

Rec'd 9/28/15

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MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See <http://www.mtsu.edu/sga/cleanenergy.shtml> for funding guidelines. Save completed form and email to cee@mtsu.edu or mail to MTSU Box 57.

1. General Information	
Name of Person Submitting Request	John Rozell
Department/Office Engineering Tech.	Phone # (Office) 615-904-8568
MTSU Box # 19	Phone # (Cell)
E-mail john.rozell@mtsu.edu	Submittal Date 9-28-15

2. Project Categories (Select One)	
Select the category that best describes the project.	
<input type="checkbox"/> Energy Conservation/Efficiency	<input checked="" type="checkbox"/> Sustainable Design
<input type="checkbox"/> Alternative Fuels	<input type="checkbox"/> Other
<input type="checkbox"/> Renewable Energy	

3. Project Information	
<p>a. Please provide a brief descriptive title for the project.</p> <p>b. The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.</p> <p>c. List the source of project cost estimates.</p> <p>d. Provide a brief explanation in response to question regarding previous funding.</p>	
3a. Project Title	Technology Resource Recycling Program
3b. Project Cost Estimate	\$1800.
3c. Source of Estimate	See attached listing.
3d. If previous funding from this source was awarded, explain how this request differs? NA	

4. Project Description

(Completed in as much detail as possible.)

- a. The scope of the work to be accomplished is a detailed description of project activities.
- b. The benefit statement describes the advantages of the project as relates to the selected project category.
- c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
- d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
- e. Provide specific information on anticipated student involvement or benefit.
- f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
- g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

4a. Scope: Work to be accomplished

The Technology Resource Recycling Program was initiated spring semester of 2015, to repurpose surplus and donated tools and equipment from industry partners, to be used in classroom instruction. A portion of this equipment is disassembled into component parts. Individual components and fasteners are organized and stored to provide an inventory of parts, materials and fasteners that can be utilized by students in the design, engineering and assembly of student projects, lab activities, faculty research projects, and to help maintain existing equipment.

To be of greatest benefit, components and materials need to be organized and stored in an efficient manner so that students can easily search the inventory and locate items that can be repurposed. Also, materials to be recycled need to be processed to provide maximum benefit and fund recovery. To support this program the following is needed:

1. Shelving and storage bins for components and small assemblies.
2. Organizers for sorting and storing fasteners and small components.
3. Larger storage totes for materials like wire, tubing, hoses and plastic components.
4. A label maker for printing labels for identifying bins

and totes.

5. A small wire stripping machine for wire insulation removal and recovery of copper for recycling.

4b. Scope: Benefit Statement

The TRRP provides many benefits:

1. Providing Industry partners with a cost effective means of supporting the mission of Engineering Technology by providing gifts-in-kind donations.
2. Students are provided with an array of precision quality components, materials, and fasteners to design and engineer their projects, thereby increasing their range of creativity and technical expertise.
3. Engineering Technology acquires precision components, materials and fasteners that would be purchased, for almost no cost to the department or MTSU.
4. Students can see and operate actual production assembly equipment and fixtures. They can study their design, components and how these components function to complete a designed task.
5. Faculty research projects benefit as reutilization of materials help reduce their costs.
6. Components not needed are broken down and sorted into their base material (steel, aluminum, copper, brass) and locally recycled. Funds recovered are deposited in Foundation Account to be used for other department needs. Additionally, recycling reduces the amount of material that goes to the landfill and a savings in the cost of waste removal for MTSU.
7. Repurposing of material saves energy and utilizes an existing resource, thus stimulating design, engineering and technology innovation in an environmentally friendly manner. This program has already generated parts and materials that have been reutilized in Engineering Technology and Mechatronics projects.

4. Project Description (continued)

4c. Location of Project (Building, etc.)

Receiving and disassembly of equipment and tools would occur in the 120 lab of Voorhies Engineering Technology. Storage of materials and components would be at various locations within the building.

4d. Participants and Roles

Program Coordinator: John Rozell

Faculty Consultant: Dr. Ahad Nasab

ET Student workers: disassembly and organizing of components and materials.

End users: Engineering Technology/Mechatronics students, research faculty.

4e. Student participation and/or student benefit

Students would assist in disassembly, organizing components, and recycling of surplus materials. Students would handle mechanical and electrical systems and become familiar with their design and function. A large assortment of mechanical components, electrical components, and fasteners would be available to be used by students for their class projects. Recycling of materials provides funding for purchasing additional materials and supplies.

4f. Future Operating and/or Maintenance Requirements

Continual updating of inventory and removal of surplus and worn components and materials for recycling will be required. Additional storage items such as shelves or parts bins may be required as inventory grows.

4g. Additional Comments or Information Pertinent to the Proposed Project

Cost Breakdown to support Technology Resource Recycling Program:

Shelving, shelving with parts bins:	\$1345
Large parts containers (12)	\$107
Label maker	\$100
Wire Stripping Machine*	\$230
Misc. expenses	\$18
Total:	\$1800

*The wire stripping machine can remove the insulation from copper wire. Due to the demand and pricing for clean uninsulated copper wire, this machine can double the price paid for copper wire at the local recycling center.

5. Project Performance Information

Provide information if applicable.

- a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
- b. Provide information on estimated annual energy cost savings in monetary terms.
- c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
- d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.) NA

5b. Annual Energy COST Savings (\$) NA

5c. Annual Operating or Other Cost Savings. Specify. (\$)

The success of this program depends on providing an efficient means of sorting, storing, and searching the inventory of components, fasteners, and materials. Once storage containers and other equipment is procured, there should be no additional annual operating cost. Availability and amount of donated and surplus equipment will vary from year to year based on business needs of donor. Since 2012, recycling of steel, aluminum copper and brass from lab activity has averaged an \$800 annual return to the department.

5d. Matching or Supplementary Funding (Identify and Explain) NA