COURSE NAME: CERAMICS I COURSE CODE: IFA 1212 Course Description

Introduction to basic mass production methods and techniques in ceramics (studio and industrial) mould making and casting, the basic principles of throwing with emphasis upon the use of potters' wheel, its structure, repair and maintenance. Aspects of kiln construction in production of low, medium and high fired ceramics.

Course Objectives/Aims

To provide an understanding of the wide scope of ceramics practice both as a studio and industrial; descriptive emphasis will be put on mass production.

To introduce within students an understanding of the process of ceramics studio and industrial production namely; Throwing on a potter's wheel and casting with plaster of Paris moulds.

To be able to take forward and directly apply basic taught principles in ceramics practice in an imaginative and personal way.

To expose students to the basic mechanical maintenance of the potter,s wheel machine and the Kiln construction for varying firing temperatures.

Detailed Course Outline

Week 1: Design Process for Basic Ceramic approach

- Design process for mass production in studio ceramics
- The concept of mass production verses individual studio ceramics production
- Designing for single mold and double mold casting process
- Exploration of varying sources of inspiration by making visual investigation through drawing both in 2- dimension and 3-D.

Week 2: Studio Ceramic Materials for Casting and Throwing techniques

- Preparation of clay bodies for throwing on potter's wheel
- Preparation of clay bodies (casting slips) for casting in ceramics using the plaster of Paris moulds.
- Experimenting on the limitation and possibilities of the students' individual prepared clay bodies.
- Studio and industrial clay preparation process: Ball milling, pug milling, clay filtering process, storing clay.
- Studio health issues for safe ceramic product **Week 3: Potter's wheel machine for studio ceramics**
- History of the potter's wheel in ceramic production
- Types of potter's wheel: un-motorized (manual) and motorized (electric)
- Basic parts for the potter's wheel: flywheel wheel-head, Axle, Bearings, Power source.
- Advantages and disadvantages of using various types of potter's wheels.
- Servicing and maintenance of the potter's wheel.

Week 4: Potter's wheel throwing technique

- Using the un-motorized potter's wheel (manual)
- Different types of un-motorized potter's wheel: light weight turntables, Asian low wheel (single bearing), kick wheel, treadle wheels, two-person wheels
- Potter's wheels commonly used by potters in Uganda improvised from car engine.

- Basic techniques of throwing on potter's wheel for ceramic production.
- Forming ceramics on the potter's wheel
- Making open and closed clay forms.
- Exploring different heights and sizes using the manual potter's wheel
- Accessories (tools) for forming on the potter's wheel
- Shaping on the potter's wheel
- Finishing on the potter's wheel

Week 5: Throwing techniques the motorized potter's wheel (Electric)

- Fixed speed motors
- Changing the speed of the motors
- Friction drive: power-assisted kick wheel
- Cone drive and ring come system
- Variable speed motors
- Exploring various forms using the electric potter's wheel.
- Making open and closed forms on electric potter's wheel.

Week 6: Student's independent study on Throwing Techniques

- Students are encourage to work independently with guidance on individual projects on the potter's wheel to their skill and develop confidence.
- Relation of their drawings to forms constructed on the potter's wheel.
- Mass production on potter's wheel: making similar forms and exploring the speed of production.

Week 7: Finishing and Decorating on potter's wheel

- Trimming and turning thrown clay pots on the potter's wheel.
- Turning using chucks
- Introducing decoration on thrown clay forms during: plastic, leather hand and dry states.
- Making the foot for thrown forms
- Joining handles on thrown clay forms

Week 8: Practical and Theoretical Test on the covered topics

- Test involving both theory and practical will be administered. The theory will cover all the topics completed while the practical will be set from one area.

Week 9: Introduction to mass production techniques in ceramics

- Studio and industrial mass production methods and techniques in ceramics
- Mass production for self reliant potter
- Mass production for the medium scale ceramic setting
- Various forms for mass production
- Designing for mass production
- Exploring the market for mass produced ceramic forms. **Week 10: Moulds for plastic clay pressing**
- Materials for making moulds for ceramics
- Plaster of Paris as a basic medium for ceramic moulds
- Plaster of Paris production and sources
- Handling and storage of plaster of Paris
- Other alternative materials for making moulds for ceramic production
- Mixing plaster of Paris for making moulds

- Rules and guidelines for making plaster of Paris moulds
- Step by step of making plaster of Paris moulds

Week 11: Making a one piece mould

- Making a prototype (model) for a one piece mould.
- Master mould for positive and negative model
- Symmetrical and asymmetrical model

- Circular and symmetrical modals
- Mother mould
- Mixing plaster of Paris and casting the prototype (model)
- Finishing the casting mould
- Mould problems and solutions
- Handling care and storage of plaster of Paris moulds.

Week 12: Casting with plaster of Paris moulds

- Pressing plastic clay with plaster of Paris moulds
- Slip casting with one piece mould.
- Casting slip preparation and handling
- Slip defcullements
- Handling casted pieces

Week 13: Exploration of ceramic surfaces and decoration

- Surface treatment and decoration
- Preparation for surface decoration
- Structural decoration
- Decoration stages and their advantages
- Practical decoration exercises

Week 14: Firing techniques and effects e.g. Oxidation and reduction firing

- Ceramic firing techniques for hand built forms
- Types of firing using various kinds of kilns
- Firing wares at different temperatures (stoneware, earthenware)
- Control of temperatures e.g. the use of pyrometers
- Practicing firing e.g. loading the kilns and stacking

Week 15: Ceramic design and practice (project) assignment

- Set out project for the students
- Design development for subsequent transfer

- Prototyping and Design ergonomics
- Evaluation of the practical project
- **Week 16 and 17: University Examinations**

Learning outcomes

The student will be capable of producing various types of drawings for both 2-dimention and 3-dimentional objects. Drawing will originated from the students sources of inspiration especially in their surrounding orienting them to ceramic forms.

The student will acquire an appreciation of materials production, and decorating techniques in ceramics and the criteria for their selection.

The student will be able to appreciate the open ended, multi-disciplinary nature of making ceramic form in both studio and industrial ceramics.

Method of Teaching/delivery

- Studio Demonstration, instruction and technical inputs
- Lecture
- Practical studio work and experiments
- Group discussion/presentation/critique
- Self directed studio assignment/ independent projects and course work
- Visual research and image collection
- Field visits

Mode of Assessment

Course work 40%

- Planning and Developmental studies/sketches 10%
- Execution of the practical work (Reasonable body of work) 20%
- Tests in theory based on ceramic technology 10% End of semester Examination: 60%
- Theory examination: 20%
- Practical examination: 40% Final total work: 100%

References/Learning materials

Birks Tony ( ) *The Complete Potter's Companion*

Chappell James ( ) *The Potter's Complete Book of Clay and Glazes*

Chavarria Joaquim ( ) *Glazing Techniques (Ceramics Class)*

Chavarria Joaquim (1999) *Hand-Building Techniques,* Watson-Guptill Publications

Chavarria Joaquim (2000) *Decorating Techniques,* Watson-Guptill Publications

Cooper Emmanuel ( ) *The Potter's Book of Glaze Recipes* Illian Clary ( ) *A Potter's Workbook*

Lark (2005) 500 Cups: *Ceramic Explorations of Utility & Grace,* Lark Books

Nelson C. Glenn and Richard Burkett ( ) *Ceramics: A Potter's Handbook*

Peterson Susan ( ) *The Craft and Art of Clay*

Rhodes Daniel (2000) *Clay and Glazes for the Potter* 3rd edition

Zakin Richard ( ) *Ceramics: Mastering the Craft*

Zakin Richard ( ) *Electric Kiln Ceramics: A Guide to Clays and Glazes*