

Engineering Student Technology Committee

<http://www.engr.colostate.edu/ESTC>

College of Engineering

Colorado State University

1. Title of Proposal:

Controller and Software upgrade package for the MTS (Materials Testing Systems) Universal Testing Machine in the Civil and Environmental Engineering Structures Lab.

2. Proposal Participants:

Primary Contact for Proposal

Name: Joe Wilmetti _____ E-Mail: wilmetti@engr.colostate.edu _____

Department/Major: Civil & Environmental Engineering _____

Check One: _____ **Faculty** ___X___ **Staff** _____ **Student**

Additional proposal participants

Name: Dr. Rebecca Atadero _____ E-Mail: Rebecca.Atadero@ColoState.edu _____

Department/Major: Civil & Environmental Engineering _____

Check One: ___X___ **Faculty** _____ **Staff** _____ **Student**

Additional proposal participants

Name: _____ E-Mail: _____

Department/Major: _____

Check One: _____ **Faculty** _____ **Staff** _____ **Student**

3. Proposal Abstract (limit to 100 words):

The MTS Universal Testing Machine located in the Civil & Environmental Engineering *Materials Structure Lab* is in need of critical upgrades. This machine is used extensively in the CIVE 302 – Evaluation of Civil Engineering Materials class, as well as many other undergraduate projects. This upgrade is necessary due to the obsolescence of the current controller, and the incompatibility of the current software with Windows 7 and above.

4. Proposal Budget: \$43,894.75

List of items to purchase and cost of each

Please see attached quote: 2016-31112 Colorado State Univ-Controller Upgrade

Dollar or percentage amount requested from ESTC:

\$43,894.75

5. Full description of proposal:

MTS FlexTest® 40 Controller Upgrade

The MTS Universal Testing Machine located in the Civil & Environmental Engineering *Materials Structure Lab* is in need of critical upgrades. This machine is used extensively in the CIVE 302 – Evaluation of Civil Engineering Materials class, as well as many other undergraduate projects. It is a high capacity 110 kip (kilo/lbf) servo-hydraulic load frame that is used for both tension and compression testing in various test types. It is capable of testing in various modes and can do both ramp, cyclic, and static testing. Generally, it is our “go to” machine for any high capacity testing. In addition to class use of this machine, it is used on a regular basis by Senior Design students in both the CEE and ME departments, the steel bridge team, and many other special projects for both under graduates and graduate students.

The machine was last upgraded about 16 years ago, and has been an integral part of our testing capabilities. Unfortunately, it is currently far out of date. The control software is not capable of running under the Windows Operation System beyond Windows XP, and the controller for the load frame is not compatible with any of the new control software available from MTS. The controller itself is no longer supported by the manufacturer, and repair parts are no longer available if the controller were to fail. This necessitates a major upgrade of both the controller and software as a package.

The upgrade package from MTS includes the entire package to bring the machine up to current standards. The major parts of this are a MTS FlexTest® 40 Controller, a MTS Model 494.05 Handset (operator pendent controller), a MTS configured Computer- (WIN7, 64 bit, 8GB RAM, 2x500GB hard drive – Desktop) pre-configured and loaded with the current software package, MTS TestSuite™ Multipurpose Elite Software, all necessary cables, and onsite installation, calibration and operator training. This package is quoted at \$43,894.75. Please see attached for a complete list of line items.

We have known and anticipated that this upgrade would be necessary at some time, and have tried to earmark funds for it, but are still far short of meeting our goals. However, the current controller is becoming somewhat unstable, and problematic, and current University policy prohibits having older Windows XP machines on the CSU computer network. Both of these necessitate that this upgrade be done or we will lose a very valuable resource.

We are requesting the full amount of the upgrade package, but we do have approximately \$10,000.00 set aside that can be used for this proposal. If the full amount is awarded, then this reserve can be applied to upgrades for our other testing machines in this same lab.