard Institute, 203-783-1582 (nsi@newstandardinstitute.com, www.newstandardinstitute.com).

Maintenance Planning and Scheduling. Offered by the New Standard Institute. Course provides maintenance planning and scheduling basics, including maintenance by plan versus maintenance by default, construction estimating methods, mandatory and discretionary preventive maintenance, and other related information. Contact the New Standard Institute, 203-783-1582 (nsi@newstandardinstitute.com, www.newstandardinstitute.com).

Shutdowns, Turnarounds, and Outages. Offered by the New Standard Institute. Course teaches modern project management methods to enable professionals to identify, plan, staff, and coordinate maintenance to minimize downtime and related costs. Topics include identifying needed work, defining the scope of work, and planning a shutdown. Contact the New Standard Institute, 203-783-1582 (nsi@newstandardinstitute.com, www.newstandardinstitute.com).

MATERIALS

Aluminum and Its Alloys. Offered by ASM International's Materials Engineering Institute (MEI). Course consists of 15 lessons, including an introduction to aluminum, extractive metallurgy, solidification and phase diagrams, aluminum alloy systems, aluminum casting principles and practice, hot- and cold-working aluminum alloys, and more. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Corrosion. Offered by ASM International's Materials Engineering Institute (MEI). Course consists of 12 lessons focused on understanding corrosion, including how to recognize and define corrosion problems, how to develop and implement corrosion-control programs, and corrosion test methods and result interpretation. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Elements of Metallurgy. Offered by ASM International's Materials Engineering Institute (MEI). Course includes 14 lessons consisting of an intensive introduction to the principles of metallurgy and its practical application in various fields of metals and alloy production, testing, and manufacturing processes, including an understanding of ore extraction, metalforming, phase diagrams, corrosion, and heat treating. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Fundamentals and Applications of Powder Metallurgy. Offered by ASM International's Materials Engineering Institute (MEI). Course consists of 15 lessons and includes a powder metallurgy handbook. Topics include products and processing overview, powder production and characterization, compacting, sintering, porous materials, hot consolidation of metal powders, and powder metallurgy applications. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Nickel and Nickel Alloys. Offered by ASM International. Course consists of 14 lessons providing an overview of nickel alloys and their use and an explanation of why nickel and its alloys are better than ferrous materials for specific applications. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Refractory Technology. Offered by ASM International and the American Ceramic Society (ACerS). Course consists of 27 lessons providing comprehensive information about and training in refractory technology and its various applications. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

Stainless Steels. Offered by ASM International. Course consists of 15 lessons covering the physical metallurgy of stainless steels; properties of austenitic, martensitic, and ferritic stainless steels; heat- and corrosion-resistant alloy casings; properties of precipitation-hardening steels; heat treating; forging, machining, cleaning,

and finishing; cold forming; deep drawing; metallurgy of welding stainless steels; joining stainless steels; corrosion of metals; corrosion-resistance of stainless steels; and stainless steels at high temperatures. Contact ASM customer service, 440-338-5151 (memberservicecenter@asminternational.org, www.asminternational.org).

PACKAGING

Basic Electrical Components. Offered by the Packaging Machinery Manufacturers Institute University (PMMI U). Course introduces the principles of electricity and explains the electrical components found on packaging machinery and the function behind each. Course also covers preventive maintenance and identifying failures and malfunctions in components. Contact Stephan Girard, 571-612-3200 (sgirard@pmmi.org, www.pmmiu.org).

Basic Mechanical Components. Offered by the Packaging Machinery Manufacturers Institute University (PMMI U). Course consists of 12 lessons for operators, mechanics, and technicians about the basic mechanical components found on packaging lines. Each lesson concentrates on the functionality and purpose of an essential component, including bearings, belt drives, gears, shafts, springs, and timing screws. Contact Stephan Girard, 571-612-3200 (sgirard@pmmi.org, www.pmmiu.org).

The Fundamentals of Risk Assessment. Offered by the Packaging Machinery Manufacturers Institute University (PMMI U). Course introduces the risk assessment process and explains the iterative risk assessment process and why it's effective for risk management. Course features an interactive exercise using a software tool to perform risk assessments. Contact Stephan Girard, 571-612-3200 (sgirard@pmmi.org, www.pmmiu.org).

Introduction to Packaging Machinery. Offered by the Packaging Machinery Manufacturers Institute University (PMMI U). Course consists of 14 modules and teaches packaging machinery functions and operations and the interaction of machines with product characteristics, package design, and packaging materials. Contact Stephan Girard, 571-612-3200 (sgirard@pmmi.org, www.pmmiu.org).

Troubleshooting Packaging Machinery. Available in English and Spanish. Offered by the Packaging Machinery Manufacturers Institute University (PMMI U). Course presents entry-level theory, process, and logic of troubleshooting packaging machinery. Course is designed to help technicians improve observation, thinking, and communication skills. Contact Stephan Girard, 571-612-3200 (sgirard@pmmi.org, www.pmmiu.org).

SAFETY

Combustible Dust. Offered by Dekra North America. Computer-based training course exposes the hazards associated with handling and processing combustible dust, including how to spot potential ignition sources during operation caused by electrical sparks, friction, and electrostatics. Contact Robin Angelini, 609-799-4449 (process-safety-usa@dekra.com, www.dekra-process-safety.com).

Combustible Dust Incident Prevention. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Training video educates employees on being alert to hazards and covers good housekeeping procedures and safe work practices. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Confined Space Entry. Available in various languages. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Online lessons include scenarios from manufacturing, petrochemical, chemical, pulp and paper, and municipal environments and cover the hazards of working in a confined space and proper entry procedures. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Confined Spaces. Offered by the New Standard Institute. Computer-based training course covers confined space entry in silos, ceilings, vaults, tanks, and other vessels and discusses how to recognize, mitigate, and eliminate hazards. Contact the New Standard Institute, 203-783-1582 (nsi@newstandardinstitute.com, www.newstandardinstitute.com).

Fall Protection. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Online course covers the correct selection, use, and care of fall protection equipment; when fall-arrest equipment is necessary; and the recognition and prevention of fall hazards. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

GHS: Globalize Your Communication Instructor. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Online course gives a concise overview of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) for employees. Course teaches students to understand GHS requirements, including the labeling system and safety data sheets. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Industrial Ergonomics. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Online course covers proper ergonomic safety practices for the prevention of musculoskelatal disorders (MSDs) and injuries. Topics include a definition of MSDs, factors that cause MSDs, preventive measures, proper job function and design, and ergonomic risk factors. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Lockout/Tagout: Procedure. Available in English and Spanish. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Program provides employees with an overview of lockout/tagout procedures. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Process Safety Management. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Video course covers 14 elements of process safety management, including the use, storage, manufacture, and handling or onsite movement of highly hazardous chemicals. Topics include process safety information, process hazard analysis, managing change, operating procedures, incident investigation, and more. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).

Valve Safety. Offered by Summit Training Source, part of the Health & Safety Institute (HSI). Online course focuses on recognizing different valve types, identifying common valve hazards, step-by-step valve risk assessment, ergonomic issues related to valve safety, and best safety practices for working with valves. Contact HSI, 800-447-3177 (customerservice@hsi.com, summit.hsi.com).