UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Test and Measurement System Upgrade

Title

Shelby A. Williams, Jr.

Name of Submitter

(Faculty or Staff Only)

Electrical and Computer Engineering Dept.

Organization

Title: Test and Measurement System Upgrade Date: July 17, 2017

Name (Contact Person): Shelby A. Williams, Jr.
Address: P.O. Box 43890
Phone Number: (337) 482-6852 Email: shelby@louisiana.edu
Department/College/Org: Electrical and Computer Engineering Department

ABSTRACT (250 words or less):

This proposal is to upgrade the existing test and measurement system in the Electronics Laboratory in the Electrical and Computer Engineering (EECE) Department located in Madison Hall. The existing test and measurement system consists of four devices: an oscilloscope, a digital multimeter, a DC power supply, a function generator and a computer. The existing test and measurement system was purchased through a STEP grant in the Fall of 1999. The proposed test and measurement system only consists of only two devices: a virtual bench and a computer. The virtual bench is an all-in-one instrument that combines a mixed-signal oscilloscope, a digital multimeter, a programmable DC power supply, a function generator, and several digital input/output ports in one compact unit. The computer connects to the virtual bench through a USB cable. The virtual bench provides easy access to all instruments in one central interface, has wired and wirelessly connectivity for remote experimentations, reduces clutter and saves space.

Purpose of Grant

The overall goal of this grant is to replace the 17-year-old test and measurement system in the Electronics Laboratory with a new test and measurement system that using a single unit called a virtual bench. This update is necessary for several important reasons.

• This is one of the laboratories that are reviewed by the ABET (Accreditation Board for Engineering and Technology, Inc.) and SACS (Southern Association of Colleges and Schools Commission on Colleges) as part of the departmental accreditation processes.
• Students are better able to run simulation and complete experiments with much less difficulty with a more up-to-date test and measurement system.
• Through the student evaluations of courses and senior students exit interviews, we receive consistent complaints about outdated equipment in our laboratories.
• To replace the current test and measurement system with its equivalent would cost at least three times more than the cost of the virtual bench.

Impact To Student Body As a Whole

The proposed upgrade will have a direct impact on all of the students majoring in Electrical Engineering and Computer Engineering (EECE), totaling about 300 students. This grant also will go along with the strong mandates of ABET Accreditation of the EECE department, necessary for attracting excellent engineering students to UL Lafayette.

Projected lifetime of enhancement

The projected lifetime of equipment in this enhancement project is more than 5 years. Person(s) responsible for implementation, installation, maintenance, operation and training. The project director listed below with their corresponding titles and department affiliation, are responsible for a timely installation of the proposed equipment and implantation of the project. He will train students in the operation and maintenance of the equipment of the proposed project.

Project Director:
SHELBY WILLIAMS, LABORATORY MANAGER, Electrical and Computer Engineering Dept.

The project director of this grant proposal, Shelby Williams, serves as the Laboratory Manager in the Electrical and Computer Engineering Department. He has written several funded STEP proposals over the past 18 years for upgrading nearly all laboratories in the department. He has worked in his current capacity for the past 20 years.

Length of Implementation (years)	1	2	3
1. Equipment (Virtual Bench) 2. Software 3. Supplies 4. Maintenance 5. Personnel 6. Others	$43,495.13		
Total:	$43,495.13		

A disaggregate listing of the equipment is shown below.

Equipment: Proposed	Current Equipment: (15-years-old)
7 Virtual Bench [$6,213.59 each]	7 Agilent Oscilloscopes
	7 Digital Multimeters
	7 Power Supplies
	7 Function Generators

Timeline for Project	
Submittal of Proposal	July 17, 2017
Initial Purchase Equipment	Early December 2017
Equipment Installation	Late December 2017

Previously funded STEP Projects

MATLAB/Simulink on UCS System – July 1999
Additional and Upgrade of for EECE Student Laboratory – July 1999
EE Electronics Laboratory – January 2012
EE Computational Upgrades – July 2014

Budget

The budget over a one-year period totals $43,495.13. Mr. Shelby Williams will insure the timely purchasing and installation of the equipment and all other activities proposed in this project.