ART195 : Glaze Calculation

General Information

Author:	Gerardo Monterrubio
Course Code (CB01) :	ART195
Course Title (CB02) :	Glaze Calculation
Department:	ART
Proposal Start:	Winter 2025
TOP Code (CB03) :	(1002.30) Ceramics
CIP Code:	(50.0711) Ceramic Arts and Ceramics.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	Νο
Course Control Number (CB00) :	CCC000259227
Curriculum Committee Approval Date:	03/27/2024
Board of Trustees Approval Date:	06/18/2024
Last Cyclical Review Date:	03/27/2024
Course Description and Course Note:	ART 195 is an introduction to basic glaze and clay calculations. Students learn to calculate molecular weights, molecular glaze formulas, and batch recipes. Students use general glaze theory with procedures to analyze and substitute (or create from the beginning) glazes and clay bodies. The course involves simple arithmetical computations and includes certain ceramic laboratory skills and safety precautions for handling chemicals. This course prepares the student for employment in the ceramic industry.
Justification:	Mandatory Revision
Academic Career:	• Credit
Author:	Gerardo Monterrubio

Academic Senate Discipline		
Primary Discipline:	• Art	
Alternate Discipline: Alternate Discipline:	No value No value	

Course Development		
Basic Skill Status (CB08)	Course Special Class Status (CB13)	Grading Basis
Course is not a basic skills course.	Course is not a special class.	Grade with Pass / No-Pass Option
Allow Students to Gain Credit by Exam/Challenge	Pre-Collegiate Level (CB21) Not applicable.	Course Support Course Status (CB26) Course is not a support course

Transferability & Gen. Ed. Options					
General Education S	tatus (CB25)				
Not Applicable					
Transferability		Transferability Status			
Transferable to CSU or	lly		Approved		
Units and Hours	S				
Summary					
Minimum Credit Unit	s 3				
(CB07)					
Maximum Credit Uni (CB06)	ts 3				
Total Course In-Class (Contact) Hours	72				
Total Course Out-of-C Hours	Class 90				
Total Student Learnin Hours	i g 162				
Credit / Non-Cre	edit Options				
Course Type (CB04)				Noncredit Special Characteristics	
Course Type (CB04)		Noncredit Course C	Category (CB22)	Noncredit Special Characteristics	
Course Type (CB04) Credit - Degree Applic	able	Noncredit Course C Credit Course.	Category (CB22)	Noncredit Special Characteristics No Value	
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Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours			
Activity Name	Туре	In Class	Out of Class
No Value	No Value	No Value	No Value
Pre-requisites, Co-requisites, Anti-requisites and Advisories			
No Value			

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications				
Methods of Instruction Methods of Instruction	Demonstrations			
Methods of Instruction	Lecture			
Methods of Instruction	Laboratory			
Methods of Instruction	Multimedia			
Out of Class Assignments Students are assigned lab Natabask partfalis (a.g.) 	practice time (e.g. students test glaze	e formulations to build	experimental and an	alytical skills)
 Notebook portiolio (e.g. s 	students create a portiono documenti	ing their glaze test resu	its)	
Methods of Evaluation	Rationale			
Exam/Quiz/Test	Quizzes after each ma	ajor topic		
Evaluation	Evaluation of student	glaze testing assignme	ents	
Exam/Quiz/Test	Midterm exam			
Exam/Quiz/Test	Final exam			
Textbook Rationale				
This is a classic text that covers as	pects of glaze calculation			
Textbooks				
Author	Title	Publisher	Date	ISBN
Peterson, Susan	The Craft and Art of Clay: A Complete Potter's Handbook	Laurence King Publishing	2012	978-1856697286
Other Instructional Materials (i.e. OER, handouts)			
No Value				
Materials Fee				
No value				

Learning Outcomes and Objectives

Course Objectives Evaluate unknown clays for their working properties. Calculate the chemical analysis of a glaze. Design a specific glaze for a predetermined function. Analyze line blends of glazes. Calculate molecular formulas for glazes. **SLOs** Demonstrate familiarity with ceramic materials. Expected Outcome Performance: 70.0 ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive Core ILOs conclusions; cultivate creativity that leads to innovative ideas. ART Define and use core concepts in 2D and 3D art Art - Certificate Demonstrate skill in a broad range of media, materials and processes Produce original work the demonstrate a high level of craft ART Define and use core concepts in 2D and 3D art Art - A.S. Degree Major Demonstrate skill in a broad range of media, materials and processes Produce original work the demonstrate a high level of craft ART Demonstrate intermediate mastery in a range of 2D/3D visual media Studio Arts Employ basic concepts in 2D design and drawing, or 3D design and drawing-for-sculpture; create portfolio ready, original artworks ART demonstrate skill in a broad range of ceramic techniques; Ceramics - A.S. Degree Major ART demonstrate skill in a broad range of ceramic techniques; Ceramics - Certificate Calculate glazes from a unity molecular formula. Expected Outcome Performance: 70.0

 ILOs
 Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

 ART
 Define and use core concepts in 2D and 3D art

 Art - Certificate
 Demonstrate skill in a broad range of media, materials and processes

 Produce original work the demonstrate a high level of craft

ART	Define and use core concepts in 2D and 3D art	
Major	Demonstrate skill in a broad range of media, materials and processes	
	Produce original work the demonstrate a high level of craft	
ART Studio Arts	Demonstrate intermediate mastery in a range of 2D/3D visual media	
	Employ basic concepts in 2D design and drawing, or 3D design and drawing-for-sculpture; create portfolio ready, original artworks	
ART Ceramics - Certificate	define and use core concepts used in the ceramic area;	
Ceranics Certificate	demonstrate skill in a broad range of ceramic techniques;	
ART	define and use core concepts used in the ceramic area;	
Major	demonstrate skill in a broad range of ceramic techniques;	

Course Content

Lecture Content

Introduction and Orientation (5 hours)

- Course content and management of the class
- Geology, elements, minerals, rocks, compounds
- Oxides in umf, mole percent, and weight percent

Clay bodies Unknown Clay (6 hours)

- Testing an unknown commercial clay
- Compare data with known clay to identify unknown clay

Calculations (6 hours)

- · Calculating a chemical analysis of a glaze or feldspar and finding the unity molecular formula of all given materials
- Calculating a batch recipe in related weights from a unity glaze formula expressed in molecular equivalents
- Calculating the molecular formula of a glaze from a batch recipe for a glaze

Glaze Materials (6 hours)

- Basic glaze materials
- Basic types and uses
- Exceptions to the rule

Test Clay (6 hours)

- Designing and preparing a basic west coast clay and formulating a stoneware clay
- Measuring shrinkage at cones 06, 10
- Water of plasticity, water absorption at maturing temperature
- Making adjustments for defects

Test Glaze (6 hours)

- Basic types of glazes
- Designing and executing test of the glaze by using calculation procedures
- Aesthetic surface qualities
- Glaze fit to clay body
- · Making adjustments for any glaze defect

Color Line Blend (6 hours)

- Metallic oxides and colorants in high or low fire glazes
- Testing a number of oxides in test glazes

Deflocculating (5 hours)

- Use of deflocculates in glazes and casting slips
- Use of flocculants

Total hours: 45

Laboratory/Studio Content

Clay bodies Unknown Clay (4 hours)

- Testing an unknown commercial clay
- Compare data with known clay to identify unknown clay

Calculations (4 hours)

- · Calculating a chemical analysis of a glaze or feldspar and finding the unity molecular formula of all given materials
- Calculating a batch recipe in related weights from a unity glaze formula expressed in molecular equivalents
- Calculating the molecular formula of a glaze from a batch recipe for a glaze

Test Clay (5 hours)

- Designing and preparing a basic west coast clay and formulating a stoneware clay
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Test Glaze (5 hours)

- Basic types of glazes
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- Aesthetic surface qualities
- Glaze fit to clay body
- Making adjustments for any glaze defect

Color Line Blend (5 hours)

- · Metallic oxides and colorants in high or low fire glazes
- Testing a number of oxides in test glazes

Deflocculating (4 hours)

- Use of deflocculates in glazes and casting slips
- Use of flocculants

Total hours: 27

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

No Value

Did you contact the DEIA liaison?
No
Were there any DEIA changes made to this outline?
No
If yes, in what areas were these changes made:
No Value
Will any additional resources be needed for this course? (Click all that apply)
• No
If additional resources are needed, add a brief description and cost in the box provided
in additional resources are needed, add a brief description and cost in the box provided.

No Value