



Virginia Tech

MA Chapter of Excellence Annual Report (2019-2020)

Materials Engineering Professional Society (MEPS)

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CHAPTER OVERVIEW

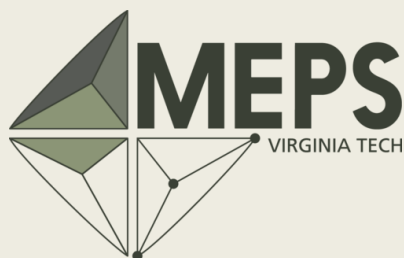
The Materials Advantage Chapter at Virginia Tech (VT) is known as the Materials Engineering Professional Society (MEPS). MEPS at VT is a student-run organization that also supports other materials societies or organizations, including the four main MA organizations: ASM, TMS, ACerS, AIST. In addition, MEPS provides support to the Materials Research Society (MRS), American Foundry Society (AFS), National Association of Corrosion Engineers (NACE), Society of Plastic Engineers (SPE), American Nuclear Society (ANS), and the Society for Biomaterials.

Leadership in MEPS consists of a President, Vice-President, Treasurer, Secretary, Social Chair, Publicity Chair, Outreach Chair, Professional Chair, Student Engineers' Council (SEC) Representative, and liaisons from each materials organization listed previously. Included in MEPS are other students in MSE, as well as faculty liaisons and the faculty advisor, Professor Alan Druschitz.

This year MEPS as an organization had a few major highlights and accomplishments. First, design teams at the MS&T conference won first place in the Domesday competition, in addition to winning first and second place in the ceramic disk competition. We also experienced success with most of our events, including company information sessions, professional development workshops, social events, and the first MSE career fair.

Monthly MEPS General Body Meetings (GBMs) were held monthly and averaged about 25 students per meeting. Main topics for GBMs this year focused on professional development in conjunction with VT Engineering Expo as well as increasing the amount of icebreakers and social time in the first 10-15 minutes of the meetings to foster a fun atmosphere to get members of the MSE department acquainted with one another. The main goal for next year is to increase attendance for not only GBMs, but also all MEPS events. Similarly, we want to increase awareness of scholarship opportunities at Virginia Tech and in the MSE department. Finally, as many of the MEPS officers are graduating at the end of May, we are looking to recruit for leadership next year as well.

This report summarizes the professional development, service, outreach, and social events hosted by MEPS this semester, while also providing an overview of the chapter and how it is managed here at Virginia Tech.



Officers and Liaisons

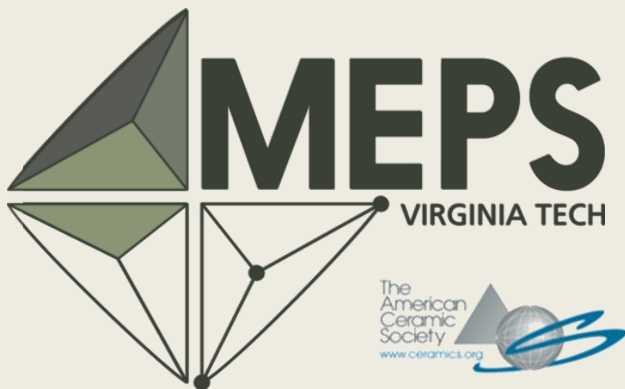


(From Left to Right, both Front and Back Row):

Tim Reuwer (Treasurer); Carl Nicholas (SEC Representative);
Harrison Jones (Vice President); Jacklyn Shen (Secretary);
Nathan McIlwaine (President); Jacob Henson (Sophomore
Representative); Matthew Drew (Publicity Chair); David Gomez
(Outreach Chair); Jared Cohen (Professional Chair); Anna Card
(Social Chair)

Faculty Liaisons

- Dr. Druschitz - *MEPS Advisor, Bladesmithing, AFS, FEF*
- Michelle Czamanske - *MEPS Co-Advisor*
- Dr. G.Q. Lu - *IMAPS*
- Dr. Aning - *AIST*
- Dr. Yu - *ASM, TMS*
- Dr. Farkas - *MRS*
- Dr. Tallon - *AcerS*
- Dr. Bai - *ANS*
- Dr. Whittington - *Society for Biomaterials*
- Dr. Foster - *ACS*
- Dr. Cai - *NACE*
- Dr. Bortner - *SPE*



PROFFESIONAL DEVELOPMENT

Over the course of the year, MEPS has arranged several workshops and information sessions with many different companies that have expressed interest in MSE students. In addition, MEPS engages in other events geared towards networking and furthering career development. MEPS also provide opportunities for interested students to attend multiple conferences that each focus on different areas of materials science.

Company Outreach

Alumni Company Information Sessions - (September 9, 2019) - 31 Students

Former MSE alumni reached out to MEPS in order to arrange an information session for five companies that were interested in MSE students. The five companies were as follows:

- SSAB
 - SSAB (Svenskt Stål AB), a Swedish steel company, briefly presented an overview of the company as well as full time and co-op opportunities available for students.
- Bechtel
 - Bechtel, an engineering and construction company founded in California, discussed its work in the nuclear field in addition to opportunities for students interested in nuclear engineering.
- Navy
 - The US Navy spoke with students regarding its fast-track career path for engineers interested in working on a nuclear submarine and serving the country as part of the Navy.
- American Cast Iron Pipe Company
 - American Cast Iron Pipe Company presented an overview of the work that the company did, and its importance in the metallurgical industry, as well as full-time opportunities for MSE students.
- GE Renewable Energy
 - GE Renewable Energy, a part of the larger company General Electric (GE), gave a brief summary of what their team works on, and later the alumni spoke with students about their experiences working at GE Renewable Energy.



SSAB preparing to present to students at the information session

Wine and Cheese Mixer - (September 10, 2019) - 3 Students

This event was sponsored by the Student Engineers' Council (SEC) and located at Goodwin Hall. MEPS officers displayed and spoke about the blade from the Bladesmithing team, in addition to networking with other student leaders and professionals in the industry that were attending Expo.



(From Left to Right) MEPS President, Social Chair, and Vice President

Naval Air Systems Command - (October 24, 2019) - 12 Students

Two VT MSE alumni from the Materials Engineering Division at the Fleet Readiness Center East (FRCE), which is a part of NAVAIR (US Navy), accepted resumes of students during a brief meet-and-greet before giving a presentation on what the division does and its importance to the FRCE, as well as full time opportunities available to interested MSE students.

Conferences and Other Events

VT Engineering Exposition - (September 10-12, 2019) - 50 Students

Approximately 50 students in MEPS, a registered student organization of the university affiliated with the Student Engineers' Council (SEC), provided multiple benefits for MSE students attending the SEC hosted Engineering Expo in the fall. The Expo is one of the largest career fairs in the country and provides opportunities for students to network and interview with more than one hundred companies. A condensed list of companies specifically interested in MSE, as well as companies that have previously hired MSE students in the past was provided to the MSE student body. In addition, the focus of the September general body meeting was to provide tips and advice to help prepare students for the Expo.

MS&T Conference - (September 29 - October 3, 2019) - 8 Students

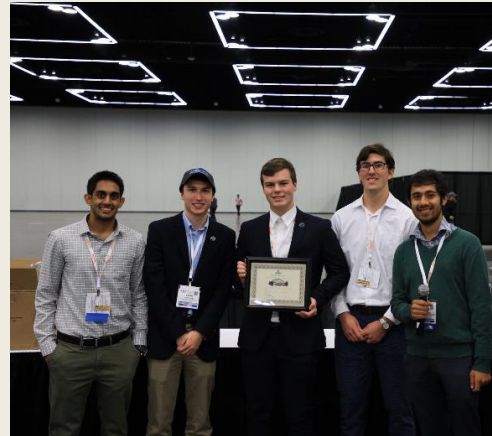
The Materials Science & Technology Conference (MS&T) typically takes place in the fall, and every year MEPS sends students to the conference, the number of which depends on the location. This year we were able to send 7 undergraduate students to the conference located in Portland, Oregon. We had student teams compete in the Domesday, Ceramic Disk, and Ceramic Mug Drop Competition. Our dome team took first place while our disk teams took first place in both the design and throwing, with prize money totaling \$1200. In addition to these competitions, there were opportunities for students to attend several talks featuring accomplished speakers, as well as mixers with students and faculty from other schools. One such event was the Chapter Officer Workshop, where MEPS officers learned more about future demonstrations or event ideas.

Another event involved Keramos, the national ceramic engineering fraternity recently revived here at Virginia Tech. Our president Nathan McIlwaine represented Virginia Tech at the annual business meeting for the President's Council of Student Advisors (PCSA) for ACerS, as well as at the Keramos national chapter annual business meeting.

Finally, MSE professor Dr. Aning arranged for a social with a former VT alum as well as students from Clemson and NC State, allowing for MEPS students to network and socialize with students from other universities while enjoying refreshments.



Students at MS&T 2019



Domesday Design Team Wins 1st Place



A ceramic disc entered into competition this year

MSE Career Fair - (March 2, 2020) - Multiple Students

Michelle Czamanske, the academic advisor for the MSE department and MEPS co-advisor, reached out to six companies that were interested in hiring MSE students to be a part of the first MSE career fair, located at the luxurious Inn at Virginia Tech. In addition, several VT grad programs also attended, including the Department of Mechanical Engineering and the Sustainable Biomaterials Graduate Program. MEPS assisted Michelle with advertising and publicizing the career fair so that the MSE department had a strong showing. Students interested in attending the fair were asked to register and submit their resumes for a resume book that would be given to the companies present. The six companies included:

- Arconic
- Associated Asphalt Partners
- Momenitive
- Moog
- Special Metals Corp
- SSAB

After the career fair, company representatives were taken on student-led lab tours of various MSE labs/facilities, including the Foundry, Processing & Mechanical Lab, and the Thermal/Polymer Lab. The students who conducted these tours were part of MEPS and the MSE ambassadors, including the MEPS Vice President Harrison Jones. After the tours, representatives from SSAB and Siemens along with a group of MSE and MEPS students visited PK's, a local restaurant, for a social mixer, the details of which are in the Social Events section of this report.

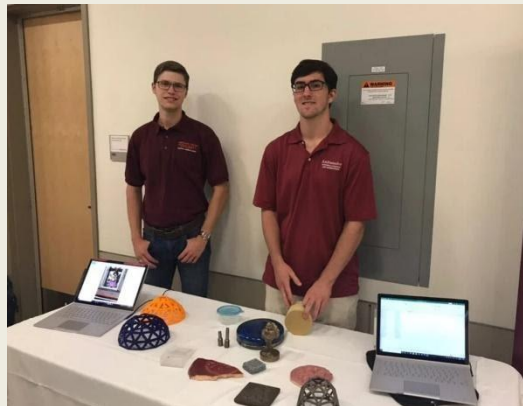
SERVICE

Over the past semester, MEPS has arranged and participated in several events that focused on increasing interest and awareness in MSE, as well as in the STEM fields. Through these events, MEPS students and ambassadors have been able to embody Virginia Tech's school motto: Ut Prosim (That I May Serve).

STEM Outreach

CEED O-Show - (August 24, 2019) - 2 Students

The CEED O-Show was an event held by the SEC for incoming freshmen, who are typically placed in a general engineering program before selecting their engineering major. The MEPS President and Vice President, as well as AFS officers, were present to speak with prospective students about MEPS, the MSE department, and the Foundry (VT Fire). Several demos, pictures, and examples of MS&T design team pieces were available to students to examine at their leisure.



(From Left to Right) MEPS President and Vice President

GobblerFest - (September 6, 2019) - 8 Students

GobblerFest is the annual club fair hosted by Virginia Tech for all students to learn more about the clubs and opportunities available at the university. MEPS had a table to speak with interested students about MEPS and the MSE major. Similar to the CEED O-Show, interesting materials and demonstrations, as well as former design team pieces, were on display for students. To prepare for GobblerFest, officers of MEPS helped to create pinback buttons with the MEPS logo to promote the organization and give out at GobblerFest. MEPS participation in this event was a success as over 60 students indicated they were interested in joining MEPS and provided their contact information to be informed of future events.



(From Left to Right) MEPS Social Chair and Outreach Chair at GobblerFest



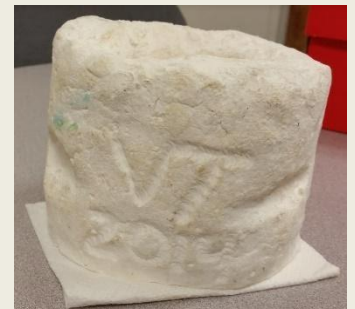
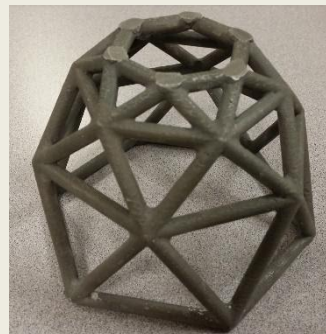
(From Left to Right) MEPS President, SEC Chair, and Social Chair making buttons for GobblerFest

MSE Department Information Sessions - (October 2 & 8, 2019) - Multiple Students

Every semester, the College of Engineering at VT requires all departments to host “open house” events for freshmen in the general engineering program, so that they are aware and can learn more about all fourteen engineering majors available at VT. These information sessions are typically the largest outreach and recruitment events for MSE. MEPS and MSE Student Ambassadors volunteer to run the lab demonstrations and information sessions, as well as answer any questions asked. For the MSE department, the information sessions typically consist of an introductory speech by the department advisor, Michelle Czamanske, followed by multiple lab tours and demonstrations performed by MEPS, ambassadors, and professors. Prospective students are free to tour all the MSE labs, participate in the demonstrations, and ask questions of the students or professors present, all while enjoying freshly made ice cream.

Demonstrations included:

- Using liquid nitrogen to create ice cream and make a superconductor float.
- Examining samples through an optical microscope.
- Enameling of a copper piece.
- Metal casting (termed “Foundry in a box” due to portability).
- Displays of different material samples, including shape memory wire, ceramic catalytic converter, SiC ceramic foam, and broken tensile test samples.
- Displays of design team ceramic discs and mugs, dome, and bladesmithing blades from previous years.



Samples at the departmental info session (left to right): SiC ceramic foam, ceramic catalytic converter, dome, ceramic mug from competition.

STEM Night - (January 28, 2020) - 5 Students

MSE and MEPS were invited to be a part of STEM night at a local elementary school. Several demonstrations were performed for the young students and their parents; some of these were foundry in a box, shape memory alloy, and water absorbing ceramic. A few examples of each material type including 3D printed polymers, a metal geodesic dome, and ceramic catalytic converter were shown off as well. Some basic materials science concepts were explained to attendees and questions about the demonstrations and materials were answered. Many elementary students were very enthusiastic and eager to learn about the various demonstrations.

Volunteer Service

Christmas Store - (December 7, 2019) - 3 Students

Every year the Montgomery County Christmas Store opens to provide clothing, shoes, gifts, food, and more to low income families during the holiday season. The entire organization is run by volunteers, and this year three students from MEPS as well as Michelle Czamanske (MSE academic advisor) assisted with the store's efforts in early December to help shoppers.



(From Left to Right) MEPS President, Vice President, and Social Chair

SOCIAL EVENTS

MEPS typically arranges for several social events throughout the semester designed not only to increase membership, but mainly to allow students to get to know others in the major and take a break from schoolwork.

MSE Picnic - (September 7, 2019) - 45 Students

Every year, the department holds a picnic for everyone in the major in the beginning of the fall semester. MEPS typically helps to publicize the event and participates as well. A feast of barbecue was provided by a local restaurant, and while waiting for the food to arrive, multiple icebreakers got everyone acquainted with each other. Some of these games included ordering everyone by birthday without speaking, or student trivia bingo. Adding to the fun, several professors and faculty came out to socialize with students. This event was a great opportunity for students, particularly sophomores (all of whom are new to the major), to socialize and have fun with professors/faculty, upper classmen, and each other while enjoying good food.



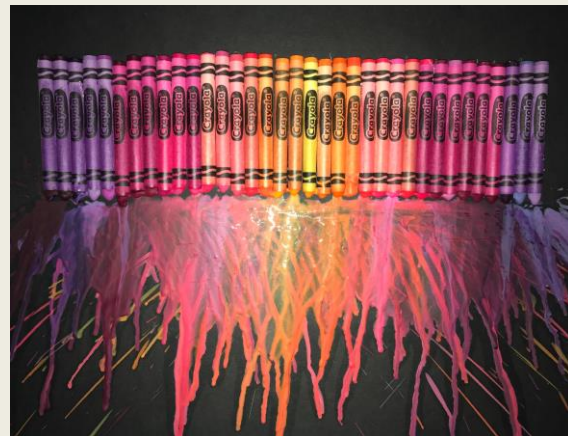
(Above) Students and faculty ordering themselves by birthday without speaking

Crayon Melting Night - (September 22, 2019) - 15 Students

During the MSE department picnic at the beginning of the year, a friendly competition was held between each academic undergraduate class and the graduate students. The goal was to have the most representation from a given class present at the event, and that class would receive a fun arts and crafts night with the department academic advisor (Michelle Czamanske). Supplies and refreshments were provided there, and the activity of the night was to make melted crayon art using hot glue, hair dryers, and of course crayons. The senior class won and were able to keep their masterpieces as a small reminder of the MSE department.



(From left to right) MEPS President and Vice President



An example of the finished product courtesy of the MEPS President

Halloween Game Night and Costume Contest - (October 30, 2019) - 24 Students

Almost every year, MEPS plans and hosts a Game Night that consists of a Super Smash Brothers Tournament. This year, the date was close to Halloween, and thus there was an informal costume contest for participants as well. In addition to the tournament, which doubled as a fundraiser for MEPS, other games were available to play, such as: Mario Party, Cards Against Humanity, Quiplash, etc. Zach Willis, a senior in MSE, was the ultimate winner of the Smash Tournament.



Students at the Game Night with some in costume



Students playing Cards Against Humanity together

Alumni Tailgate - (October 19, 2019) - Multiple Students

The Homecoming Alumni Tailgate was located at the Holtzman Alumni Center, where multiple colleges, organizations, and schools hosted individual tents/tables in which they could gather alumni and other attendees to socialize with. Students from VT FIRE and AFS both attended the event to network with alumni present.

Bake Sale - (November 12, 2019) - Multiple Students

MEPS hosted a late-night bake sale and grilled cheese fundraiser to raise awareness for the organization and to do some fundraising. The table was set up outside a local restaurant on a street corner in downtown Blacksburg late Thursday night. Officers pitched in their own equipment and baked goods, allowing the organization to make hot grilled cheese sandwiches in addition to other baked goods available to interested customers.



(From Left to Right) MEPS Secretary, Sophomore Representative, Treasurer, Vice President, and President

MSE Department Reading Day Potluck - (December 12, 2019) - 25 Students

Every year, on the reading day of the fall semester, the MSE department hosts a potluck event from the late morning into the afternoon. The food ranges from dips, sweets, and savory dishes so that students are fueled for a day of studying. In addition, there is a great atmosphere of undergraduate students, graduate students and faculty and professors. Games like two truths and a lie or card games were played between students and faculty. In addition, a MEPS faculty-auction fundraiser was held, in which student groups could bid money to win a dinner or bonfire event at a professor's house. All the proceeds went towards MEPS.

MSE Career Fair Social - (March 2, 2020) - 27 Students

After the MSE career fair and student led lab tours, the company representatives were invited to attend a social at PK's Bar and Restaurant, located near campus, to socialize with other MSE students and enjoy food and refreshments. This invitation was extended by both MEPS and AFS as a joint event for the benefit of the MSE department and students. Many officers from MEPS attended, as well as other MSE students, to network with the company representatives from SSAB and Siemens in a laid back and casual atmosphere.



Students and company representatives gathered at PK's

GENERAL BODY MEETINGS (GBMS)

General Body Meetings are held sometime in the first week of every month, and usually are geared towards either professional development, social purposes, or some other theme decided by the president and board of MEPS.

VT Engineering Exposition Preparation - (September 5, 2019) - 50 Students

The September General Body Meeting was focused on preparing MSE students for the upcoming SEC hosted VT Engineering Exposition, a large career fair for all engineering majors in the fall. Christine Burgoyne, a part of the Engineering Communications Program (ECP) here at VT, came in to speak to students about how best to present oneself to recruiters at the career fair, as well as resume tips, and other networking tips.



Speaker Christine Burgoyne presenting professional development tips to prepare for Engineering Expo

Public Speaking - (October 9, 2019) - 20 Students

This meeting was centered around developing public speaking. The meeting started with food and an icebreaker in which students completed a scavenger hunt of fun facts about officers of MEPS. Then the speaker, Zack Sowder (associate director of the Communications Lab and instructor of the popular public speaking course at VT), gave an interactive presentation on public speaking. He focused on rules for success, common misconceptions, and interactive examples of public speaking.

Corning Alumni Experience - (November 14, 2019) - 28 Students

Corning is a world-renowned glass and ceramic material manufacturer and developer. Kevin Reuwer (Class of 2019), former VT MSE alumni who currently works at the Corning facility in Christiansburg, VA came in to briefly speak with students on his experience at the company and joining the workforce in general. The meeting consisted of an interactive icebreaker for all of the students to get introduced to each other followed by the guest speaker. He covered his role at Corning, background on Corning globally, nationally, and specific to the Christiansburg facility, and talked about his time in the MSE department and discussed the transitions of that to the working world.



Speaker Kevin Reuwer talking to students about his experience at Corning

Industry vs. Academia in MSE - (February 24, 2020) - 40 Students

The February General Body Meeting was focused on providing perspective to MSE students on the differences in working in industry and academia. The first half of the meeting was an information session with Arconic describing what Arconic does, why they want to hire MSE students, and what types of opportunities they were currently hiring for.



Arconic representatives speaking about the company in their presentation

After a brief break which served as an opportunity to network and enjoy food and refreshments, the second half of the meeting was presented by Dr. Alan Druschitz, professor in the MSE department and head of the Foundry at VT. Dr. Druschitz gave his own talk on his experiences getting started in MSE, working in industry for many years before moving to academia. He was able to talk about the differences in the type of work found in an academic and industrial setting with specific examples; this aimed to give a well-rounded view of careers in MSE when compared to the Arconic presentation that preceded it.



Dr. Druschitz discussing his industry vs. academia experiences

MEPS RESPONSE TO COVID-19

The unexpected and unprecedented spread of COVID-19 significantly affected MEPS activities (as well as university activities) starting in mid-March, after the extended spring break. The shift to an online semester with the prohibition of on campus or in person meetings severely limited the activity of MEPS for the rest of the semester and cancelled all previously planned meetings. Officer meetings were held via Zoom (conference/video call program of choice), and the focus shifted to planning for the upcoming year.

There were discussions surrounding a general body meeting and social event that would occur through Zoom, where students could log in, and either listen to a GBM presentation by a guest speaker or play Jackbox games for a social event. However, due to time constraints and bandwidth limitations, MEPS was unable to host these intended events in a way that would make them accessible to all students of the major.

Another important part of MEPS impacted was the issue of elections and transition to the new officers of 2020-2021. For similar reasons, elections were unable to be held, and the positions were passed to current people shadowing each officer position; details are given below in Chapter Management.

CHAPTER MANAGEMENT

MEPS strongly encourages all MSE students to join Materials Advantage in order to access all the benefits available to them, including networking and career opportunities. All officers in MEPS are required to be registered Materials Advantage members.

Elections and Transition

Elections for 2019-2020 MEPS officers were held at the end of February of 2019, which allowed time for the new officers to transition into their duties properly and without problems. Elections are announced and publicized to the student body, allowing them to either nominate themselves before the meeting as well as during the meeting before the actual elections. Typically, in the fall semester as well as early spring, the previous year's officers anticipate the elections by adopting student shadows for those interested in each position, which made the transition much smoother.

At the elections meeting, nominees were asked to speak for about five minutes to support their election, and left the room while votes were counted. After the results of the election were finalized, previous officers held a transition meeting where they and the new officers discussed in detail the responsibilities for each position. Part of this included a prepared transition document detailing the main procedures and duties required of the position.

Due to the unprecedented situation regarding COVID-19, elections and transition took a different route in Spring 2020. The inaccessibility of many MSE students and MEPS officers, as well as troubles of conducting such a meeting over Zoom (the meeting program of choice) led to a decision to have current shadows of each position succeed their respective positions. Many shadows for each available position have been present since the fall semester, so they are already aware of most of the duties and intricacies associated with their respective positions, which makes the transition much simpler. Otherwise, next year's officers will look over the transition document prepared by each current officer and speak with them if there are any questions.

Positions

The Executive Board includes the President, Vice President, Treasurer, and Secretary. Other elected positions on the Board include the Publicity Chair, Professional Chair, Outreach Chair, Social Chair, and SEC Representative. All MEPS officers are also MSE Ambassadors, and therefore student representatives of the MSE Department. More information on the Ambassador program can be found in the MSE Ambassador section later in the report.

President

The President presides over all meetings, and assumes all executive duties not delegated to others through the MA bylaws. Their responsibility is to ensure that the chapter is operating, and that all other officers are completing their designated tasks and responsibilities.

Vice President

The Vice President's main responsibility is to organize and preside over all aspects of the MS&T conference, including but not limited to: budget, travel accommodations, and organization of design teams. The Vice President is also responsible for any further duties delegated by the President.

In the absence of the President, they will preside over meetings, or in the absence of the Secretary, they will also take minutes for the meeting.

Treasurer

The Treasurer handles all financial matters for MEPS, including but not limited to: tracking organizational funds and budget, organizing fundraising events, requesting funds from the Student Budget Board, or processing any reimbursements.

Secretary

The Secretary is responsible for recording detailed minutes and deliverables generated at each officer meeting and General Body Meeting. In addition, the Secretary also sends out MEPS announcement emails to the MSE student body when necessary and is responsible for writing the Annual Report for the chapter at the end of the year.

Publicity Chair

The Publicity Chair oversees the creation and distribution of posters or advertisements for MEPS events and opportunities. They will also update the MEPS Google Calendar with events and manage any MSE social media accounts. Furthermore, the Publicity Chair is responsible for documenting each MEPS event with pictures or videos as necessary and organizing merchandise sales.

Professional Chair

The Professional Chair organizes company visits, tours, and test study sessions at the request of students. They are responsible for contacting said companies, communicating with them, and scheduling times for them to visit or students to tour.

Outreach Chair

The Outreach Chair arranges for at least three outreach events each semester, which may include community service, STEM outreach, or MSE recruitment events.

Social Chair

The Social Chair plans and organizes monthly social events for MSE students to come out and have fun with each other or professors that may attend with the intention of building and fostering bonds between students, as well as with professors or faculty.

SEC (Student Engineer's Council) Representative

The SEC Representative is MEPS's delegate for the SEC. They attend all General Assembly Meetings and present a budget request twice a semester. The SEC Representative also ensures that MEPS is in good standing with the SEC by organizing participation in Engineer's Week and other SEC Events.

Meetings

Officer Meetings

Officer meetings are typically held bi-weekly and may be moved at the discretion of the President. During these meetings, officers report updates about their current tasks and plan out details necessary to accomplish their duties, which include arranging multiple events throughout the semester. The Secretary takes detailed minutes of each officer meeting, all of which are available to officers in the shared Google Drive folder.

General Body Meetings (GBMs)

General Body Meetings are held every month, and typically provide food and refreshments for students who attend. Generally, the President begins with any major announcements for the students, then transitions the meeting to the guest speaker if there is one. If there is no speaker, the President will usually continue with the activity that they have planned for the meeting. At the end of either, the President will conclude

with main takeaways from the meeting, and a reminder of any upcoming events or the next GBM. Details of this year's GBMs can be found under the General Body Meetings section above.

Organization and Planning

In general, organization and planning are accomplished using a shared Google Drive. In addition, a shared Google Calendar is created to help officers keep track of upcoming events; other students in MEPS can add the calendar so they are more aware of the events being hosted by MEPS. Professional communication between officers is done by either email or Slack (a professional workplace messaging platform). Planning for events is carried out during officer meetings for the most part, with the remainder done on an officer's own time or over the communication avenues listed above.

Funding

Before the start of the academic year, newly elected officers fill out a Google Spreadsheet stating activities, required funds, and funding sources for the coming year. This information is used to create a Budget Request Report which is used to determine how much funding is necessary. A meeting at the end of the spring semester is conducted to go over the previous year's budget/spending and plan out the next year's tentative budget and possible sources of funding. This meeting is conducted with the MEPS President, Treasurer, Secretary, the head of the department Dr. Clark, the faculty advisor Dr. Druschitz, and the department advisor Michelle Czamanske. Once the money is distributed to MEPS, the Treasurer then allocates officers a budget for them to use related to their position if necessary.

Improvements and Plan for Next Year

The MEPS board is constantly in the process of improving the organization as a whole. Main goals for the next academic year include increasing attendance to all MEPS hosted events, particularly from sophomores in MSE, improving communication between MEPS and the other umbrella organizations under MEPS so that more students are involved. These goals can be accomplished by increasing interest in lab tours, study sessions, and the scholarship opportunities available. Other minor goals include more fundraising events, and more service events for next semester, particularly community service. Details for some more specific improvements are given below:

Publicizing events

A recurring theme has occurred this semester with students in the MSE department not receiving enough notice to adequately plan their weeks around MEPS events. A new policy for next semester will be proposed: at least one week before the event, a flier needs to be printed and posted in the MSE lounge. In addition, there needs to be a sign-up sheet for officers on the MEPS board to announce in a class for that grade level of students, and also included the announcement in the class group message. This will ensure that the it is being directly communicated to the students in that grade level. For instance, a senior would need to sign up to inform the students of the senior class in either 'Materials Selection' or 'Senior Design Recitation', since it is likely those are classes that all seniors share, and that same senior (or another according to the sign-up sheet) would need to let students know about the event via the class group chat. This will have a time limit of 2-3 days before the event takes place. This will depend on when each grade level has a class with everyone in it. These two policy updates will ensure there is structure surrounding the publicizing policy of MEPS events to give students more notice and help provide good turnouts for the events. These policies will need to be updated in the publicity chair's role description, as well as all officer role descriptions to ensure that everyone on the MEPS board can help support the club's advertisements for events.

Group Committees

This is a new proposed solution to extending more involvement in MEPS to students without having a title or time commitment associated with it. This would help the students interested in MEPS get involved in one area and give them experience from working on the committee to run for an officer position. This would also help support other officers so that they are not overwhelmed with their duties while planning meetings. For example, the Social Chair would be the head of the Social Committee, and all committee members would help support the social chair in event planning and supervising. This allows each officer breathing room to plan and do more for the organization as a whole. In addition, there are many students interested in getting more involved in MEPS but they might not be able to make GBM's or be able to invest the time in becoming an officer. This will serve to help those students to get more involved with MEPS should they wish. This committee program can also go to replace the shadow program we currently have in place.

The shadow system currently in place has a few flaws. One flaw is that shadows are only encouraged towards the end of the fall semester, and by this time many valuable experiences that a student would benefit from observing from an officer could have passed. Committees are intended to be an ever-present part of MEPS, allowing students to join as early or late as they want to get involved. Another current flaw is that shadowing tends to discourage an outside student from running for an officer position if there is already a shadow for that role. This would allow multiple people to be involved in a committee and make them good candidates for an officer position depending how active they were on the committee and should hopefully open up officer elections and get rid of the exclusivity associated with shadows.

In the interest of keeping organized, however, we plan on limiting the total amount of committees to at most four, since having a committee for each board member is not necessary and can make things very cluttered. Furthermore, since this is a fairly large development in the development of organization leadership, there was a plan to have a trial run of one committee for one position to see how it progressed this spring semester, but unfortunately we were unable to accomplish this due to current circumstances with COVID-19. Thus, one of our goals for next year is to have some sort of trial run of this committee idea to see if it is viable addition to MEPS.

Diversity Committee

MEPS is consistently aiming to be open and approachable to all within the MSE department and other related majors. One idea is to have a diversity liaison that attends the Diversity Committee meetings to represent MEPS as a whole, and if need be the liaison can rotate every meeting such that everyone can get involved and be aware of what is happening. One proposed idea for the near future is for a Diversity Liaison to be added to the liaison structure that already exists within the MEPS leadership. This person could be a part of organizations such as the National Collegiate Hispanic Honor Society or Society of Women Engineers (for example) to attend officer meetings and offer advice on how to make club events more inclusive. Ideally the student would also be a part of the MSE department or a related major.

Officer Elections

An amendment to the role of President and Vice President is that these positions are exclusive to students who have served on the MEPS board in some capacity. Should the committee system happen, they would also need to have served on the President committee or Vice President committee at some point to be considered to ensure experienced students fill these roles. Also, for the Vice President position, the student will be required to have attended MS&T before, while for the President position it will be strongly recommended that they have attended MS&T before.

KERAMOS

Keramos is the national professional ceramic engineering fraternity, run by ACerS. At Virginia Tech the Keramos chapter is relatively new, having been reinitiated last spring semester by Dr. Geoff Brennecka and five other students from the Colorado School of Mines. The main goal of Keramos is to provide professional development, job opportunities, and support for MSE students interested in (but not limited to) ceramics. Our chapter is looking to expand its members through recruiting in the fall semester and plans on completing the plaques necessary for membership this spring.

Meetings and Events

Keramos Interest Meeting - (November 4, 2019) - 8 Students

For recruitment in the fall, an interest meeting was held to offer prospective members more information on Keramos, including its purpose, history, and steps to become initiated.

“Grilled Cheese-amos” Social - (November 19, 2019) - 15 Students

Grilled Cheese-amos was a social event held on campus during the Fall 2019 semester. The chapter bought supplies to make grilled cheese and set up in a classroom. Current students were encouraged to stop by, grab a bite, play some games, and have a good time socializing with Keramos members. Pictured below are members of the chapter making the sandwiches and playing card games with prospective (now current) chapter members. This counted as one of the two mandatory events for the prospective members to attend, as a way for them to meet current members in a laid back atmosphere.



Students preparing grilled cheese sandwiches



Students playing a card game during the social event

Keramos Initiation - (December 9, 2019) - 19 Students

Initiation was conducted in the MSE lounge on campus, in the evening, by all the board members of Keramos. The actual ceremony is to be kept secret, but afterwards new members took a picture, and enjoyed a slice of cake, before socializing with the board members and other members present.



Current members and new members of Keramos at the initiation ceremony

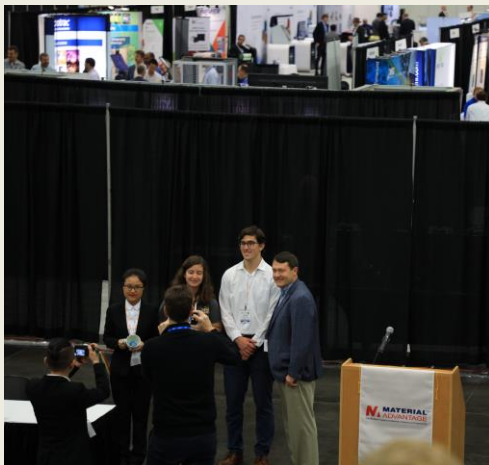
February General Body Meeting - (February 17, 2020) - 16 Students

The February General Body Meeting involved a presentation given by the board members of Keramos to let members know of the direction of the fraternity, including plans to obtain shirts for everyone. In addition, members were also told more regarding the plaques they would be required to make as part of the fraternity. Finally, future Keramos social event ideas were brainstormed and planned.

MS&T Ceramic Competitions - (September 29 - October 3, 2019) - 8 Students

This past fall members from Keramos joined other Virginia Tech students at the annual Materials Science & Technology conference in Portland, Oregon. Members attended technical talks, networked with students and faculty from other schools, and most importantly competed in the design team competitions for ceramic disc and ceramic mug. Overall, Virginia Tech had one team compete in the mug drop competition, three students throw in the disc golf competition, and one entry into the aesthetic disc competition. The mug drop team placed within the last five mugs that remained intact and one team from the ceramic disc competition won the aesthetic disc and disc golf events, along with another team coming in second place. These design competitions were a great way for students to get hands-on experience with ceramic composition, forming, firing, and finishing techniques. Using a variety of material from molded refractory clay to slip cast zirconia alumina composites.

With next year's MS&T conference being closer to home for us we plan to send even more teams to continue our streak of placements in these competitions and provide students with a source of information to pursue new and innovative techniques.



MEPS Vice President and Keramos Herald taking a picture for a competition win



MEPS and Keramos President accepting the Ruby Award for the VT chapter

Highlights of VT include winning the Ruby Award with Brian Gilmore (the outgoing President of the National Chapter) as well as the leadership representatives of the Alfred University chapter. This was accepted at the National Convocation meeting, in which Nathan McIlwaine (outgoing president) represented Virginia Tech's Keramos chapter.

Colorado School of Mines Netflix Movie Night - (April 22 2020) - 15 Students

Towards the end of April, the Colorado School of Mines chapter planned an online social event for all of the Keramos chapters nationwide to attend online. The event was a Netflix viewing party of the movie: "Spider-Man: Into the Spider-Verse." A few Keramos at Virginia Tech members were able to view the movie together online and interact with other members via the chat.

Elections for 2020-2021 Year - (April 28 2020) - 15 Students

As most of the Fall 2019-Spring 2020 officers are graduating this spring, the chapter held officer elections this April. With the onset of the stay-at-home orders issued by governors all over the country, the chapter had to adapt to unfavorable circumstances and held a meeting on the online video-conferencing platform Zoom. All members joined the video conference and watched as each prospective officer gave a short speech about their qualifications for the various officer positions. The members utilized Zoom functions such as the poll function to vote for each member. After each new officer was chosen, the old and new officers for each respective role joined a breakout subcall to relay the responsibilities of the roles and to ask any questions.

T-Shirts

This year, Keramos t-shirts were able to be designed, ordered, and delivered for our members, due to popular demand. Because of COVID-19, the T-Shirts were not able to be handed out this semester; however, our chapter is planning on sending shirts to graduating seniors who want them and will be available to be picked up by returning members next semester.



Front and back views of the t-shirt design for this year

AMERICAN FOUNDRY SOCIETY (AFS)

The American Foundry Society (AFS) Chapter at Virginia Tech is known as the Piedmont Chapter and is under the MEPS “umbrella” of materials related organizations. AFS aims to educate students and bring awareness to metal casting and foundry practices. This is accomplished through demonstrations of Foundry-in-a-Box and hosting monthly meetings during the semester to discuss scholarships, internships, and other foundry-related experiences. In addition, AFS also tours a local foundry at least once a semester.

Outreach

Women's Preview Weekend - Sunday, Apr 7; 2 groups (27 students total)

Bi-annual Open Foundry Day - Saturday, Apr 13 (81 attendees)

7th Annual Hokie Gold Ring Melt - May 9

New River Community Services - June 26 (5 students, 3 adults)

C-Tech² - July 3 (15 students, 2 advisors)

C-Tech² - July 5 (15 students, 2 advisors)

C-Tech² - July 9 (17 students, 2 advisors)

C-Tech² - July 10 (15 students, 2 advisors)

Tech Girls - July 19 (12 students, 2 advisors)

Tech Girls - July 19 (19 students, 1 advisor)

STEP - July 19 (7 students)

Tech Girls - July 24 (15 students, 2 advisors)

Tech Girls - July 24 (14 students, 1 advisor)

Office of Sponsored Projects - July 26 (4 staff members)

Office of Sponsored Projects - Aug 9 (6 staff members)

College of Engineering Alumni Homecoming - Oct 19

Bi-annual Open Foundry Day & CEED Event -- Saturday, Nov 2 (~250 attendees, 171 castings poured)

Meetings and Events

ASM Domes Day Competition at MS&T - Oct 1

AFS Student Chapter entry won 1st place award.

FEF College Industry Conference - November 21-22, 2019 - 5 Students (4 MSE, 1 MINE)

One student received a scholarship during this conference.

AFS Piedmont Chapter Meetings

Officers regularly attended the Piedmont Chapter Meetings

AFS Regional Meeting

Foundry Tour, Pouring Demonstration, and Social with GE Aviation

Students gave representatives from GE Aviation a foundry tour, including a pouring demonstration. Afterwards, GE Aviation gave a presentation on the company to the students and provided pizza as part of the refreshments. The representatives were: Jim Deines (Castings Technologies Consulting Engineer), Gary Lynn (Casting Technologies Principal Engineer), and Mike Mancini (Dayton Cores and Castings Plant Leader).

MEPS AMBASSADOR PROGRAM

The MSE department is involved with the student ambassador program, through which students in each department volunteer to assist with recruiting events for prospective freshmen. Everyone on the MEPS board is required to become an MSE ambassador; they represent about 10 out of 20 total student ambassadors in the program. In general, recruiting events typically include College of Engineering Open House, Admissions Open House, Hokie Focus, Departmental Information Sessions for General Engineering students, and individual campus visits/tours. MEPS has assisted the ambassadors with multiple recruitment events, namely the Departmental Information sessions detailed above under STEM Outreach, as well as in other open houses hosted by the university.

LETTER OF SUPPORT: DR. ALAN DRUSCHITZ



VirginiaTech

College of Engineering

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May 16, 2020

To: Materials Advantage

RE: Faculty Advisor Letter of Support

Due to the large size of our Materials Advantage Student Chapter, Dr. David Clark, Department Chair, asked Michelle Czamanske, Department Undergraduate Academic Advisor, to act as a co-advisor. Ms. Czamanske's daily involvement with our undergraduate students provides additional support for our chapter and provides the chapter officers and chapter members additional access to faculty/staff.

It is a pleasure for us to write this letter of support to be included with the Virginia Tech Materials Advantage Student Chapter annual report for the 2019/20 academic year. This was an unusually challenging year for our chapter. Our Chapter President, Nathan McIlwaine, and the Chapter Officers did an outstanding job coordinating the activities of the various materials engineering and science related professional societies and keeping our chapter active during the COVID-19 crisis that caused significant challenges for our students. We had the privilege of continuing the role of faculty/staff advisors and worked with our MA student chapter officers, under the leadership of Nathan, to continue to improve and refine the organization and operation of our chapter.

Our Chapter organized plant tours & meeting speakers, worked on outreach activities for elementary, middle, & high school students and Virginia Tech undergraduate students, participated in professional society meetings, hosted social events, and provided service to our local community. More specifically, twelve companies took the time to visit our campus and made presentations to our students, we ran four STEM outreach events (one at a local elementary school), our students attended one major professional society conference, we hosted seven social events, and we did one community service project.

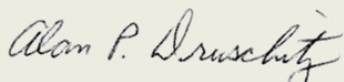
Highlights of our Chapter activities include the following: 1) our newly reinitiated Keramos chapter worked on plans to grow their chapter, 2) our ceramic disk teams took first place in both design and throwing at MS&T, 3) for the fifth time in six years, we were awarded first place in the ASM Domesday competition at MS&T, and 4) Virginia Tech materials engineering students were awarded over \$35,750 in scholarships during the 2019/20 academic year.

The changes to our officer election process made a few years ago (moving it to earlier in the semester) have been very beneficial since it provides the new and old officers plenty of time to get together, talk about how the chapter operates, what is in progress, what needs to be done and, most importantly, how to get things done. This simple change has had a significant impact in producing a smooth transition since the new officers have ready access to the expertise and experience of the past officers.

Invent the Future

We are sure that you will agree that the Virginia Tech Materials Advantage Student Chapter had a great year and is demonstrating continuous improvement. The Virginia Tech Materials Advantage Chapter has all of the attributes of a Chapter of Excellence since we have student run programming activities that help our students understand the needs and wants of the materials community, career development activities that bring our students to industry and industry to our students, we participate in a variety of service activities on and off campus, we have introduced a number of social activities to bring our students together in a stress-free environment, and our Chapter Management is strong.

Sincerely,



Dr. Alan P. Druschitz
Associate Professor of Practice, Department of Materials Science and Engineering
Materials Advantage Chapter Faculty Advisor
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540-315-5198
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ASM Member No. 020389 (since 1975) – Past-Chair Handbook Committee
TMS Member No. 435572 (since 2004)
AIST Member No. 124045 (since 2008)
ACerS Member (since 2014)

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