



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Ceramics Processing Laboratory

MATSCEN 5531

Credit Hours:

1.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lab

Course Description:

Laboratory experiments involving synthesis/fabrication and characterization of high performance technical ceramics.

Prerequisites and Co-requisites:

Prereq: 3141, 3261, 3271, 3332, and enrollment as MatScEn-BS major; or permission of instructor.

Course Goals / Objectives:

- Learn how to synthesize ceramic materials in powder, bulk and film form
 - Learn how to synthesize ceramics by wetchemical, solid-state and vapor-phase assisted methods
 - Learn how to characterize crystal phase and structure, microstructure and properties of ceramics
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Course Topics:

- Experiment #1: Synthesis and characterization of ceramic particles by wet-chemical synthesis including studies of colloidal stability and sorption experiments.
 - Experiment #2: Fabrication and characterization of bulk ceramics by pressing and sintering, molding and extrusion, tape-casting, quenching and glass formation.
 - Experiment #3: Synthesis and characterization of nano-structured ceramics by such processes as anodization, VS, VLS, MOM and gas-solid reaction.
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Designation:

Elective