

## ASME Diversity Action Grant Report

*ASME student sections that receive funding through the Diversity Action Grant (DAG) program must complete and submit this report to ASME's Center for Leadership & Diversity by no later than June 1 of the academic year in which the project was undertaken. Any unused funds remaining must be returned to ASME with the report. ASME student sections that fail to submit a timely report may not be eligible to receive DAG funding for future projects. Additional information regarding the project, including photographs, copies of marketing materials and additional text, may be included with this project report.*

---

Date: May 7, 2008

Student Section: Gannon University ASME Student Section

Student Section Chair/Contact: John Coogan

Address: Gannon University, 109 University Square, Erie, PA 16541

Telephone: 814 671-7114

Fax: \_\_\_\_\_

E-mail: coogan001@gannon.edu

ASME Student Section Advisor: Gong Chen

Address: Gannon University, 109 University Square, Erie, PA 16541

Telephone: 814 871-5725

Fax: 814 871-7616

E-mail: chen002@gannon.edu

### Summary of DAG Project

ASME DAG Funding: \$ 1,500 (returning \$41.40 to ASME with this report)

Total Project Budget: \$ 1,867.99

Partnering Organizations: Department of Mechanical Engineering, Gannon University  
Society of Women Engineers (SWE)

Attendance: Total 40

Women 17

Minorities 1

ASME Section/Region Reps 35

### Project Description and Summary:

On April 11, 2008, the ASME Student Chapter, the SWE student Chapter, the Mechanical Engineering faculty and staff of Gannon University hosted the first Mechanical Engineering Day at Gannon University. Forty middle school students participated in the day long event.

The middle school students arrived at 9 a.m. and were greeted by the Provost of the University, Dr. Keith Taylor; the Dean of the College of Science, Engineering and Health Science, Dr. Carolynn Masters; the ASME student Chapter President, John Pichette; the SWE Student Chapter President, Valerie Adams; and the Faculty Coordinator, Dr. Karinna Vernaza. After the welcome, the participants watched the ASME video titled “The Greatest Mechanical Engineering Achievements.”

The participants then rotated through three activities showcasing different aspect of mechanical engineering. These activities were:

1. Egg-Drop Module: Sophomores selected this activity. The student had to design the vessel to drop an egg from eight feet with the least amount of materials.
2. Heat Transfer Experiments Demonstrations: Juniors demonstrated to the participants three experiments:
  - a. Boiling and Condensation\_
  - b. Measuring viscosity by falling spheres\_
  - c. Measuring water flow rate in an open channel\_
3. Beam Design: Seniors selected this activity. The students had to design a beam out of cardboard that could hold the maximum load on a three point bending.\_

In addition to the activities, the middle school students had lunch at the University’s cafeteria and interacted with undergraduate students in a personal level.

#### **Project Goal/Objective and How Achieved:**

The overall goal of this project was to hold a “Mechanical Engineering Day” at Gannon University. The objectives of the “Mechanical Engineering Day” were to establish an effective program to attract a larger population of middle school students and minorities and women students to the mechanical engineering field, and to inspire middle school students to consider mechanical engineering/engineering as a future career.

The goal/objectives were achieved and met. During the Mechanical Engineering Day, supervised and supported by faculty of the Mechanical Engineering Department, Gannon University senior, junior and sophomore members of ASME and SWE hosted middle school students in the various engineering/mechanical engineering related activities, as described in more detail in the above Project Description and Summary section. The middle school students got the opportunities to participate in conducting different mechanical engineering experiments guided by college students showcasing different aspects of Mechanical Engineering. They also got the chance to learn about engineering, to hear about the possible mechanical engineering careers, and how engineers impact every day life.

#### **Discussion and Other Comments/Suggestions:**

The activities ran smoothly. From the surveys (refer to Evaluation of Program’s Success), it is clear that the participants enjoy the activities and that they learned about engineering.

The most challenging part of organizing this event was recruiting the students. This was a learning experience. Schools schedule their activities months in advance and to get a higher attendance, advertising must start earlier.

## Conclusion

The Mechanical Engineering Day was a success. Undergraduate students enjoyed teaching middle school students. The middle school students learned about engineering; and they think, according to the survey, that engineering is fun and could be considered as a possible career.

## Evaluation of Program's Success:

<b>Mechanical Engineering Day Survey Results</b>		
<b>Questions</b>		
1	<b>In a scale from 1-5, how much did you know about engineering before participating in the ME Day? (1 being nothing and 5 being the most, please circle one)</b>	
	1. Nothing	2
	2	22
	3	6
	4	8
	5. A lot	1
2	<b>In a scale from 1-5, how much did you know about engineering after participating in the ME Day? (1 being nothing and 5 being the most, please circle one)</b>	
	1. Nothing	
	2	3
	3	24
	4	12
	5. A lot	
3	<b>Would you recommend this event to other students interested Engineering?</b>	
	1. Never	
	2	
	3	1
	4	10
	5. Absolutely	29
4	<b>Were the activities well structured?</b>	
	1. Not really	
	2	
	3	1
	4	17
	5. Excellent	22
5	<b>Please comment on the ME Engineering Video:</b>	
	1. Hated It	1

	2	5
	3	19
	4	13
	5. Loved It	2
6	<b>Please comment on the following activities:</b>	
	<b>Activity 1: Egg Drop Module</b>	
	1. Hated It	
	2	
	3	
	4	6
	5. Loved It	34
	<b>Activity 2: Heat Transfer Labs</b>	
	1. Hated It	2
	2	5
	3	9
	4	15
	5. Loved It	9
	<b>Activity 3: Design Competition</b>	
	1. Hated It	
	2	
	3	2
	4	11
	5. Loved It	27
	<b>Do you think engineering is fun?</b>	
	1. Yes	32.5
	2. No	
	3. Not sure	7.5
	<b>Would you consider becoming an engineer?</b>	
	1. Yes	18
	2. No	1
	3. Not sure	20

<b>What was most valuable about mechanical engineering day?</b>	<b>What would you like to improve about this engineering day?</b>	<b>General comments:</b>
Learning about engineering and math and science	More activities	Really fun. I had a good time.
I liked the egg drop the best	nothing	I liked it, The lunch was really cool too

I liked the egg drop.	Nothing	Liked the doughnuts! and egg drop. Lunch was awesome! The lunchroom is hudge! And yummy!
I really enjoyed constructing the beam and egg safety pack now u know I like engineering	More activities that you can create something and use your hands	It was a lot of fun and I would like to come again
It helped me see what it's like to be an engineer	More activities	It was fun
The geometry	Fly the helicopter!	Awesome!
Learning experience	nothing	It was great
The egg drop was fun and the lunch was amazing. I learned how to make a structurely sound beam.	Heat transfer was not very interesting	Very fun overall.
The lunch and the egg drop were fun and I learned a lot about the best way to build a beam.	Instead of watching the heat transfer labs, make a hands on lab rather than watching them.	Fun fun fun!
Getting to do hands on things with the egg drop module and the beam design and construction.	Do something hands on for heat transfer labs.	Make heat transfer labs more fun. I liked the beam design and construction the most.
It brought but the best things about being an engineer		Very cool activities, great lunch
Being able to perform experiments in groups. I loved the experiments because we wouldn't be able to do them in school.	I thought it was great the way it was.	Student Matt and Dave were awesome!!
I like engineering a lot so I thought it was very fun	Not anything it is already great. But you could add more activities.	The lunch was great. The activities were great. It was a very fun great.
Egg drop, it demonstrated how we could improve on air bag safety in cars and how we can improve it.	Explaining a bit more what the purpose of the experiments are for	I had a great time. I learned that M.E's are needed in our troubling economy.
Egg drop got learn to build a strong structure and to conserve points	Nothing was great but may be some different activities or make it longer	It was fun and a great learning experience
Making stuff	Week-long, no learning	Learning is lame. Making stuff is fun
I liked the egg drop and beam building	Heat transfer	Lunch was great
I loved learning about the egg drop and the importance of a good structure	I wouldn't improve anything, except they could add even more experiments!	I loved all of the activities and student Matt was really fun!
The most valuable part for me was learning how to make a beam	Nothing	nothing
The hands on design and construction labs were fun	More hands on design and construction labs	Fun!
Showing the kids how to get to and the exciting world of science.	The kids should learn precisely the science of the force distribution in the beams.	It was fun.
I think learning is was most valuable.	I like it the way it is	Great job!

I am not sure but I think it was a good experience.	I would have some activities(may be)	Good lunch! Fun time
The most valuable thing was just the experience of being here and learning about engineering.	More activities and that's it.	I loved the lunch-it was the best lunch I have ever had, and I definitely want to come back sometime and learn more.
The hands-on building activities.	More hands-on activities with building stuff	Great activities great food exciting
The most valuable part for me was learning more about how to make a good supportive beam and the how the structure is important	Everything was good.	I had a good day and I had fun thanks!
I think the most valuable thing about the ME day was the exciting experiments and learning new things about engineering because we could not do anything at our school.	I liked everything .I believe that everything was fine.	Student Matt and Dave were a lot of fun and really funny
Being able to learn about engineering and doing experiments with my friends	it was all good	I had a lot of fun and enjoyed all the activities. they were very educational and I learned a lot about engineering and was able to learn with my friends. Also ,the cafeteria was cool.
I learnt different engineering skills and how you can use them to both accomplish tasks, and just have fun.	Good as is.	I thought as all the activities were very fun, and I also got to get out of school for this. the lunch was also great!
Learning about different types of engineering.	More activities	Very fun :students were nice
We learned what engineers do and about different types of engineering	More activities	We had a great time. students were nice and helpful
Learning about engineering and how it is applied	More activities	Students were fun especially Matt
I loved the activities	More activities	Very fun –student Matt was fun!!!
Learning about things engineers do	Nothing I like everything	It was a lot of fun I would come back if I was invited. the lunch was awesome
The learning experience	May be More activities like "egg drop"	
The activities and different ways groups built there models	More activities	Very fun Student Matt was fun
Learning all about engineering	Nothing	I loved it
The egg drop because it thought u to work as a team and it was fun P.S. Lunch was awesome	Nothing	It was a lot of fun, I'd come again
Learning about engineering	I don't know. I liked it a lot and want to come again	Fun ,want to come again, Lunch was awesome, and I liked the beam construction thing the most.

## Expense Report

The Mechanical Engineering Day had a total cost of \$1,867.99. The Mechanical Engineering Department of Gannon University contributed with \$92.60 and the Admission of Gannon University contributed with \$316.79. The following table presents the expenses incurred during the Mechanical Engineering Day. With this report, the Gannon ASME Student Chapter returns an unused amount of \$41.40 to the ASME Center for Leadership & Diversity.

Materials for Project Demos	\$5.40
T-shirt for 41 middle school students (Gannon)	\$341.52
Prices (Ten \$20.00 Gift Certificates: Borders and Barnes and Nobles)	\$200.00
Go for Engineering Magazine	\$41.34
Romolo's Chocolate - Taste of Erie Bags	\$15.82
Party Place- Taste of Erie Bags	\$5.28
Sam's Club - Water, Juice and Chips (Taste of Erie Bags)	\$62.52
Wal Mart – Materials for Beam Project (Boxes)	\$29.06
Wal Mart – Materials for Egg Drop	\$82.90
Michaels - Boxes for Egg Drop	\$24.67
Eggs for Egg Drop Module	\$4.78
Dollar General - Sandwich Bag	\$1.47
T-shirt for 32 undergraduate students (ASME and SWE members)	\$273.84
Lunch at Gannon's Cafeteria (\$5.00/per person) - 74 participants	\$370.00
Breakfast - donated by Gannon University Admissions	\$235.20
Lanyards - donated by Gannon University Admissions	\$81.59
Gannon Press - Taste of Erie Labels -donated by ME Department	\$5.00
Certificates - donated by Gannon ME Department	\$57.60
Materials for Beam Testing Apparatus - donated by ME Department	\$30.00
<b>TOTAL COST OF EVENT</b>	<b>\$1,867.99</b>

*By no later than June 1, submit this report to:*

*ASME Center for Leadership & Diversity*

*Attn: Marina Stenos*

*Three Park Avenue*

*New York, NY10016-5990*

*Tel: 1.212.591.8614*

*Fax: 1.212.591.7856*

*stenosm@asme.org*