

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

**Upgrade of for Civil Engineering
Environmental Teaching Lab**

Title

Mark LeBlanc, Dr. Daniel Gang

Name of Submitter
(Faculty or Staff Only)

**UL Lafayette Department of Civil
Engineering**

Organization

Title: Upgrade of Civil Engineering Environmental Teaching Lab Date: 07/15/2021

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Department/College/Org: Civil Engineering

ABSTRACT (250 words or less):

The Civil Engineering Environmental lab is primarily used to determine water and waste water quality. This is an essential and fundamental part of the Civil Engineering curriculum. It includes specialized equipment needed to determine specific water quality parameters such as Dissolved oxygen, Chlorine, Hardness, pH, color, turbidity, alkalinity, biochemical oxygen demand (BOD) and solids determination.

Much of the equipment in the Civil Engineering Environmental lab no longer works or is obsolete. Half of the student groups do not have a complete workstation, forcing them to share equipment during the experiment. The incomplete work stations have **created a safety risk** because students must carry specimens across the room to use instruments that are in good working condition. The labs have been divided into two sections but the enrollment of these sections creates a situation where many students are not able to complete their lab work during the allotted time.

Purpose of Grant

The purpose of the grant is to upgrade the Civil Engineering Environmental Teaching Lab in order to accommodate larger class sizes and expose students to modern lab equipment. Upgrading the Civil Engineering Environmental Teaching lab will produce greater use of lab facilities, with improved student experiences in a modern lab that greatly enhances the safety and efficiency of this laboratory.

Impact on the Student Body

1. The added work stations will accommodate larger enrollments for the lab session,
2. Labs sessions can be completed within the allotted time.
3. Students will be exposed to modern lab equipment setup
4. A sufficient number of complete work stations will provide for greater safety and efficiency.
5. The enhanced lab setups will further enable the student to manage their academic work load with improved scheduling of required activities.
6. The upgraded lab will enhance the student learning, their success and retention in school.

A. The Projected Lifetime Of Enhancement

This project is expected to benefit the students for the next ten years.

Implementation:	Mark LeBlanc
1. Installation:	Mark LeBlanc
2. Maintenance:	Mark LeBlanc
3. Operation:	Mark LeBlanc and Students
4. Training:	Dr. Gang, and Mark LeBlanc

Qualifications:

Mark LeBlanc- Mark is the Laboratory Manager for the Civil Engineering Department. He has maintained labs in the College of Engineering since 1997.

Dr. Daniel Gang- Dr. Gang is a full professor in the Department of Civil Engineering. Dr. Gang joined the Civil Engineering Department in 2007. Dr. Gang has extensive experience in water quality, waste water management, environmental and costal resource management.

B. Budget

1.	Equipment:	Item	Qty.	Cost	Total
		Spectrophotometers	4	\$4500	\$17,200
		Matched pair sample Cells for spectrophotometer	25	\$165	\$4125
		Water Filtration system	1	\$4700	\$4700
		pH meter	8	\$275	\$2200
		Turbidity meter	4	\$795	\$3180
		Dissolved Oxygen meter	8	\$275	\$2200
		Magnetic stirrers	8	\$135	\$1080
2.	Software	N/A			
3.	Supplies	N/A			
4.	Maintenance	N/A			
5.	Personnel	N/A			
6.	Other	N/A			
TOTAL:					\$34,685

Previous funded STEP projects:

Mark LeBlanc, Kenneth McManis, (June 2016) Upgrade of Network Infrastructure for Civil Engineering STEP Lab. Funded through UL Lafayette STEP Committee. Funded amount 321709
\$7395.69

Mark LeBlanc, Dr. Kenneth McManis, (January 2015) Civil Engineering: Upgrade and Maintenance of Computer Lab. Funded through UL Lafayette STEP Committee. Funded amount 320162
\$30,000.00

Mark LeBlanc, Xiaoduan Sun, Emad Habib (November 2007) Upgrade of Civil Engineering Computer Lab. Funded through UL Lafayette STEP Committee. Funded amount G298R1
\$31416.00

Jamal Khattak, Mark LeBlanc, Harvey Ozbirn (December 2006) College of Engineering Repair and Upgrade Materials Testing Laboratory. Funded through UL Lafayette STEP Committee. Funded amount: G298R2
\$77,900.00

LeBlanc, M., Sun, X. (April 2006) Upgrade of Computer Labs.
Funded through UL Lafayette STEP Committee. Funded amount: G298H2
\$1600.23

LeBlanc, M., Sun, X., Lyman, S. & LeBlanc, L. (September 2002) Upgrade of Computer Labs.
Funded through UL Lafayette STEP Committee. Funded amount: G2985U
\$18,422.00

LeBlanc, M., Sun, X., & Lyman, S. (April 2002). Upgrade of Computer Labs.
Funded through UL Lafayette STEP Committee. Funded amount: R2983H
\$12,680.00

Pons, J., & Sun, X. (September 2000). Enhancing the Computational Capabilities of The Civil Engineering Department.
Funded through UL Lafayette STEP Committee. Funded amount: R29852
\$23,603.00.