

Drying of Ceramics course outline

Unit 1: Overview of Drying and Dryers (Chapters 1–3 and 7 in the student resource)



The introductory unit includes information on water in ceramics and the characterization of humid atmospheres.

Up to ten hours of instruction to include topics of types such as water in the ceramic; water requirements and distribution as affected by processing; properties of water, air, and humid air mixtures; terms related to hygrometry and energy (just like those on daily weather report!), drying shrinkage and defects; and removal of organics used in ceramic processing.

Unit 2: Psychrometry and Dryer Control (Chapters 4–5 in the student resource)

This second unit presents dryer operations as represented by coordinates on psychrometric charts.

Up to ten hours of instruction to include topics of use of psychrometric charts; plotting of points of operating dryers; evaluation of air requirements in drying, make-up air properties; seasonal dryer adjustments, adjustments for high altitude plants; adjustments for changes in production rates; efficiency of air utilization in the dryer; and thermal efficiency of the dryer.

The course will introduce students to the capabilities of the Akton Psychrometric Chart (www.aktonassoc.com), but this resource will not be required for completion of the course.

Unit 3: Dryers, Dryer Control, and Future Developments (Chapters 6 and 8 in the student resource)

The third unit extends the information to dryers and their control.

Up to ten hours of instruction to include topics of types of dryers, with specific comments on microwave and radio frequency dryers; the use of pre-dryers or “conditioning rooms;” dielectric boost in pre-drying; and trends in “fast drying.”