UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Electrical Engineering Open-STEP Lab Upgrade
Title

Dr. Magdy Bayoumi / Shelby A. Williams

Name of Submitter

Electrical Engineering Department
Organization

Title: EE ELECTRONICS LABORATORY   **Date**: July 15, 2021

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Department/College/Org: Electrical Engineering/Engineering/UL Lafayette

ABSTRACT (250 words or less):

This is a proposal for the purchase and installation of thirty (30) new computers with Zoom cameras for the Electrical Engineering Open-STEP Laboratory. In addition, this lab has several computers which are American Disability Act (ADA) workstations. This lab is open to all university students and it's located in Madison Hall, Room 249. These computers were last upgraded through STEP funds awarded in January 2015. That proposal was entitled, *EE Computational Upgrades*. These computers have had lots of use by students over it 6-year span, and they are probably at the end of its usefulness. The Electrical Engineering Department will be upgrading its whole department network infrastructure from 100 Megabits per second to 1,000 Megabits per second. As more students are using Zoom and other remote-access applications, this will be a tremendous and necessary network upgrade. Also, the new computers will be able to use the higher-bandwidth network. A rendering of the laboratory is shown below:
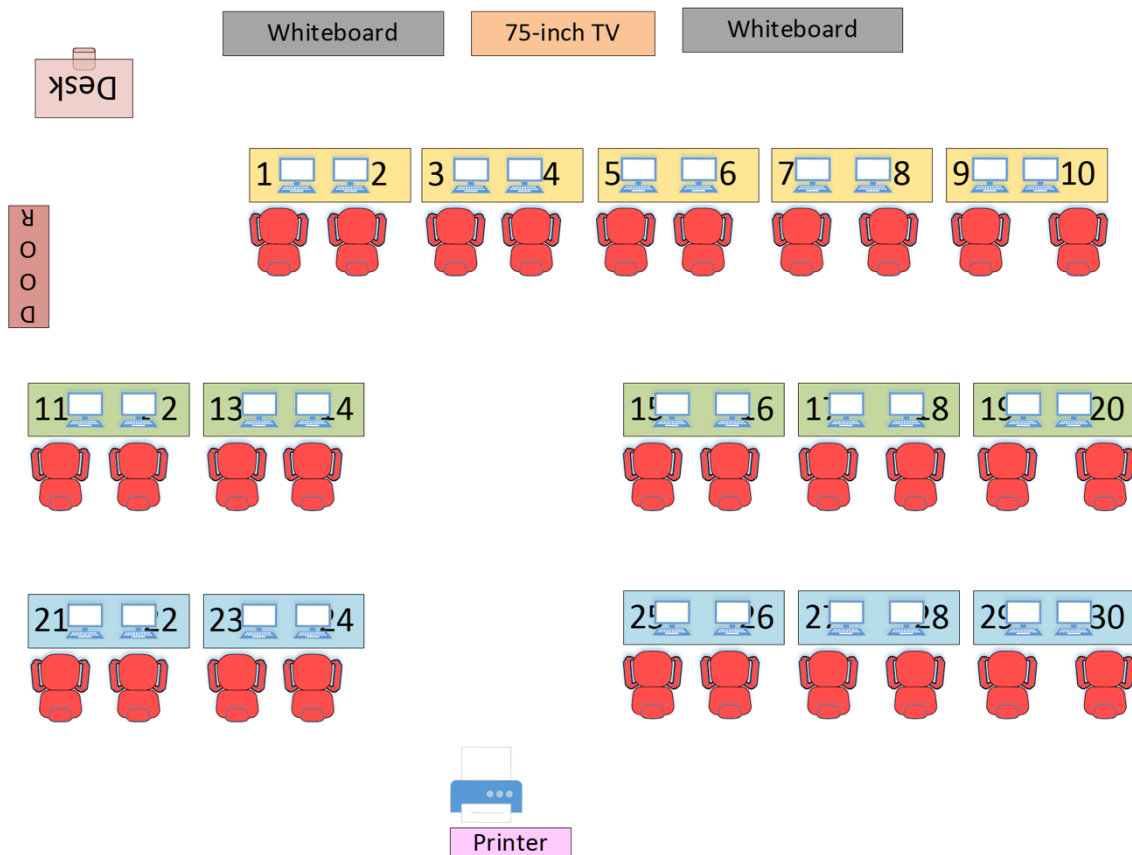
Electrical Engineering Open-STEP Lab Upgrade

Purpose of Grant

The overall goal of this grant is to upgrade the existing 30 computers to the Electrical Engineering Open-STEP Laboratory to 30 new computers with Zoom cameras. This update is necessary for several important reasons.

(1) The existing computers have been in use for about 6 years and new computers are needed to keep up with the higher demands of new operating systems (i.e., Windows 11) and software application.
(2) As this is a university Open-STEP lab, it is necessary to make these computers standard and compatible with other university Open-STEP labs.
(3) As more and more computers have experienced ransomware attacks, these newer computers will provide better proof against such attacks.
(4) Faster computers and higher bandwidth networks will provide a better experience for students.

Impact To Student Body As a Whole

Since this is a university open-STEP lab, this lab will potentially impact every student, especially those using Madison Hall.

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 directors, and co-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. They will train students in the operation and maintenance of the equipment of the proposed project.

Project Director: MAGDY BAYOUMI, PH.D.
 PROFESSOR AND DEPARTMENT HEAD, *Electrical and Computer Engineering Dept.*
Co-Director: SHELBY WILLIAMS, M.S.
LABORATORY ASSISTANT, *Electrical and Computer Engineering Dept.*

As the project director of this grant proposal, *Dr. Bayoumi* has been a faculty member in CACS since 1985. He received B.Sc. and M.Sc. degrees in Electrical Engineering from Cairo University, Egypt; M.Sc. degree in Computer Engineering from Washington University, St. Louis; and Ph.D. degree in Electrical Engineering from the University of Windsor, Canada. Dr. Bayoumi is the recipient of the 2009 IEEE Circuits and Systems Meritorious Service Award. Dr. Bayoumi is the recipient of the IEEE Circuits and Systems Society 2003 Education Award, and he is an IEEE Fellow. He was on the governor's commission for developing a comprehensive energy policy for the State of Louisiana. He represented the CAS Society on the IEEE National Committee on Engineering R&D policy, IEEE National Committee on Communication and Information Policy, and IEEE National Committee on Energy Policy. He is also active in the "Renewable & Green Energy" and "Globalization: Technology, Economic and Culture" fields. He was a free-lance columnist for Lafayette's newspaper.

As the co-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 20 years for upgrading nearly all laboratories in the department. He has worked in his current capacity for the past 25 years.

Length of Implementation (years)	*1*	*2*	*3*
1. Equipment	$45,750.00		
2. Maintenance			
3. Personnel			
Total:	$45,750.00		

A disaggregate listing of the equipment is shown below:

Equipment (Proposed)	Cost
(30) Dell Computers	$ 38,850.00
(30) Zoom Cameras	$ 600.00
(30) 23-Inch Dell Monitors	$ 6,300.00
$ Total:	$ 45,750.00

Desktop Enhanced - Dell Optiplex 7000 Series without Monitor

Available late Fall 2021

- Intel Core i7-10700 (8-Core, 16MB Cache, 2.9GHz to 4.8GHz, 65W)
- 16GB Memory – (2x8GB, DDR4 non-ECC)
- 512GB SSD (M.2 PCIe NVMe Class 35 Solid State Drive)
- 8x DVD+/-RW 9.5mm Optical Disk Drive
- 6 USB 3.0 (2 front/4 rear-1 with PowerShare), 4 USB 2.0 (2 front/2 rear-1 front with PowerShare), 1 Internal USB 3.0 with smart power on, 1 RJ-45, 1 P2/Serial, 2 Display Port 1.2, 1 HDMI, 1 UAJ
- ProSupport Warranty, 5 Years
- Windows OS
- Microsoft 365
- Sophos Security Suite

1095.00

Dell 23" Monitor

Available late Fall 2021

- Maximum Preset Resolution – 1920 x 1080 at 60 Hz
- Cables Included: Power Cable & DisplayPort Cable
- Ports & Slots: Power Connector, HDMI Port, DisplayPort & VGA Connector
- Soundbar not included

Can be added as a stand alone or "2nd monitor"

210.00

Webcam with Microphone

- HD 1080P
- Plug & Play

20.00

Previously funded STEP Projects:

- MATLAB/Simulink on UCS System – July 1999
- Additional and Upgrade of for EECE Student Laboratory – July 1999
- MATLAB/Simulink on UCS System – July 2005
- EE Digital Lab – January 2006
- EE Communication Systems – January 2006
- EE Computational Upgrades – January 2015
- Virtual Benches – January 2018
- EECE 140 Computer Engr. Teaching Lab Upgrades – July 2019

Budget

The budget over a one-year period totals $45,750.00. Dr. Magdy Bayoumi, and Mr. Shelby Williams will ensure the timely purchasing and installation of the equipment and all other activities proposed in this project. Every semester several graduate students are assigned from the department to the directors of this project that will be assisting in the implementation of this project.