

2005-2006 Learning Technologies Grants Proposal

Project Information

21st Century Burn-out Kiln for Centuries Old Bronze Casting Process

Project Title

Larry Millard and Jim Buonaccorsi

Project Director

Lamar Dodd School of Art

Requesting Department

\$32,505

Amount Requested Year 1

Amount Requested Year 2

Project Director's Signature

Proposal Endorsement Signatures

Department Head

Dean

Proposal Abstract (100-word maximum)

The sculpture program uses centuries old processes in the casting of bronze. The current burnout kiln is rudimentary at best. With the advent of computer controlled equipment for industrial purposes, we want to introduce student to the melding of computer technology and ancient technology. Bronze casting technology catapulted ancient civilization onto another plane of culture, warfare and society. Computer technology has done the same thing in the 20th and early 21st centuries. We with to introduce art, specifically sculpture students, to this computer regulated control of temperature and timing heat rise and fall for effective burnout control.

Section I. Project Description

General description of project:

- *nature of the innovation*

Bronze casting is a centuries old process, recent merging of computer technology into industrial applications has increased tremendously. Kiln technology and the design of components that can operate in dusty environments is at its best in recent years. We want students to understand the importance of precise control of burnouts and the control of the emission of fumes from the process.
- *need/rationale*

The foundry has operated a 19th century design kiln since 1982 (see attached photographs). Students are required to “watch” the kiln for a minimum of 72 hours of continuous shifts with monitoring of temperatures and rate of rise every hour. Although educational in certain ways, there are much better ways to monitor and control this process electronically by computer. This use of technology will enhance the artistic output and prepare students for industrial application and innovation in the manufacturing and artistic production world. Many commercial art foundries utilize this technology.
- *relevance of the project to unit and University priorities*

This use of technology will enhance the artistic output and prepare students for industrial application and innovation in the manufacturing and artistic production world. Many commercial art foundries utilize this technology. The understanding acquired by use of this kiln will enhance students’ ability to work in art and foundry industries that use state of the art technologies.
- *specific courses benefiting from the project*
 - ARST 2400 Beginning Sculpture
 - ARST 3440 Fundamentals of Casting in Metal
 - ARST 3450 Intermediate Casting in Metal
 - ARST 4400 Advanced Casting in Metals
 - ARST 4480 Directed Study in Sculpture
 - ARST 7430 Construction Composition-Advanced Techniques in Metalcasting.
 - ARST 7480 Directed Study in Sculpture.
 - ARST 7980. Directed Study in Major Studio Area
 - ARST 8000. General Art
 - ARST 8010. General Art
- *number of students served including undergraduate, graduate/professional or both*

approximately 100 students each year

Section II. Budget

- *List technology, facilities, and other resources requested.*

Item	#	Total Cost	Requested from LTG	Provided by Other Sources
Burnout car kiln We are negotiating with two different vendors Laguna Clay and Bailey Equipment	1	\$40,000.00	\$32,505.00 (Negotiating to lower price by competitive bidding process.)	\$7, 485.00 + This will be provided as materials, and labor by faculty undergraduate, and graduate students in the sculpture area.*

* Physical Plant will be used sparingly to do the final gas and electrical connections

- *Budget justification narration*

As stated before the benefits for students to have first hand experience with the use of computers in an ancient technology is rewarding for students and faculty. The precision of burnouts of plaster/sand molds, ceramic shell molds, and certain specialty sand molds will give students a variety of experiences far beyond what is possible with our current burnout kiln.

We project a safer environment because of built in designs in the kiln and a cleaner air environment for all who work in the area. A car kiln provides easier lifting of larger molds both of traditional plaster/sand, ceramic shell, and innovations in sand mold production.

- *Timeline for development of the project using the following format:*

Project timeline

Date	Objective	Persons Responsible
As soon as funds are available for purchase of kiln	To have it installed within 1-2 months of delivery	Larry Millard Jim Buonaccorsi

Section III. Learning Outcomes

- *learning outcomes and how resources will be used to achieve these outcomes*

Involvement of computer technology as part of the equipment used by sculptors to produce a higher quality casting because of precise control of temperature cycles..

- *methods for evaluating the project and learning outcomes*

Student casting quality will be improved (fewer flashings from cracks in the molds, quality control of mold structure, and wax evacuation of sand molds). Erratic temperature control can contribute to molds cracking and destabilizing

Enhanced understanding of computer technology to assist in traditional processes.

Recording of cycles in precise manner to identify casting defects.

- *potential applications in other academic areas*

Jewelry and Metalsmithing may want to consider use of similar equipment

Section IV. Support Plan

Staffing and resources to be used to continue the initiative following LTG funding.

The Staff, Faculty and Graduate Assistants will continue to maintain the facility using resources for use by the sculpture program.

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21st Century Burn-out Kiln for Centuries Old Bronze Casting Process
by Larry Millard and Jim Buonaccorsi

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

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Current Burnout Kiln built by faculty in 1982.

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Laguna Clay Company car kiln (stock image of kiln type)

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Laguna Clay Company car kiln, computerized temperature controls

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Bailey Burnout kiln, with collection hoods attached