Helpful Hints for Success at Old Guard
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ABSTRACT

Cedarville University enrolled its first class of mechanical engineering students in 1990. ABET evaluators visited the school in the fall of 1994 following the first graduation of B.S.M.E. students and accreditation was granted. After attending a few Region V Regional Student Conferences (RSC) of ASME to get an idea of how the Old Guard Oral Competition was judged, Cedarville students began competing in the spring of 1998. The following are the results to date: 1st place in 1998 (trip to Anaheim, CA), 3rd place in 1999, 1st place in 2000 (trip to Orlando, FL), 2nd place in 2001, 2nd place and 3rd place in 2002. Some ideas will be presented which may improve your chances of sending your Old Guard presenters to the annual conference.

INTRODUCTION

The Old Guard of ASME are the retired ASME members who have determined to support programs which will assist college students as they transition to a professional life as an engineer. As such, they raise and distribute funds which act as incentives for students to participate in a variety of ASME sponsored competitions. The ASME Old Guard Oral Competition is one of these.

Each college with an ASME Student Section is permitted to send two students to their Regional Student Conference (RSC) each year to compete for the following prize money: $300 for 1st place, $150 for second place, $100 for third place, $50 for fourth place, and $25 for fifth place. The first place winner at each region receives an all-expenses paid trip to the International Congress and competes against the other regional winners for up to $2000 in additional prize money.

WHERE IS CEDARVILLE?

Cedarville College was chartered as a Presbyterian school in 1887. Its small campus was nestled among the farms of southwest Ohio. In 1953, the trustees transferred ownership of the college to a group of Baptists who began expanding its programs from the traditional liberal arts programs to include education, business, nursing, and in 1990, engineering. The state of Ohio authorized the two most popular engineering majors at that time, electrical and mechanical, for baccalaureate degree programs. Now a university, the 400-acre campus is home to about 3000 undergraduate and graduate students.
MECHANICAL ENGINEERING AT CEDARVILLE

The mechanical engineering (ME) curriculum at Cedarville emphasizes hands-on experience both through many laboratory courses (13 total) and competition projects. The very first of these courses introduces the freshmen to the engineering profession with a mixture of laboratories, projects, and discussion about what engineering is all about. It is during this first semester course that each of the freshmen will create and present a four-minute computer-generated presentation using either Microsoft PowerPoint® or Corel Presentation® software. I have had the privilege for the past four years to observe and offer feedback to each of the freshmen as they have given their presentations.

As a university, Cedarville also maintains its liberal arts emphasis which includes a required speech class for every student. This is a freshman-level course but many of our engineering students take speech in their sophomore year. This course hones the public speaking skills of the students in an attempt to grow good communicators.

The junior year of the ME program includes a two-course sequence entitled Mechanical Engineering Laboratory. At the end of each semester, students are required to give a 10-12 minute oral presentation describing one of the labs they performed during the semester. They once again develop their own creative computer-generated presentation and must include some background, data, graphs, analysis, and conclusions. I make certain that I participate in at least one semester of this two-course sequence so as to be able to once again observe each of the ME students as they give their presentations.

The senior capstone experience for the ME students is a two-semester course called Mechanical Engineering Senior Design during which project teams work together to apply the design process from beginning to end. This process includes informal design reviews as well as formal oral presentations. Each of the ME faculty are involved as advisors for at least two of these senior design projects and thus will observe at least one-third of the senior class give their presentations. Following the fall semester, I poll the ME faculty as to their feelings regarding the best presenters and begin contacting students whom I feel will make a good showing in the Old Guard Oral Competition at the RSC the following spring.

WINNING THE OLD GUARD ORAL

Our short 12-year history as an engineering department has been punctuated with a very high rate of successful Old Guard presentations by our students. Our first class of 16 students received their BSME in the spring of 1994. ABET evaluators visited our campus in the fall of 1994 and our program received accreditation in the summer of 1995 retroactive to our first two graduating classes.
Our student section’s first attendance at an ASME Region V RSC was in the spring of 1995. It was there that we learned about the National Design Competition and the Old Guard Poster and Oral Competitions. The students immediately became excited about the National Design Competition and determined to field a team in each of the next two years at the RSC.

As the faculty advisor for the student section, however, I saw the Old Guard competitions as a tremendous data point in measuring the communication skills of our students. For the next two years at the RSC, I attended all of the Old Guard presentations, took notes, and compared my selections for winners with those of the judges.

Our first entry in the competition was a female junior ME student who had competed in the SAE Micro Baja Truck competition with a vehicle she had modified. She was well-rehearsed, knowledgeable about her topic, and just happened to mention that her truck finished in 2nd place — ahead of many of the schools with students competing against her at the RSC. The judges awarded her the 1st place prize (of 13 participants) and she traveled to Anaheim, CA to compete at the ASME International Congress against the other regional winners.

In the spring of 1999, in our second year of competing, a senior ME enrolled in the Air Force ROTC program came home with the 3rd place prize (of 23 participants) for his presentation of his senior design project — an exercise machine designed for running in, as opposed to a treadmill where the foot releases from the surface of the machine. The judges were very impressed by the solid modeling and kinematic design.

The following spring, a team of seniors was asked to design and construct a caddy which could be attached to a standard bicycle. This “trailer” for a bicycle would have to constrain a handicapped boy — one who required a special seat to accommodate his Cerebral Palsy. Much of the dynamic analysis was performed using Working Model® which was integrated into the presentation and delivered at the competition by one of the students in the group. The student took home the 1st place prize (of 13 participants). Unfortunately, due to constraints of a new job and a young bride, he was unable to present his project at the International Congress that fall.

In a reprise of the 1999 competition, a group of seniors designed a Runner’s Treadmill in 2001. Once again, a student enrolled in the Air Force ROTC program became the team’s spokesman at the Old Guard Oral Competition that spring. He received the 2nd place award (of the 22 students who competed).

In only its fifth year of competition in the Old Guard, BOTH Cedarville participants placed in the top five at the 2002 RSC. The 2nd place award went to a student whose design team evaluated a unique single-bladed windmill originally built to be reproduced in third world countries as a means of generating electricity. A representative from a team of seniors which designed and built a wheelchair wheel cleaner won the 3rd place award. Nineteen students participated in the Region V Old Guard Oral Competition last year.
SOME OF THE KEYS TO SUCCESS

As can be seen from the brief history of our participation in the Old Guard Oral Competition, certain keys seem to help unlock the door to success:

1. *The Curriculum at Cedarville Emphasizes Oral Communication.* As mentioned above, the engineering faculty have developed a curriculum for mechanical engineering students which contains a number of required oral presentation assignments. As the students progress through their four years, they receive timely feedback, which, if utilized, will permit them to hone their oral communication skills.

2. *The Old Guard Oral Competition is Highly Valued by the Faculty.* Assessment for accreditation came to us by way of the North Central Association of Colleges and Schools well before ABET changed its accreditation guidelines. One of the principles for assessing programs is to key off of the university Mission Statement. One of Cedarville’s objectives is “to provide sufficient opportunities for students to practice the skills of communication.” From this global objective, the following departmental objective was developed: Engineering students will be able to prepare and present effective technical briefings. Having established this objective, the faculty looked for assessment instruments which could characterize how well the objective was being met. The Old Guard Oral Competition is one of the external evaluation tools being used to assess our students’ presentation skills. It is therefore highly valued by the faculty.

3. *Projects with Human Interest Present Well.* Christian and Community Service is an integral part of the Cedarville experience. Our students look for ways to incorporate service projects into their curriculum. The faculty are more than willing to support such projects. Whether for a family living in the Miami Valley here in Ohio, or a missionary working in Timbuktu (before entering the Old Guard competitions, a team of our seniors actually designed a ferry that could be manufactured in Mali, Africa for a missionary to use to cross the Niger River during its flood season), projects that help people tend to touch the hearts of the judges.

4. *Organization and Effective Delivery Combine to 60% of the Score.* Over the 10 years during which I have observed our regional Old Guard Oral Competition, the upgrade of the technology has improved the visual appeal of the presentations. However, the judging criteria have not changed; Organization of the presentation and Delivery and Effectiveness each contribute 30% towards the overall score. This favors a well-prepared, polished presentation above a highly technical but monotone report. Our two Air Force ROTC winners could testify that their leadership training included preparing “spit-and-polish” briefings delivered to their commanding officers. Our first winner expressed herself without the pauses (uhhs, ums, and the like) common to many engineering briefings. Vocal control, frequent eye-contact, and proper timing portray confidence which the judges highly favor in these two very important categories.
CONCLUSION

Engineers who are able to communicate well will always be in demand in the marketplace. We are grateful to the Old Guard for supporting this annual competition which encourages students to hone their presentation skills. Our ME curriculum is designed to provide ample opportunities for our students to develop formal presentations and to deliver them publicly. The success we have seen at our RSCs over the past five years has been the result of a concerted effort among the ME faculty to develop excellent communicators — who also just happen to be engineers.

Don’t forget to ask me how things went in Toronto at the 2003 Region V RSC!

REFERENCES
