

A Technician's Guide to Ceramics

Unlock the world of ceramics with this beginner-friendly course designed to provide a solid foundation in ceramic materials and processing. This course is designed for technicians, non-ceramic engineers, and other technical professionals who are new to the world of ceramic materials and the unique problems associated with their production.

You'll start with an introduction to ceramic materials, exploring their properties, compositions, and applications. The course will guide you through the need for powders and powder processing, key forming and shaping techniques, as well as the critical processes of drying, firing, and sintering. Finally, you'll gain an overview of testing and quality control methods to ensure the performance and reliability of ceramic products. Perfect for beginners, this course offers a comprehensive look at ceramics, from raw materials to finished products, equipping you with the knowledge to confidently explore this fascinating field.

<u>Class Dates</u>	<u>Topics / Activities During Class</u>	<u>Assignments, Notes, Demos</u>
1) 05/20/2025	What makes ceramics unique? Why is powder processing necessary? Thermal, physical, optical, and mechanical properties with a stronger focus on brittle failure.	Students will be provided with selected readings that provide additional background.
2) 05/21/2025	Overview of ceramic processing and forming. Thermal processes (drying, calcining, pyrolysis, sintering and densification, and thermal shock.) Temperature measurement technology.	
3) 05/22/2025	Quality control testing, the need for statistics, data compilation, and general trouble-shooting	

Additional References or Resources:

1. Glossary of Ceramic Terminology.
2. Handouts posted as course content and presentations.