

IC (209)312 Silicate Science II

3(2/2-1/3)

Abbreviation -

Prerequisite IC 311

This course is opened for MAJOR ELECTIVE COURSE (PLAN I), MAJOR COMPULSORY COURSE (PLAN II)

Course Description

Ceramic phase diagram, phase transformation, solid-solid reactions, drying behavior, silicate reactions, vitrification, and grain growth.

Objectives

1. Students will be able to understand thermal effects on reactions and behaviors of silicates.
2. Students will be experienced with experiments involving thermal effects on reactions and behaviors of silicates.

Course Content**Lecture Hours**

1. Ceramic phase diagram	6
2. Phase transformation	3
3. Solid-solid reactions	3
4. Drying behavior	3
5. Silicate reactions	5
6. Vitrification	5
7. Grain growth	5

Total	30
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Laboratory Topics**Laboratory hours**

1. Calculation of ceramic body composition from phase diagram	3
2. Calculation of ceramic glaze composition from phase diagram	3
3. Calculation of ceramic pigment composition from phase diagram	3
4. Calculation of cement composition from phase diagram	3
5. Plaster mold making and slip casting	6
6. Mechanical and thermal de-watering	6
7. Ceramic body and glaze firing	3
8. Ceramic pigment firing	3
9. Glass melting	9
10. Cement firing	6
	45