ASME Early Career Leadership Intern Program to Serve Engineering (ECLIPSE): A Talent Pipeline Model for Developing Early Career Mechanical Engineers into Future Leaders

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Abstract: This Lessons Learned Paper highlights my experience of a 15-months leadership internship provided by the American Society of Mechanical Engineers (ASME). Each year, ASME provides an exclusive professional development opportunity known as the ASME Early Career Leadership Intern Program to Serve Engineering (ECLIPSE). Mechanical Engineers who have completed a four-year degree with 3-10 years of work experience are eligible to apply. ASME has established this annual opportunity to develop Early Career Engineers (ECE) into future leaders within the community, strengthen their connections with peers and mentors, and expand overall membership levels across the profession.

Selected into the 2018-19 ECLIPSE Program, I had the opportunity to complete a project for the Board of Governors (BOG) in collaboration with an assigned coach. My experience included the privilege to participate in several networking and training events, travel to a series of engineering conferences including the IMECE (International Mechanical Engineering Congress and Exposition), the Board of Governors' strategic planning retreat, the ASME Boiler and Pressure Vessel Conference, and attend an ASME Annual Meeting. Being selected into this distinctive Program significantly enhanced my leadership and project management skills, and enabled me to expand my professional network. Most notably, together with fellow 2018 ECLIPSE members we developed structured material to raise awareness of the Society and highlight the many benefits to early-career ASME engineer membership and volunteerism. Content in the form of brochures and email templates included a business case and guidance for early-career individuals (less than 10 years) on how to gain support from their employer or institution for time spent performing volunteer or general membership activities in ASME. My preferred presentation format is a lightning talk.

I. Introduction

The ECLIPSE intern program is a path that ASME offers for Early Career Engineers (ECE) to spend a year working directly with senior leaders within ASME while allowing participants to gain unmatched exposure and forge their own path to leadership within ASME. The initiative began in 1992 as the Leadership Development Internship Program. In 1996, a Minority Leadership Program was introduced to focus on women and underrepresented intern minorities. In 2006, both programs were merged into what is known today as the ECLIPSE Program. As of today, 217 people have completed these collective programs. The percentage of Interns who graduated from the leadership development programs and continued their affiliation with ASME is as follows:

- More than 70% of interns have maintained their ASME membership;
- More than 35% continue to be active volunteers in ASME, holding positions including two governors, one senior vice president, and several committee/segment/unit members and leaders.

Participants selected are matched with an ASME unit, such as a sector, committee, or group, for a period of one year and work closely with an assigned coach to complete one or more projects throughout the year.

Participants travel to several meetings and networking engagements throughout the program period. These unique opportunities provide career-advancing training, the chance to meet diverse leaders and members from around the world and gateways to future engagement and leadership within the Society.

The ECLIPSE Program officially kicks off with a Leadership Workshop in April. Participants also attend the Annual Meeting in June, the International Mechanical Engineering Congress and Exposition (IMECE) in November, a second ECLIPSE Leadership Workshop the following April, and a second Annual Meeting the following June to conclude their program activities. Interns may also be asked to attend additional meetings during the year depending on their assigned unit.

Serving in the ECLIPSE program during my time as a faculty member, I was able to gain benefits personally that were shared with my students. For example, the program provided practical leadership experience at low risk and cost to my academic institution, in areas of strategic planning and execution, motivation of diverse and distributed teams, and management of large programs and budgets. By attending regular board meetings, I was brought into significant organizational-level decision making processes across ASME's long-term competitive landscape, long-range strategic planning, task forces on core technologies, and the future of relevant standards. From a networking perspective, the program kept me connected to latest trends in Engineering Technology and offered a broad network across industry, governmental agencies and academia that allowed me to develop into a more effective problem solver and Assistant Professor. My connection to volunteers leading "Technical Divisions" in ASME expanded my scientific and research collaborations with other institutions. Finally, networking events were instrumental in gaining timely insight into grant opportunities, scientific forums, conferences and engineering competitions, which enabled me to define senior projects and steer class curriculum toward future competitions.

Through my involvement in ECLIPSE, I also learned new communication strategies that have helped students to embrace their interests in engineering and deploy new ways to advocate for involvement in ASME. I have become more prepared to drive evolution in engineering education and position young engineers to be strong contributors in industry. Overall, from my personal experience in this program, I am better able to help the next generation to advocate for strong federal investment in research and development to create and mature technologies that will enhance future products in my research areas, including advanced manufacturing and novel materials.

II. The ECLIPSE Group Project

Problem Statement: ASME is a membership-based organization that has been experiencing a decline in its overall membership, particularly among ECE. Concrete actions are needed to recruit new, as well as retain, existing members. Additionally, ASME, like many professional organizations, relies heavily on volunteers who contribute to many different capacities and roles, such as serving in local sections and technical divisions. Over the years, ASME volunteers have struggled to gain employer support for time spent on ASME-related activities.

The Student and Early Career Development (SECD) identified that Employers do not always recognize the benefits of ASME membership for their employees. Therefore, the Committee requested the creation of materials that would enable ECE to more effectively communicate the offerings, engagement activities, types of research projects, and professional growth that ASME members and volunteers can gain. The effort sought to also highlight the benefits that Employers, ranging from large to small corporations, government, and academic institutions, can receive from their employee participation.

Objective: Create the business case for Early Career individuals to gain support from their Employer or academic institution to dedicate time to participating (Membership/Volunteerism) in ASME.

Content Development: After scoping the project, the team of assigned interns collaborated regularly over the course of seven months. Initial research involved assessment of existing materials within ASME as well as externally relevant organizations such as IEEE, AIAA, ASCEASHRAE, and non-engineering entities. Figure 1 demonstrates an example of the ECLIPSE Project schedule.

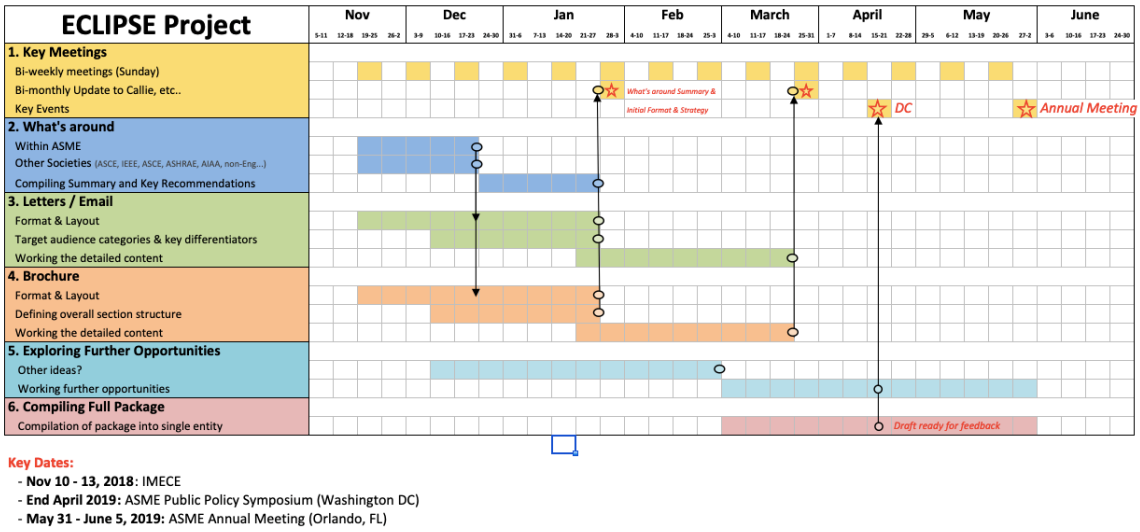

Figure 1: Project Timetable

Based on research, the team was not able to identify a clear and straightforward path for ECEs to present the ASME business case to their Employers. Therefore, it was determined that several

types of communication could be effective including letter and email templates and brochure format.

Letter and email templates: The templates were designed for individual ECEs to customize for their circumstances. They were also provided twelve key value propositions, which were peer reviewed by a panel of senior leaders within ASME, across industry, government and academia, and represent a cross section of desired growth areas that ECEs could personalize and build into their own story of involvement. Figure 2 summarizes the value propositions for involvement in ASME.

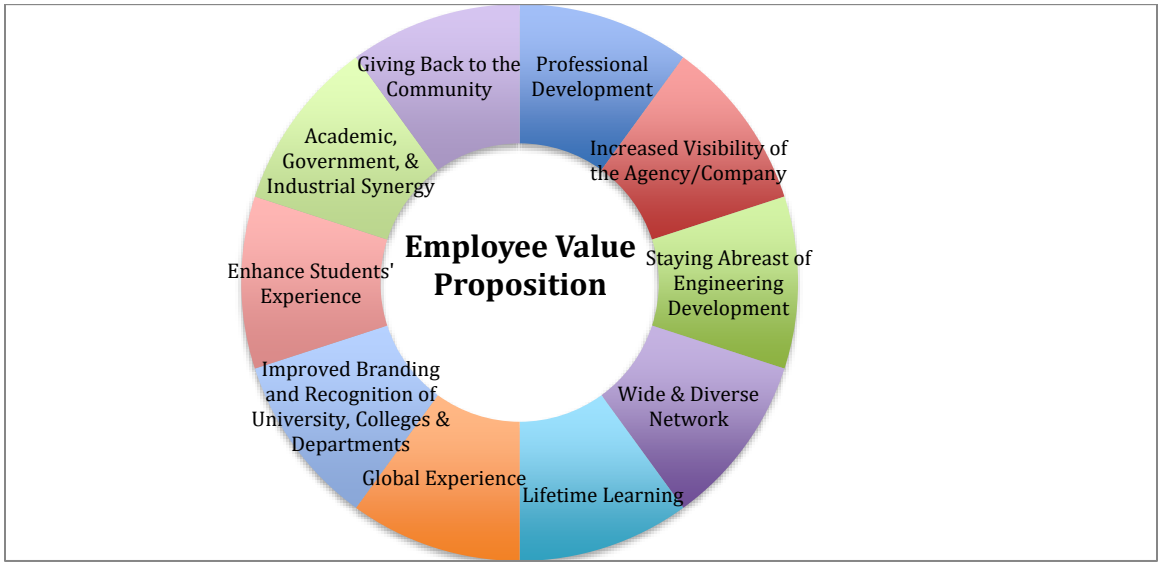

Figure 2: Value Proposition for involvement in ASME

In the above mentioned value propositions, one that directly relates to academia, "Enhanced Student Experience", is elaborated as follows in a sample letter: Early career academic faculty is actively engaged in ASME and the organization of events, to stay on top of the latest technological insights, content relevant for potential future employers, and how students can become active in the wider engineering community. This experience is vital for faculty to be able to provide enhanced mentoring of student sections, maintain relevant curricula, pursue opportunities for students to participate in workshops, conferences, and competitions, as well as to share opportunities for fellowships and funds for student projects.

Brochure: The brochure design consists of an ASME background with concise compilation of how ECEs can get involved, how employers can benefit, the approximate cost and time commitment of involvement, and how Employers can support their ECEs.

Feedback and Validation: At the end of the ECLIPSE intern program, the group presented the project to the Committee of Past Presidents and the ECEPC during the ASME Annual Meeting and incorporated feedback into the final versions.

Dissemination Strategy: An online publication was posted to ASME's website, and shared via social media as well as other accessible commonly used outlets by ECEs. Informational emails were sent to students and professional chapters on file with ASME and have become part of ASME promotional materials.

III. Conclusion

I have experienced first-hand how membership in professional organizations and programs like ECLIPSE extend benefits to employers and institutions. As an Educator, this Program was particularly positive and very relevant to the leadership and encouragement I am able to bring to my engineering students in the classroom. The ECLIPSE Program served as an extension to my previous roles in promoting growth in academic communities and excellence in education.

The ECLIPSE skills and connections have become personally invaluable to my current and future roles in developing innovative perspectives with my students whom are themselves maturing as engineers and leaders. Faculty members who find flexibility from their academic institutions to volunteer for ASME, are uniquely positioned to not only bring the benefits they gain to a classroom of many students, but also play a role in coaching ECEs to advocate for their participation under current or future employers.

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