

Chapter of Excellence Report

Virginia Tech

2010-2011

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Chapter Overview

The name of the Virginia Tech Material Advantage Chapter is Materials Engineering Professional Societies (MEPS). MEPS includes all four Material Advantage organizations (ASM, TMS, ACerS, AIST), in addition to the American Foundry Society, the Journal of Undergraduate Materials Research, and the Materials Research Society. MEPS is a student-run organization that serves as the liaison to academia, industry, and professional societies. This year the structure of MEPS included a President, Vice-President, Secretary, Treasurer and Student Engineers' Council (SEC) representative, as well as professional society representatives who also held roles as Public Relations, Fundraising and Outreach positions. Next year, MEPS will organize differently and will have two slates of officers, who may or may not overlap, that the President will integrate: the internal positions of President, Vice-President, Secretary, Treasurer, Outreach Coordinator, Events Coordinator and SEC Representative, as well as the professional society representatives.

Undergraduate students, graduate students, and faculty members are all encouraged to attend MEPS meetings. Meeting attendance for 2010 to 2011 averaged approximately 40 students per meeting with additional faculty, which is about 40% of the Materials Science and Engineering (MSE) department. This report will summarize the career development, service, and social activities of the Virginia Tech Material Advantage Chapter. This chapter continues to grow in size and service each year.

Programming

Journal of Undergraduate Materials Research

JUMR creates a unique publication that is oriented toward undergraduates as both the authors and the audience. The publication features the work of students, nationally and internationally. The concept was developed by MEPS graduate student members in an effort to provide opportunities for materials undergraduates to publish their research. Students who submit articles are able to practice their technical writing skills, gain experience with the rigors of peer-review publishing, and publish articles in a recognized, specialized journal. The graduate students who make up the editorial board gain valuable experience as technical editors, learn the complex process of publishing a world-class journal, and develop skills in fund-raising, design, and journal editing.

The task of editing and publishing the journal is also a collaborative effort between graduate students and undergraduates, providing the experience of producing a technical journal and granting insight into a journal editor's mindset. On the editorial staff, we currently have three undergraduates, one MEPS member and two English majors. The fourth volume was released last year on May 15, 2010, and entries for the fifth volume are currently being accepted.

Undergraduate Dinner with the MSE Department Head and Faculty

This year, MEPS instituted a dinner at the end of a semester where two students from

each class went to dinner with the MSE Department Head and three invited faculty members. This dinner occurred in the spring semester of this year and will become a tradition within MEPS. The undergraduates serve as representatives of their class that bring questions and constructive criticism to the dinner to be discussed with our department. Virginia Tech's professors are very supportive of the students and are always willing to come to the dinner. The dinner provides a medium for students to provide feedback to the department and see their praise and concerns be addressed during their undergraduate career. A dinner was not completed in the fall semester, however, the MSE Department Head was invited to a MEPS meeting and all students were allowed to come and ask questions and provide constructive criticism for the department.

Career Development

Career development is a primary focus for MEPS since it allows students to be exposed to different opportunities that students in other departments do not get the chance to experience. These events are often the ones that students are most excited to participate in since they are eager to network with professionals and learn about all areas of materials science. Virginia Tech does not have any local professional chapters readily available to us. A trip to visit our nearest "local" chapter is prohibited because of the amount and expense of the travel. Therefore, MEPS focuses on attending conferences, taking field trips, and bringing professionals from various industries to talk with the students. Many of our students have received internship or job offers from these experiences.

Virginia Tech Engineering Expo 2010 – Blacksburg, VA

MEPS is a registered Virginia Tech association affiliated to the Student Engineers Council (SEC). Annually, the SEC operates the Engineering Expo to provide a venue for companies and government agencies to interview and hire students for full-time positions, co-ops, and internships. This year, MEPS had 2 student representatives involved in the SEC that were available to help for the Engineering Expo.

MS&T Conference 2010 – Houston, TX

This year, approximately 19 undergraduate students and 3 graduate students attended MS&T'10 in Houston, TX sponsored by TMS, ASM International, ACerS, and AIST. MEPS was able to fundraise over \$5,000 in funds so that all 19 undergraduate students were able to attend the conference with transportation, hotel, and registration costs fully covered. At the conference, students attended technical symposia, participated in several Material Advantage student activities, and networked with professionals from different universities and companies around the world. The MEPS officers attended the Material Advantage Chapter Leadership Workshop and other chapter leadership activities. Karen Kokal attended the Chapter Leadership Workshop and gave a demonstration of the demo kits MEPS had been working on. Charles Forman, a sophomore, represented Virginia Tech in the student speaking contest. Amanda Krause and Amy Bumbaco presented in the JUMR symposium and Marianne Lindsay competed in the undergraduate poster contest. Matt Hiser, a graduate student, presented his research at two different sessions. MEPS students also helped run the JUMR booth at the conference and helped raise awareness for JUMR among other universities. This year MEPS was awarded the Chapter of Excellence, a feat that MEPS and VT MSE are very proud of.

33rd Annual Conference on Composites, Materials and Structures - ITAR Sessions – Cocoa Beach, FL

The 12 most active MEPS students were selected to attend the 33rd Annual Conference on Composites, Materials and Structures – ITAR Sessions held in Cocoa Beach, FL in January of 2011. The students helped to keep the conference running smoothly by working the registration desk, ensuring that the sessions were on time, provided technical assistance, and ensuring that all attendees were U.S. citizens. Virginia Tech students were joined by students from New Mexico Tech. Students benefited from this opportunity to attend a classified conference in which they were able to sit in on sessions and network with companies around the United States. This conference was not only fun for students, but it provided a valuable opportunity to distribute resumes to obtain a summer internship, co-op, or full time job.

Corning Tour – Christiansburg, VA

In November 2010, MEPS arranged transportation for a tour of the Corning Plant in Christiansburg, VA, for juniors in the department. This tour supplemented the Ceramics course built into the junior curriculum. This facility produces ceramic substrates for catalytic converters for use in the automobile industry. This tour started with a brief introduction to the plant and Corning, Inc. Then the students were given an in depth factory tour beginning with the mixing of the ceramic material all the way to the firing process. Students were given the chance to see the process and ask questions about all facets of the factory setup, including mixing, extrusion, drying, and any day to day operations of the engineers.

Rensselaer International Scholar Program (ISP) Information Session – Blacksburg, VA

In September 2010, MEPS co-hosted the visit of Rob Sheftel of RPI to Virginia Tech to speak about the International Scholar Program. In conjunction with the Society of Women Engineers (SWE) and the National Society of Black Engineers (NSBE) on campus, MEPS helped provide a location and facilitate the presentation of this program. Students that attended were able to learn about this opportunity to earn different types of Masters Degrees while traveling the world, gain insight on how to make themselves competitive for such programs, and network with peers and the program leader.

AFS Piedmont Chapter Meeting – Blacksburg, VA

In November 2010, MEPS organized the attendance of 15 students at the AFS Piedmont Chapter meeting that happened to be held on campus. Students heard presentations by several companies in the area and were able to network with professionals. The President made a short presentation on MEPS to further the relationship between MEPS and AFS.

VT Foundry Institute for Research and Education (FIRE) Tour – Blacksburg, VA

In December 2010, MEPS organized a first-look tour for 20 MSE undergraduates of the newly constructed foundry on the opposite side of campus. These MSE students were given one of the first tours of the new facility by MSE professors before the ribbon-cutting ceremony. Students were given the chance to see and ask questions about all of

the steps of the casting process as well as learn about the process of designing and constructing a foundry.

Dr. Jack Hyzak of PCC Presentation and Exercise – Blacksburg, VA

In February 2011, MEPS facilitated a presentation by Dr. Jack Hyzak of Precision Castparts Corporation to MSE students. Students learned about several methods of casting from an insider view, the company itself, and were presented with an exercise at the end the presented a real-world problem that the audience solved together. Afterwards, students had the opportunity to network and present their resume to Dr. Hyzak for either editing or consideration for an internship or job.

MA Congressional Visits Day – Washington, D.C.

The Virginia Tech Chapter of the Materials Engineering Professional Societies had 9 students in attendance for the 2011 SET Congressional Visit Day in Washington, D.C. on April 7th, 2011, and this was actually the largest group in attendance! Each student was responsible for making an appointment with a congress person from their own voting district; as a result we were able to meet with 8 congress people in all. We also attended a session where we were given a detailed briefing on the future of the U.S. Federal budget and the impacts it will have on investments in science, engineering, and technology. The session also included a panel of staffers and a former congressman who support spending for science, engineering, and technology. The panel members answered questions on the strategy of the current president and congress on maintaining or increasing spending on science, engineering and technology. The entire event was a great success and the students had a lot success in presenting the need for Federal government to invest more into science, engineering, and technology.

Service

This year, MEPS continued to put a large focus on outreach and service activities for students. Most of the events that MEPS organized were focused on gaining student interest in Materials Science and Engineering. With these efforts, MEPS students have been able to help increase the class sizes each year to the point that class sizes are now approaching their upper limit since lab space is limited. In addition to the recruitment activities, MEPS was also involved in community service activities in the town of Blacksburg, VA.

The positive response from service activities in the past inspired the creation of the MSE Ambassadors, which began this fall. This volunteer group housed within MEPS is dedicated to hosting students, visiting high schools across Virginia, and attending all recruiting events.

MSE Open House

Each fall, the College of Engineering requires all departments to host open houses for freshman General Engineering students to learn about all 12 engineering disciplines. This event helps the freshmen choose a major and gives them the opportunity to learn

about disciplines that are not as common, such as MSE. This is the largest recruitment event for MSE in which the almost all MEPS members participate. Students set up the rooms and demonstrations, run demonstrations, talk to the freshmen about the department and why we chose the field, serve refreshments, present posters, and clean up after the event. Students also put together a slide show of photos and information about the MEPS organization for new freshman to learn about. Our department puts a large amount of time and energy into this event; however, it would not be nearly as successful without the MEPS volunteers.

Freshman students typically enjoy our open house the most because we are very enthusiastic and have dozens of demonstrations for all areas of MSE. The demonstrations usually include fiber optic production, bulletproof vest, night vision goggles, fireproof suits, glass pouring, superconducting ceramics, shuttle tiles, aerogel, and many more.

College of Engineering Open Houses

Throughout the year, there are many opportunities to recruit students through events sponsored by the College of Engineering. MEPS students volunteer to work at four main events: two College of Engineering Open Houses, Women's Preview Weekend, and the Student Engineers' Council (SEC) Freshman Mixer. During these events, high school students who have been accepted to VT for the following year or are merely interested in the school learn about all 12 engineering departments. Typically, about five to seven MEPS students volunteer to set up booths displaying information on MSE and a slide show of pictures. We also answer any questions that visiting students may have about the department or college in general. These are always great opportunities to recruit students and help students gain interest in the field of Materials Science and Engineering.

Prospective Student Luncheons

This year, the MSE department hosted five prospective students with an interest in MSE. Students are invited to visit the department for a day, speak with professors, sit in on classes, and tour the grounds. The luncheon, where the student sits with a professor and several current students, allows the prospective student the chance to ask questions about their experiences in MSE, the department, MEPS, or their careers.

Pre-College Initiative Day (PCI)

MSE Juniors participate in the Pre-College Initiative Day (PCI) which reaches out to minority middle and high school students around the area. Events such as these are important for both the college students and the younger students in more ways than one. They are important to the college students because it allows them to practice explaining technical concepts to a non-technical audience and it also helps them learn how to construct a demonstration. It is important for the younger students because it sparks their interest in science and engineering and provides them with new opportunities that they may not have known about before.

Social Activities

College of Engineering Tailgates

For each home football game, MEPS members volunteer to organize and run tailgates for the MSE department. MEPS students set-up a large tent, table, and chairs for visitors to come relax and socialize before every game. Students also run the grill and organize the food and refreshments present at each tailgate. At each tailgate, a mixture of college of engineering alumni, undergraduates, graduates, faculty members, friends, and family would attend. The tailgates help to promote the MSE department, build strong relationships between students, faculty, and alumni, and also provide a relaxing and fun atmosphere for Hokie football fans. Tailgates provide a unique fundraising opportunity for MEPS to raffle department t-shirts, drink cozies, water bottles, and donated, handmade belt buckles to the guests. This year we were able to get the head football coach to sign a football, raffled it off, and fundraised \$300 in two hours. The attendance ranges from 50-75 people at each tailgate.

E-Week

E-Week, or Engineer's Week, is a university wide competition between all the engineering departments in March. The event is sponsored by the College of Engineering's Student Engineering Council (SEC). MEPS organized MSE's involvement in the event and raises awareness for the event among students. This year, MEPS sponsored an activity at the Organization Fest. A 'shuttle run' was organized where members had to run to a blanket covered with items made out of different materials and on successive runs bring back one item made of a polymer, ceramic, metal, and composite. There was a strong turnout from MEPS and because of that energy our activity was one of the most popular activities at this event!

Tianjin University-Virginia Tech Social Events

For the first time this year, MSE students from Tianjin University visited Virginia Tech in February as part of the schools' exchange program. MEPS organized all social events between the Tianjin and VT students including a lunch at a local pizza parlor, Breakzone activities, and a hike in the Blue Ridge Mountains to a local waterfall. At the Breakzone on campus students and faculty from both schools played against each other in ping pong, pool, and foosball. The Tianjin students had never seen foosball before and they loved beating our department head at it. These events allowed our students to learn from another culture, exchange ideas, and return the favor of hosting students.

Chapter Management

MEPS members have access through Facebook to the dates and information for events or meetings, the contact information of other members, and a forum for discussing ideas. This medium seems to work best for our group since almost all members check Facebook daily and the department is small enough that we all know our classmates. However, to get the new members of the department into the program, we continue to send out emails to the undergraduate and graduate listservs for meetings and advertise on boards in classrooms. MEPS officers also go into classrooms with MSE students to invite them to

attend the first meeting. At the following meetings, participation varies as students have time constraints or conflicts, but normally around 75% of the members attend each meeting.

At the very first meeting, normally in September, the new MEPS officers discuss the goal and benefits of joining Material Advantage. A computer is brought to the meeting so that students have the opportunity to sign up afterwards. Using this strategy, almost all MEPS members have signed up for Material Advantage.

Each April, at the last MEPS meeting, new officers are selected by the students. Candidates are given the opportunity to talk about their involvement in MEPS and voice their ideas for next year. Candidates are then asked to leave the room and votes are tallied. After the elections are over, each incumbent officer talks with the newly elected student to inform them of their responsibilities and pass on any important materials (such as the MEPS checkbook). The old President compiles the documents from all of the old officers and passes them to the new President to disseminate among the new officers. Typically, the MEPS president is a rising senior who has demonstrated substantial participation in the organization.

The newly elected president then begins to organize and plan the next year's events during the summer. Member involvement is monitored closely by the Secretary in a spreadsheet to determine the attendees for the Spring Cocoa beach trip.

2010 – 2011 Officers:



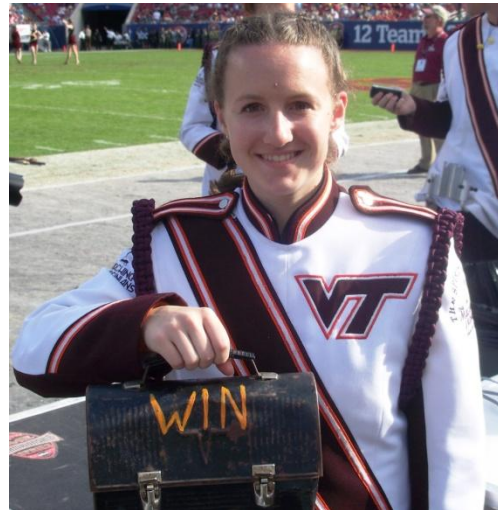
Chair: Karen Kokal



Vice Chair: Amanda Krause



Secretary: Amy Armstrong



Treasurer: Marianne Lindsay