

UNIVERSITY OF MEMPHIS
HERFF COLLEGE OF ENGINEERING
ENGINEERING TECHNOLOGY DEPARTMENT
203 Engineering Technology Bldg, Memphis, TN, 38152-3210

PROPOSAL FOR AN ECETDHA MINI-GRANT

SUPPLEMENTARY EQUIPMENT TO ENHANCE THE
DEPARTMENT'S GIRLS IN MANUFACTURING (GiM) PROGRAM

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Abstract: The grant is requested to fund supplemental training kits/equipment for the department's yearly summer enrichment program for high school girls. Girls in Manufacturing (GiM) is a Cargill/Carrier funded program designed to introduce girls to the field of engineering, and through hands-on activities, explore how engineering relates to manufacturing. The program has secured partial external funding for 2009 and 2010.

Justification:

GiM was initiated in 2007 with the ultimate goal of increasing the number of women pursuing technical degrees and careers in manufacturing and the engineering field. It is a grassroots program here in Memphis and response to it has been overwhelming – over 380 girls from six states and seventy-seven schools initially applied to the program. The girls receive manufacturing exposure in welding, casting, Computer Numerical Control (CNC) machining, Computer-Aided Design (CAD), and rapid prototyping. It is our hope that similar programs will be initiated at institutions across the country once the program receives more recognition.

The department wishes to expand the program to also include very basic electronics theory and the construction of simple devices that the girls can keep and use as proof of their abilities and experience with electronics. Due to our current economic situation, initial funding cuts, and more cuts anticipated; the department has minimal resources for this proposed addition to the GiM program. The mini-grant would allow the purchase of basic electronics kits and soldering stations. The kits consist of printed circuit boards, 555 timers, basic 555 programming, photocells, and transistor oscillators. The girls will receive instruction in basic electronics theory and soldering techniques. They will construct, test, and then leave with an interesting and useable device.

Intended Report:

A report will be generated which will summarize the educational benefits of adding the electronics portion to the GiM program. The report will include surveys from the girls and also feedback from the participating schools involved.

It is also anticipated that a paper will be published and presented at the ASEE's annual conference based upon both the initial results from the GiM program and the addition of the participants' exposure to electronics.

Time Line:

Addition of the Electronics Kits to GiM Program	Summer 2009
Completion of 2009 Surveys	Summer 2009
Intermediate Report on Impact of Kits	Fall 2009
Continuance of Electronics Kits with GiM	Summer 2010
Completion of 2010 Surveys	Summer 2010
Writing of Report	Fall 2010
Submission of ASEE Conference Paper	December 2010

Budget:

As seen on the budget below, the mini-grant will partially fund both the electronic educational kits and the associated support materials. Items listed are at an 'educational' discount and shipping/handling costs are included. The additional funds to add the electronic projects to the GiM program for the next two summers will come from the department's operating budget.

Equipment:	80 Electronic Kits @ \$6.39 each	\$511.20
	8 Soldering Irons, 25W, 120 VAC @ \$13.69 each	\$109.52
	8 Soldering Stands @ \$4.95 each	\$39.60
	8 Solder Tip Cleaning 'Genies' @ \$5.49 each	\$43.92
	4 Desolder Pumps, Non-Electric @ \$4.95 each	\$19.80
	1 Solder Wick – 5' Roll @ \$1.69 each	\$1.69
	1 Solder Roll, Pb Free @\$12.95 each	\$12.95
Shipping & Handling:		\$44.55

Total Cost:		\$783.23

(\$ Requested: \$391.00 from ECETDHA)